



Uncovering the Archaeology of the Danish Trade Monopoly in Iceland (1602-1787)

Merchant Ships and Trade Ports

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Abstract

The aim of this thesis is to investigate the archaeology of the Danish Trade Monopoly Period (1602-1787) in Iceland through the analysis of two central pillars of the material infrastructure of the trade operations – namely the merchant vessels and the trade ports. Specifically, it uses two case studies to build a foundation for the archaeological study of trade in this period, one that also bridges the often-separate fields of terrestrial and maritime archaeology. During this period, the only foreign trade allowed in Iceland had to be conducted through Danish merchants and trade companies with state-sanctioned trading licences linked to specific trade ports around the country. Though central elements to the whole operation, the vessels and ports of trade have tended to be relatively overlooked and relegated aspects of this period and have not featured significantly as part of any previous narrative. Both vessels and ports occupied the *in-between* space of the monopoly trade – that is the horizon between the production centres and consumer sites – and it is within this horizon that this study places itself and which it explores through an archaeological lens.

A literature review shows how much of the past historical narrative of this period has been saturated with overtones of Icelandic nationalism, which essentially viewed the trade monopoly from a binary perspective of deliberate policies of Danish colonial oppression resulting in Iceland's economic stagnation and free market isolation. More recently, new approaches by historians have brought a changed and balanced perspective to how we might view this period. This study should be seen as part of this revisionary process, but which significantly uses archaeology to steer the narrative.

A quantitative analysis of the Øresund Sound Toll Registers, will be outlined to provide an overview of the scale of merchant shipping involved in the Icelandic trade and the dominance and influence of the Dutch during the 17th century in developing bulk cargo carriers such as the flute ship, will be outlined. Two in-depth archaeological case studies – the *Melckmeyt* shipwreck and the remains of a turf-walled building at the Arnarstapi trade port – will be presented, each shedding light on critical and connected components of the material infrastructure of the monopoly trade. Through their examination, it's possible to develop a microscale perspective of the merchant operations as well as to open a window on the arrangement of life aboard and life ashore for the crews whose daily lives played out within these social spaces.

Ágrip

Markmið þessarar ritgerðar er að rannsaka fornleifafræði einokunartímabilsins (1602–1787) með athugunum á tveimur þáttum efnislegra innviða verslunarinnar – það er rannsókn á kaupskipunum og verslunarstöðunum. Tvær tilviksrannsóknir mynda grunn fyrir fornleifafræðilegar rannsóknir á verslun á þessu tímabili, grunn sem brúar bilið milli hinna oft aðskildu sviða, annars vegar neðansjávarfornleifafræði og hins vegar yfirborðsfornleifafræði. Einokunartímabilið einkenndist af verslun sem byggði á sérleyfum, þar sem aðeins danskir kaupmenn og verslunarfélög með leyfi frá dönsku krúnunni máttu versla við Íslendinga. Þrátt fyrir mikilvægi sitt fyrir verslunina í heild, gleymast oft sjálf skipin og verslunarstaðirnir, og hafa athuganir á þeim lítið komið við sögu í fyrri rannsóknum. Skip og verslunarstaðir mynda eins konar *milli-rými* í einokunarversluninni – það er rýmið milli framleiðslustaða og neyslustaða. Það er þetta *milli-rými* sem þessi rannsókn beinir sjónum að og kannar með augum fornleifafræðinnar.

Athugun á rannsóknasögu einokunarverslunarinnar dregur fram hve margar fyrri rannsóknir hafa sterka undirtóna eldri söguskoðunar íslenskrar þjóðernisstefnu, sem leit á einokunarverslunina sem hluta af danskri nýlendustefnu sem leiddi af sér stöðnun í efnahag Íslands og einagrun frá hinum frjálsa markaði. Nýjar sagnfræðilegar rannsóknir hafa komið fram með ný sjónarmið um hvernig líta má á þetta tímabil. Þessi rannsókn er hluti þessarar hreyfingar endurskoðunar og leggur til fornleifafræðilegar nálganir.

Tölfræðilegar rannsóknir á tollaskjölum frá Eyrarsundi veita yfirsýn yfir umfang Íslandsverslunar og sýna vel áhrif hollenskra kaupmanna á 17. öld í hönnun fraktskipa, t.d. „flute“-skipanna. Tvær fornleifafræðilegar tilviksrannsóknir – rannsóknir á flaki skipsins *Melckmeyt* og rannsókir á leifum torfbyggingar á Arnarstapa – verða ræddar sérstaklega og hvor rannsókn um sig mun draga fram mikilvæga og tengda þætti efnislegra innviða einokunarverslunarinnar. Með þessa þætti að vopni er hægt að varpa upp nærmyndum af félagslegu rými verslunarinnar; á gangi verslunarinnar, lífinu um borð í kaupskipunum og daglegu lífi áhafnanna á verslunarstöðunum.

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Before beginning this study, the 17th and 18th century periods of Iceland's history were somewhat of an enigma to me and an era to which I had previously not given much consideration to. However, over the past six years, this is a world which I have gradually immersed myself in more and more and which now has essentially become my wheelhouse. There were certainly some speed bump moments in getting this study completed and at times I wondered if that day would ever come. Though it's only one name on the cover page, this study would very likely not have been completed without the help and support of many individuals and organisations. As a complete list of all of these and their various contributions would be far too long to include, I have instead attempted but perhaps understandably failed to condense this into a '*shortened*' version below.

First and foremost, thanks must go to my immediate family, my partner Rósa Björk and my son Kiljan Kormákur. A project like this required many incidences of absence both in mind and body and despite this, these guys have supported me with this project since day one. A large motivator to keep pushing on and finish came from their unflinching belief in me to do it. My parents also deserve special mention for their support and encouragement and continuous interest in my progress along the way. Thanks also to my Icelandic father-in-law Dr. Sveinn Hallgrímsson for his advice and translation assistance with many of the Icelandic sources. Regards must also go to Nick Hoogstaad and his help with decoding the many '*Double Dutch*' sources.

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A note on the nomenclature

This thesis will interchange between the terms: trade ports, trade harbours and trade stations throughout the text to refer to the non-chartered coastal trading sites which the Danish merchants operated in Iceland during the formal Danish Trade Monopoly Period 1602-1787. They are the most commonly used English terms in publications which relate to this period. These terms are employed in the prose solely as stylistic convenience dictates to reference the same site type as opposed to representing separate categories of that site.¹

¹ As suggested by Lee (1995, p. xxi) in relation to the various names used for the Irish state.

Chapter 1: Introduction

Project background

From the period 2003-2004, I worked as a researcher on the ‘*Shipwreck Inventory of Ireland Project*’ which was set up by the Underwater Archaeology Unit of the National Monuments Service of Ireland.² Working on this project, along with assisting the unit on one of their fieldwork assignments, exposed me to some aspects of the life of a maritime archaeologist, which inspired me profoundly. By the end of 2005, I had trained as a commercial diver enabling me to work in the field of maritime archaeology and since then, I have led or participated in a variety of maritime archaeological projects in Norway, Holland, Qatar and Iceland.

The genesis for this project began with my interest in exploring the remains of the mid-17th century merchant shipwreck *Melckmeyt* (en. *Milkmaid*), after I had read through the 1994 publication of Einarsson’s survey of the wreck in the journal *Árbók Hins íslenska fornleifafélags*.³ It had occurred to me that although Einarsson’s project had set a precedent at the time in terms of archaeological investigations in Iceland, a lot of questions about the wreck still remained unanswered.⁴ This was something that Einarsson (1994, p. 146) himself recognised, noting that a larger study of the wreck was indeed warranted but outside of his control and though the study was limited in scale, it was a step towards something bigger in terms of highlighting Iceland’s rich potential for underwater archaeological remains. Unfortunately, that potential was never fully realised in the intervening years since his investigations. I felt returning to the wreck site for further research was justified from a number of perspectives, primarily as it had not been fully explored and properly contextualised within the period it was active in. Following a series of discussions with Prof. Gavin Lucas, my doctoral supervisor, we decided to make the wreck investigation part of a larger thematic project called ‘*Commodity Entanglement. The Archaeology of the Danish Trade Monopoly*’ which examined two sub-themes: the archaeology of trade and the archaeology of consumption during the 17th and 18th centuries in Iceland.⁵

² The current inventory database lists approximately 18,000 shipwrecks of which the locations of 4,000 are known. These are accessible through an online wreck viewer GIS database set up by the National Monument Service - <https://www.archaeology.ie/underwater-archaeology/wreck-viewer>
To date, Volume I (Brady, 2008) of the published wreck inventory covers the eastern part of the country including the counties of Louth, Meath, Dublin and Wicklow.

³ The ship sank during a storm, off the west coast of Iceland in 1659.

⁴ This was the first underwater archaeological project conducted in Iceland.

⁵ These two sub-themes represent two related individual doctoral projects. This study by the author on trade vessels and ports and another by Jakob Orri Jónsson who has examined the archaeology of consumption through a study entitled ‘*Pots, pipes and plates: An Archaeology of Consumption in 17th and 18th century Iceland*’.

Research question and aims

This project is situated within two large lacunae of previous archaeological research in Iceland; on the one hand, targeted research on the 17th and 18th century periods and on the other, maritime archaeological research for any period of Iceland's past. In addition to this and perhaps most importantly of all, there is a recognised separation within the archaeological discipline of terrestrial and maritime archaeology (Tuddenham, 2010), which adds another layer of complexity to this issue. The focus of this study used the archaeology of trade in the Danish Trade Monopoly Period⁶ as a way to address this divergence within the discipline and also as an opportunity to help stimulate further research on this period and in maritime archaeology. This study aims to be the common thread linking these three issues and one hopes, the stone which kills three birds instead of the traditional two. And by trade, I mean specifically the materiality and practices around the buying, selling and distributing of goods.

Unlike many archaeological or historical research studies which tend to have quite specific research questions, the scope of this study will be quite broadly based and exploratory in nature particularly given the lack of previous archaeological research in this period. At its core this study aims to establish an archaeological baseline from where specific research questions might perhaps be later derived and even inspired and in that sense acts a necessary prologue. Fundamentally, the question driving this thesis is thus at one level, very general: what can *archaeology* bring to the study of trade during this period? It is framed this way because as will become clear in later chapters, there is a rich documentary and written archive for this topic – trade registers, merchant account books, property inventories, letters and diaries, and so on. We already know a lot about what was traded, when, by whom and for how much. So what does archaeology add? Put simply, it adds tangibility and concreteness; its focus on the materiality of trade means we get a different perspective, one grounded in the concrete materiality of the life and infrastructure of trade. For this thesis, it was achieved by focusing on the material remains and social conditions of the '*time away from home*' aspect of the merchants' and their crews lives who operated the trade.

It is from this general question that the thesis is able to generate two more specific objectives that form the core of the study. Firstly, understanding the materiality of the merchant ships used in the trading operations; and secondly exploring the material and

⁶ The Danish Trade Monopoly Period formally existed between the years 1602-1787. It was essentially an unrestricted monopoly on all foreign trade in Iceland and was based on two principles: the management of the trade with Iceland was restricted to Danish citizens and companies and competition between the merchants was excluded as far as possible (Karlsson, 2020, p. 162).

infrastructural layout of the monopoly trade ports which operated in Iceland during this period. These will be addressed using two case studies: 1) The *Melckmeyt* – a mid-17th century merchant shipwreck and 2) a later 17th to early 18th century turf-walled house located at one of the official trading ports in Arnarstapi. Although these objectives still remain somewhat general, they are in keeping with the general goals of the thesis which is to help carve out a research framework for the archaeology of this topic. To this end, using archaeology to explore the merchants' activities in Iceland during the Danish Trade Monopoly Period which spanned the 17th and 18th centuries not only offers a more material perspective on a period that has been traditionally dominated by historians, it also presents an approach to the archaeology of trade for a period which is largely framed within narratives of how trade goods are bound up with the construction of social identity. Laying down a road is often just as important as choosing a destination in research and this thesis certainly fits more the former task.

Choosing to focus this project on two specific site types (a trade ship and a trade port), both of which formed central and interlinked elements of the trade monopoly operations, offers an approach to archaeologically frame the intentions of this thesis. It allows a way for the narrative on this period to move beyond the borders of the historical discussion (as outlined in Chapter 2) and to explore questions which archaeological research might be better suited to answer and importantly, to bridge the gap between maritime and terrestrial archaeology. The intention here is to develop a '*thick description*', as outlined by Geertz (1973), for the two case study sites, to better understand their social contexts and to explore the material conditions of life at these places for the people who lived there and sailed aboard the merchant ships. The sites investigated as case studies represented more than just components of a logistical infrastructure bringing goods back and forth from Europe to Iceland. These were ultimately social spaces and stages where the actions and behaviours of people in their everyday lives were played out. Understanding these spaces more acutely whether through examining the evolving architectural layout of the buildings at the trade ports or delving into the construction design and biography of a trade ship allows us a window through which to view this period in a way that the surviving documentary sources cannot fully offer us, but in which they may be used to support and enhance this new perspective. This approach radically departs from prior approaches to examining this period of Iceland's history and moves it away from previously accepted historical narratives which focussed on how the trade monopoly perpetuated the economic stagnation of Iceland and stifled innovation (Aðils, 1919; Andr sson, 1988; Gunnarsson, 1983, 1987, 2017). The approach taken in this study should be viewed as a part of the more recent revisionist approaches of this period led by historians such as R bertsd ttir (2008, 2012, 2014, 2018).

The project also had important spin-offs. The fieldwork conducted on the *Melckmeyt* in 2016 and 2018 was viewed as an opportunity to test the effectiveness of digital methodologies for underwater archaeological survey and recording, the results of which, subsequently led to the virtual reality visualization of those remains as part of the exhibition ‘*Melckmeyt 1659*’ at the Reykjavík Maritime Museum (McCarthy & Martin, 2019).⁷ Communicating and disseminating the results from these approaches to the wider public beyond the confines of this thesis document was additionally to become an important goal as the project progressed. In this regard targeted and fruitful collaborations with several institutions and researchers both domestically and internationally were critical to realising this goal.⁸

Before these issues are further expanded and discussed and to better contextualise the aims and objectives of this study in higher resolution, it’s important to understand the background to the archaeology of this period and, in particular, maritime archaeology in Iceland. The following section reviews the previous work on maritime archaeology in Iceland and more briefly the results of work on terrestrial archaeological sites from the 17th and 18th centuries.

Previous maritime archaeological research in Iceland

There have been several research projects in recent years, including two master’s theses (Heiðarsson, 2013; Tyas, 2016), which have examined the theme of underwater cultural heritage in Iceland. Both theses provide summaries of the development of the Icelandic legislation regarding underwater cultural heritage and a list (albeit a short one) of past marine archaeological projects completed in Icelandic waters. These projects were generally on a small-scale, with two to five team members, and were non-invasive in nature. They included a 1993 survey of the *Melckmeyt* shipwreck by Bjarni F. Einarsson (1993, 1994) on behalf of the National Museum of Iceland (Þjóðminjasafn Íslands), an underwater survey of the harbour of Kolkuós in northern Iceland by marine archaeologists from the Viking Ship Museum in Roskilde (Traustadóttir *et al.*, 2003), side-scan sonar and dive surveys of several targeted bays and whale station sites in the Westfjords (Edvardsson & Egilsson, 2012), and a survey of the *Phønix* shipwreck in Faxaflói Bay in western Iceland (Edvardsson & Egilsson, 2015). More recently a sonar survey of the bay around the trade site of Gautavík in eastern Iceland was carried out as part of a larger archaeological investigation and re-appraisal of the site (Mehler *et al.* 2019). Moreover, a forthcoming publication by (Grassel & Edvardsson)

⁷ In June 2018, the ‘*Melckmeyt 1659*’ exhibition that was conceived and produced by the author opened at The Reykjavík Maritime Museum. See Appendix A for further information regarding the exhibition content.

⁸ The Cultural Heritage Agency of the Netherlands (RCE), The Reykjavík Maritime Museum and John McCarthy (Flinders University).

examines the potential for underwater archaeological remains associated with the Hanseatic merchant activities (1400-1600) in the North Atlantic primarily by highlighting the references to ship wreck losses from the historical sources.

Much of the commentary on the current state of research and management for maritime cultural heritage in Iceland has acknowledged that the discipline has mostly been neglected in favour of terrestrial based projects. The statistics support this conclusion. Birgisdóttir (2013) outlined that in the period from 1990-2010, of the 599 applications for archaeological research permits submitted to The Cultural Heritage Agency of Iceland (Minjastofnun Íslands) only four of those were for underwater archaeological related projects. Several maritime and lacustrine archaeological projects⁹ completed since then (including several by the author)¹⁰ can be added to the list, but this still represents only about 1% or less of the total number of archaeological research projects carried out in Iceland.

In terms of legislation, the 1989 National Heritage Act¹¹ first brought into Icelandic law specific legal protections for “shipwrecks or parts thereof, harbours and boat moorings” which were over 100 years old.¹² In 2001¹³ and 2012¹⁴, this act was subsequently amended and revised. The latter 2012 act (*Lög um menningarminjar nr. 80/2012*) defined in more detail what a cultural monument actually was and notably included ships and boats within this definition.¹⁵ Moreover, an additional update from the prior 2001 statute, included a specific protection reference to artefacts or loose objects over 100 years old found in the water or sea, a listing of harbour structures as protected archaeological remains, and also the classification of ships and boats built before 1950 as antiquities.¹⁶ For a more in-depth discussion of this issue, the reader is directed to (Tyas, 2016). Iceland is also a signatory to several international conventions and treaties relating to the protection of cultural heritage¹⁷, though has not ratified the 2001 UNESCO Convention on the protection of underwater cultural heritage.

⁹ <https://nmsi.is/frettir/elstu-thekktu-batsleifar-a-islandi-fundnar-i-thingvallavatni/>

¹⁰ Martin (2013, 2018, 2019).

¹¹ <https://www.althingi.is/altxt/stjt/1989.088.html>

¹² Article 16, *Þjóðminjalög nr. 89/189*.

¹³ <https://www.althingi.is/lagas/140b/2001107.html>

¹⁴ <https://www.althingi.is/lagas/nuna/2012080.html>

¹⁵ “Cultural monuments are considered traces of the nation's history, such as antiquities, cultural and residential landscapes, church artefacts and monuments, houses and other structures, ships and boats, means of transport, artefacts and useful objects, as well as pictures and other sources on the nation's cultural history.” Article 1, *Lög um menningarminjar nr. 80/2012*.

¹⁶ Article 3, *Lög um menningarminjar nr. 80/2012*.

¹⁷ <https://www.coe.int/en/web/herein-system/iceland>

A decade ago, Edvardsson and Egilsson (2012, p. 11) estimated that Iceland was “50 years behind other western countries” in the discipline of marine archaeology. This statement is stark but perhaps necessarily so and should be understood with the intention to raise awareness publicly and within an international audience for the considered lack of investigation and research by the Icelandic state into its own maritime cultural heritage. Lagging behind other neighbouring countries in the development of the discipline need not necessarily be considered entirely disadvantageous, however. It could be argued that the benefit lies in being in a position of adopting from the start the most effective methodological and technological developments in the field from other nations who have spent decades developing these. As the investigations of the *Melckmeyt* shipwreck by the author, carried out as part of this project have shown, technological advances now make marine archaeological research more practical and cost effective than previous decades allowed.

Both Heiðarsson (2013) and Tyas (2016) examined the challenges facing the development of underwater heritage research and management in Iceland and concluded that a combination of a lack of financial support for maritime focused research projects, a lack of awareness amongst archaeologists in general and a lack of interest in promotion by the Icelandic state’s cultural heritage agency Minjastofnun Íslands were all contributory hindering factors. The enhanced protection status (is. *fríðlýstar fornleifar*) designations of three underwater archaeological sites in Iceland¹⁸, as well as the recruitment of a temporary coastal archaeologist (is. *verkefnastjóra strandminja*) by Minjastofnun Íslands in recent times, should be considered as some steps to address this perceived lack of interest.

Tyas (2016, pp. 25-26) further highlighted the importance of this issue by identifying several existing threats to Iceland’s maritime cultural heritage from “anthropogenic and natural sources...which include inshore fisheries, aquaculture, increasing demand for harbours, shipping, maritime tourism, erosion and climate change”. Surprisingly neither Heiðarsson (2013) nor Tyas (2016) addressed the issue of the current absence of marine archaeological educational opportunities either in a practical or theoretical capacity at the under-graduate level in Iceland.¹⁹

¹⁸ <https://www.minjastofnun.is/minjar/fridlystar-fornleifar/>

¹⁹ In 2014, the author taught a 13-week (5ECTS) Master’s degree seminar course entitled ‘*Introduction to Underwater/Maritime Archaeology*’ at the University of Iceland (Háskóli Íslands). To date this represents the only specific maritime archaeological focussed third-level course taught in Iceland.

Previous terrestrial archaeological work on 17th and 18th century sites

Archaeological research in Iceland has traditionally focussed on the early Viking period (Friðriksson, 1994), with far less emphasis being placed on targeted investigations or specific research projects on the remains from the later historical or post-medieval periods (Lucas, 2012).²⁰ This has been the case despite the availability of substantial quantities of previously surveyed sites and relevant excavated material from some of the country's most important high status settlements which have unfortunately lain "un-processed and un-integrated" into any larger research framework (ibid.). Addressing this gap in the research was one of the main arguments behind the overall research project '*Commodity Entanglement*' of which this study is part. The corpus of previously excavated later historical sites can be categorised by those from low- and high- household statuses with very few representing the mid-status range. These include a number of excavated low status cottages from the 17th and 18th century (Sandártunga, Búðarabakki, Móakot) and high status settlements (Skálholt, Hólar, Reykjavík wool factory, Nesstofa, Viðey, Reykholt and Gilsbakki).²¹ More recently a large interdisciplinary research project '*Between the North and Norwegian Sea*' has examined the archaeology of the Hanseatic trade in the North Atlantic (Gardiner & Mehler, 2007, 2010, 2013; Holterman, 2020; Mehler *et al.*, 2019).²² Although this research specifically focuses on the activities of the German merchants in the North Atlantic who also held a monopoly (unofficial) on trade in Iceland in the period directly proceeding the monopoly on Icelandic trade by Danish merchants, there is still significant overlap between the two periods, in terms of the locations of specific trade ports used by the merchant vessels coming to Iceland, as Chapter 5 will outline in more detail. The results of this research have therefore provided this study with an invaluable background and a potential for viewing developments at these ports over a longer term, beyond the formal dates of the Danish Trade Monopoly Period 1602-1787. Moreover, a 2016 Rannís-funded project examining Dutch trade and whaling in Iceland in the 17th and 18th centuries may in future provide some useful comparative results with those from this project.²³

²⁰ Lucas's (2012) overview of the investigated later historic sites in Iceland is still accurate almost a decade after he examined this issue, so the reader is directed to that for a more detailed summary.

²¹ For further information see: (Lucas, 2009, 2010, 2012; Lucas & Ævarsson, 2017; Lucas & Snæsdóttir, 2006; Lucas & Hreiðarsdóttir, 2012; Roberts *et al.*, 2002; K. P. Smith, 2009; Snæsdóttir *et al.*, 2006; Sveinbjarnardóttir, 2012; Traustadóttir & Zoëga, 2006; Traustadóttir *et al.*, 2009).

²² The weblog for the project is: <https://fishandships.dsm.museum/>

²³ The project named after a Dutch folk song about sailing north and fishing in the Icelandic waters is called "*Allen die willen naa Island gaan*", *Verslun og hvalveiðar Hollendinga á Íslandi á 17. og 18.*

Integrating maritime and terrestrial archaeology

The often exclusive approaches of maritime and terrestrial archaeological research from each other is not a recent occurrence.²⁴ Since the emergence and development of nautical archaeology in the 1960's through the pioneering work of Bass (1966, 1967) in developing and establishing the methodologies of 'doing archaeology' underwater, through to the processual definition of maritime archaeology²⁵ by Muckelroy (1978, p. 6), there has been a tendency to view maritime archaeology as a marginal field and somehow "less serious than archaeology on shore" (Tuddenham, 2010, p. 7; Westerdahl, 2008).²⁶ Westerdahl's (1978, 1992) definition of the *maritime cultural landscape* went some way to bridge this divide. Essentially "it comprises the whole network of sailing routes, old as well as new, with ports and harbours along the coast, and its related constructions and remains of human activity, underwater as well as terrestrial" (Westerdahl, 1992, p. 7). Using this definition it can be argued that the focus of this study has been an exploration of specific aspects of the maritime cultural landscape of the Danish Trade Monopoly. Exploring two main facets of the trade operations bridges boundaries (disciplinary and logistic) and can establish a unity based on being parts of such a landscape perspective. However, it's important not to get too complacent and comfortable within these definitions, as Westerdahl (2008, p. 191) cautioned that treating subjects with an exclusively maritime perspective can at times lead to an excessively narrow scope on that perspective to the detriment of the study. Though oftentimes the debate of what maritime archaeology actually represents has been an issue of semantics, there can be real-world and practical ramifications to its definition in terms of legal protections afforded, management jurisdictions, funding, as well as site access (Gately & Benjamin, 2018, p. 20). Perhaps the focus should be more about the archaeology as part of maritime archaeology rather than explicitly focussing on the categorical terminologies (ibid.).

During the 17th century, both case study sites (the *Melckmeyt* shipwreck and the Arnarstapi trade port) represented critical infrastructural elements from the same operation and together were active within the same *in-between* space horizon, between the original producer and end consumer as outlined previously. To ignore or highlight one over the other, particularly in a study like this, where trade is the governing theme, would be to take a myopic and

²⁴ See (Tuddenham, 2010) for a more in-depth overview of this issue.

²⁵ The scientific study, through the surviving material evidence, of all aspects of seafaring: ships, boats and their equipment; cargoes, catches, or passengers carried on them, and the economic systems within which they were operating; their officers and crew, especially utensils and other possessions reflecting their specialised lifestyle.

²⁶ See (Gately & Benjamin, 2018) for an overview of the background and definition of maritime archaeology.

problematic approach (Lucas *et al.* 2021). It is fitting, therefore, that this study should seek to integrate and interpret the results of investigations from both case study sites together rather than view them as unrelated and separate examples of maritime and terrestrial archaeological sites.

Conceptual framework of the thesis

The in-between space

In relation to this project's specific focus on the Danish Trade Monopoly Period, the perspective to examine trade and exchange has been framed from the position of exploring the *in-between* space of the trading operations – that is the horizon which contains the movement of goods between the production centres and the consumer sites – examining in detail some of the main mechanisms (merchant ships and trade stations) which were operating within that space (Lucas *et al.* 2021). The underappreciated importance of ships as agents of global cultural exchange in the early modern period has been highlighted by Kahlow (2018). She further noted the subordinate role that research into the transportation of cultural objects by sea has taken to focused studies on the actual objects themselves and argued for the importance of shipwrecks with their sealed deposits as a means of understanding and appraising cultural exchange (*ibid.*, p. 17).

Long before the invention of the internet and amazon.com, foreign objects and goods were still being traded and exchanged between different groups, although through much slower, costlier and more complex exchange networks in which the social dynamics were often as meaningful as the objects themselves (Dillian & White, 2010, p. 3). Exchange and trade became the mechanism for introducing the exotic into daily life, which has continued at pace into the present day (*ibid.*). Putting this into context, it's estimated that the last 500 years have resulted in the dispersal of more objects and debris around the world than in any period in the preceding two million years of human history (Hall, 2000, p. 14).

Humans are clearly a species that have placed and continue to put a lot of effort into acquiring and exchanging objects. This desire in the past ultimately drove innovations in shipbuilding and navigation, as trade over land was superseded by the ocean-borne movement of goods, with ships acting as “bearers of reciprocal cultural exchange” (Kahlow, 2018, p. 16). With trade being such a central theme to this project, it's important to acknowledge and be aware of the main arguments and theoretical approaches which archaeologists have previously taken when interpreting trade and exchange in the past. A brief overview of those approaches follows in the section below. Definitions of both trade and

exchange are needed as the monopoly trade was largely (cashless) conducted without coins or notes but was instead based on a credit system recorded in merchant's accounts books and although nominally it relied on money as a unit of account, most debts were paid in goods rather than cash. This system persisted in Iceland until the end of the 19th century (Gunnarsson, 1983, p. 18).

Defining trade and exchange

Since the diffusionist theories of Montelius in the early 20th century, archaeologists have been trying to understand and explain the reasons governing the movement of goods between different cultures and communities.²⁷ These theories were later considered a product of their time and were recognised as being too narrow focussed, over simplified, and mechanical or could be viewed as Renfrew (1970, pp. 207-208) put it “a hardened sterile dogma” (R. M. Adams, 1974, p. 142; Steward, 1955, p. 182). In the 1950's Childe's (1950, p. 16) ‘*urban revolution*’ theory viewed the occurrence of trade, in particular foreign trade, as one of ten key criteria for the development of urban states in past prehistoric societies.²⁸ Childe however did not focus much attention on the dynamics or mechanisms of trade but more the longer-term cultural effects he saw arising as a result of it. Though his conceptual approaches to explain urbanisation have been expanded upon, his basic model of it still has relevance in contemporary accounts of state and city evolution (M. E. Smith, 2009, p. 16).

Polanyi (1944) first proposed the opposing formalist and substantivist economic models from which much debate and influence ensued in studies of exchange during the 1950's and the following decades (Earle, 2010, p. 206). Formalism viewed trade in the same way as that suggested by orthodox economics – focusing on rational decision-making in terms of costs and benefits using more quantitative approaches, while substantivism saw the economy as more embedded in social structures and practices, defining itself more from how a society organized the means of provisioning itself (Dillian & White, 2010, p. 5; Earle, 1982, p. 2; Hodder, 1982, p. 202). Essentially the distinction between the two models was about differing types of analyses – one being measured by output and performance while the other was more concerned with the social contexts of exchange (Hodder, 1982, p. 200). Polanyi *et al.*, (1957, p. 243) viewed the relationship between formal economics and human behaviour as being subject to chance and “outside of a system of economic analysis, loses most of its relevance as a method of inquiry into the working of the economy”. Polanyi *et al.*, (ibid., 244)

²⁷ These were used to explain the movement of individual or multiple traits between cultural groups (Agbe-Davies & Bauer, 2010b, p. 30).

²⁸ The others included: urban centres, full-time specialists, monument public building, surplus product, isolating of ruling groups, written language, art, social solidarity and state formation.

argued that the substantivist approach led to a broader understanding as it took into account both economic and non-economic issues; specifically, both the social and the political contexts of economic behaviour (Earle, 1982, p. 2).

Colin Renfrew's (1975, pp. 41-43) contribution to the trade and exchange debate put forward ten theoretical approaches²⁹ to model modes of trade in past pre-historic societies based largely on regression analysis and statistical modelling. He believed that each mode had specific spatial relationships to human settlement which could be monitored using archaeological material culture (Earle, 2010, p. 296). He advocated that the scale and intensity of a society's trading relationships could be accurately mapped and measured by the quantification of imports within assemblages, while the objects themselves could be used to tell the stories of these relationships (Agbe-Davies & Bauer, 2010b, pp. 30,35). During the 1970's the main goal of exchange studies was to describe the spatial patterns of traded materials and to propose the mechanisms that distributed them (Earle, 2010, p. 205). This goal dovetailed alongside technological advances³⁰ being made within the field of archaeological material culture analysis which directly led to the possibility of establishing reliable artefactual provenances.³¹ Once identified, these sources could be geographically plotted to create maps of commodity movement as well as to identify spatial patterns of materials set alongside patterns of material fall-off in order to identify various mechanisms of exchange (Agbe-Davies & Bauer, 2010b, p. 34). Sourcing was considered to be one of three necessary interrelated questions which the pre-historian needed to address in order to properly describe exchange. The other two included describing the spatial patterning of the commodities and reconstructing the organisation of the exchange (Earle, 1982, p. 3). Though commendable for offering new ways to interpret and spatially represent trade and exchange in pre-historic societies of the past, these models were criticised for their over-reliance and attention on economic dimensions of trade and for not adequately dealing with the problem of multiple trade modes producing similar spatial distributions of traded goods (equifinality) (ibid., p. 35; Earle, 2010, p. 207; Hodder, 1974).

²⁹ 1) direct access to desired commodities, 2) home-based reciprocity, 3) boundary reciprocity, 4) down-the-line trade, 5) central place redistribution, 6) central place exchange, 7) middleman trading, 8) emissary trading, 9) colonial enclaves and 10) port of trade.

³⁰ Instrumental neutron activation analysis (INNA) and X-ray fluorescence (XRF) – (Earle, 2010, p. 206). Today a number of other chemical characterisation techniques for artefact analysis exist including: proton-induced x-ray emission/proton-induced gamma-ray emission (PIXE-PIGME), laser ablation inductively coupled plasma mass spectrometry (LA-ICP-MS), (Dillian & White, 2010, p. 7).

³¹ Inductively coupled plasma mass spectrometry (ICP) was employed on ceramic artefacts recovered from fieldwork at the case study sites during this project.

Trade as a social activity

The 1980's saw a shift in perspective and a focus on the "symbolic and ideological dimensions of exchange" (Hodder, 1982, p. 199). In Hodder's view, exchange of specific objects in the past may have represented a deliberate intent to legitimise dominance in local hierarchies. Earle (2010, p. 207) viewed this change as a "turning point" away from regional descriptions towards understanding local patterns of exchange where there was "meaning in action"³², while others objected to this perspective and felt the dominance of social theory left limited space for analysis of cultural interaction (Agbe-Davies & Bauer, 2010b, p. 37). Contemporary studies of trade and exchange seem to amplify Hodder's views on the importance of social aspects of trade in the past. A traded object may have been considered exotic to its owner and valued highly for that reason but may also have been desired for its ideological value due to other symbolically attached associations it had, including knowledge and power (Cobb, 2000, p. 34).

World systems theory and commodity chain analysis (CCA), though first proposed by economists and economic historians such as Hopkins & Wallerstein (1977) in relation to capitalist world economies since 1500, seem to be now gaining traction again and going through a resurgence and reimplementation by archaeologists involved in trade studies (Bair, 2009, p. 7). In fact, we can add global commodity chains (GCC) and global value chains (GVC) to the economic history/trade studies lexicon (ibid.). In its basic form, a commodity chain denotes "a network of labour and production processes whose end result is a finished commodity" (Hopkins & Wallerstein, 1986, p. 159). For any specific commodity its chain comprises a sequence of actions from resource extraction, to manufacturing, to global distribution, and local consumption (Earle, 2010, p. 210). Commodity chain analysis can be a very useful approach to contrast patterns of distribution and consumption over time, as demonstrated by Topick's (2009) analysis of the globalised coffee trade over a 500-year period. Whilst there is a tendency to view the established chains as rigid and one-directional, he noted them to be "flexible, dynamic and varied" in character (ibid., p. 37). There is value in this approach for exchange studies where the inter-connectedness of exchange networks with political and social systems is highlighted and makes an effort to bridge the "chasm" between prehistoric and historical archaeology (Dillian & White, 2010, p. 12).

In the last decade, the perspective that trade and exchange encompasses more than just production and consumption has been a favoured direction amongst researchers (Dillian &

³² Examples of this approach in the 1980's were the anthropologically inspired '*prestige goods*' models, where elites acquired access to '*exotic*' objects as a means to elevate their status (Cunliffe, 1988; Thurston, 2009).

White, 2010, p. 3). A more modern definition of exchange refers to the transfer of goods from one party to another through a wide range of mechanisms, ranging from ritualized gift exchanges to the negotiated transactions of barter and markets and also the one-way exchange of coercion and piracy (Agbe-Davies & Bauer, 2010a, p. 15). Trade is considered to be a specific category of activity in which the exchange is more formalized and market based, both in the individual interaction and on a systemic scale (ibid.). Formal trade can take many shapes, occurring as remunerated transactions, barter and direct or indirect interactions between groups and individuals (Dillian & White, 2010, p. 4). Dogan (2008, p. 34) echoing Adams's (1974) views from four decades earlier, makes the valid point that the evolution of trade should not be viewed as a linear thing and that every step of its evolution had its own history, because the times, places and cultures in which trade operated were different.

Previous archaeological approaches to examining trade have often failed to explore the transitional or liminal *in-between* spaces in which the trade and exchange has taken place. This is something which DiPaolo Loren (2010, p. 197) noted in relation to previous studies of trade and exchange in historical archaeology which she felt were not concerned with the location or manner of the exchange itself but on rather "how the exchange of material goods and the incorporation of distant things allowed for new constructions and understandings of social identity". It could be argued that by its very nature trade-at-a-distance or maritime based trade requires and creates more overtly liminal spaces for exchange to take place than would, for example, trade conducted by peddlers moving through the landscape or stores managed and maintained by neighbours, friends, or known community members. Ultimately the focus of this study is on exploring the mechanisms of commodity movement and the social forces and contexts which framed these journeys rather than any overtly methodological approach, where the transit element of the commodity is often taken as a given part of its journey from producer to consumer.

Methods and data

The research methodology for this study essentially followed two parallel tracks. One sought to assess the extant archaeological archive of excavations and surveys in Iceland which had taken place at or nearby to any of the 17th-18th century official Danish trading ports, in order to establish some basic baselines in terms of known data sets. This involved collating and synthesising primary and secondary historical sources, unpublished excavation and survey reports and published articles. References to ships and shipwrecks were also factored into this research but as the *Melckmeyt* wreck had originally been selected as a high potential research site for the project, alternative underwater targets were not considered such a

critical requirement. The project's scale during this stage was countrywide in order to gain an accurate assessment of what archaeological remains existed presently at the former trade port sites. From this perspective, the scale could be refined to a more manageable and realistic level as specific case study sites for fieldwork were identified.

The development of an archaeological dossier (K. Martin, 2017a) of the trade monopoly ports was the initial step in providing the first real overview as to the archaeological condition and further potentials that could be expected at these sites prior to selecting specific locations for targeted fieldwork. The dossier was created through the combination of a desk-based study targeting references to the ports and also direct on-site walkover inspections by the author in 2016 and 2017. Following this, the trade ports were rated and ranked primarily in terms of their further archaeological potential for contributing to this study, protection status and logistical access. Moreover, the overall project timeframe and budgetary constraints were also factored into the decision process which culminated in the final selection of Arnarstapi as the case study site.

The second track of the research methodology focussed on collecting new data relevant to this project through archaeological fieldwork at two sites identified through the results of the first track (namely the Arnarstapi trade port and the *Melckmeyt* shipwreck). As a side element to this phase, the ceramic assemblage previously recovered from the *Melckmeyt* during the 1993 project was catalogued and interpreted.³³ Moreover, archival references to the *Melckmeyt* within the Amsterdam City notarial archives were also accessed and researched.³⁴

After the two case study sites had been selected on the basis of a literature review, reconnaissance surveys of both sites were undertaken to assess their current conditions and the feasibility of conducting further research on them, given logistical, safety, and practical concerns.

The remains of the wreck were found to be completely overgrown with kelp and sea vegetation. Two large ballast stone mounds were visible, and some exposed timbers were evident which were overlain with a light covering of silt and sand. Due to the shallow depth of the wreck (<10m), its sheltered position within the natural harbour of Hafnarey and the good timber preservation observed during the three dives made, it was considered viable to

³³ (Lucas, 2017). See Chapter 4.1, Specialist analysis, Ceramics assemblage for more details.

³⁴ (Heijink, 2017). See Chapter 4.1, Biography of the *Melckmeyt* for more details.

attempt a larger-scaled investigation which subsequently took place in 2016 with an additional season of work at the site in 2018.

The 2016 project was a more general focussed survey project that attempted to expose as much of the wreck as possible within the limited timeframe, to gain a better insight into the preservation conditions of the remains and to identify key elements of the ship's construction which survived along with any associated artefacts such as the remains of previous cargo. A dendro-chronological sampling analysis of the wreck timbers was carried out as well as a photogrammetric recording of the exposed area of the wreck. The 2018 season was a more targeted approach that sought to expand the survey area beyond the previous limits of the 2016 season and gain more insights into the original design, construction, and shape of the ship's hull.³⁵

For the terrestrial element of the fieldwork two seasons (2016 & 2017) of targeted excavations were conducted at a previously unknown structure at Arnarstapi. The site was first cored and test-pitted in 2016 which confirmed the presence of relevant 17th-18th century archaeological deposits and features concentrated in a specific area. In the 2017 season, this area was targeted, and six test trenches were excavated exposing the remains of a previously unknown later 17th century turf-walled structure, which based on the recovered associated artefactual remains, belonged to a higher status household.

Outline of the thesis

Chapter 2, which follows, provides an overview of the historical narrative of the Danish Trade Monopoly Period in Iceland. It presents the main perspectives that historians in the past have taken when describing this period, framing their discussions around two main narratives of how the monopoly isolated the island or stifled domestic innovation from developing. It subsequently discusses how in more recent times perspectives are changing and undergoing major re-appraisals with more revisionist, balanced approaches being considered. Chapter 3 explores the development of merchant shipping technology during the Trade Monopoly Period and highlights the role of the Dutch in revolutionising this area. It also examines the evidence recorded in the Danish Sound Toll Registers regarding merchant vessels involved in the Iceland trade recorded in the Danish Sound Toll Registers and discusses the types of merchant ships coming to Iceland in this period. Chapter 4 examines the existing body of research on shipwrecks and maritime archaeological research

³⁵ The collaboration with John McCarthy (Flinders University) during the 2018 season was specifically based on addressing this aspect, as his doctoral research focused on creating a digital library of Dutch ships and examination of the *Melckmeyt's* shape and hull design was part of a case study for his research (McCarthy, 2020).

in the North Atlantic. With this background established the discussion segues to the case study of the *Melckmeyt* shipwreck. A biography of the vessel will be outlined as well as an overview of the results of the archaeological investigations on the wreck. A subsequent discussion follows this, focused on the ship's crew and the '*life on board*' aspect of merchant ships at the time. Chapter 5 brings the narrative to the terrestrial element of the study and explores the trade monopoly ports. It begins with an assessment of what they may have represented in terms of Danish colonialism in Iceland and their potential role in the question of urbanisation. It also examines the arrangements of contemporary trade ports and coastal sites within other peripheral areas of the Danish-Norwegian realm to better contextualise the Icelandic sites. A summary of previous archaeological investigations of the early to later medieval coastal trading sites in Iceland follows. The second part of this Chapter focusses on the trade monopoly ports themselves and the results of prior archaeological research at them and, based mostly on historical references, suggests a model for examining their infrastructural development over time. Lastly, the results of the excavations of the case study site at Arnarstapi are presented and discussed. Chapter 6 delves into the overlooked space between the terrestrial and maritime zones and highlights the archaeological potential of these areas in relation to remains from the trade monopoly era. This precludes a more general discussion for maritime heritage management in Iceland moving forward in the context of increased coastal developments and their impacts on underwater cultural heritage sites. Finally, Chapter 7 will recap what we have learned through this study, assess its limitations, and offer some suggestions for the direction future research on this period can take. An overview of the dissemination and public outreach elements of the study will also be presented. Appendix A outlines the '*Melckmeyt 1659*' exhibition devised by the author for the Reykjavík Maritime Museum.

Chapter 2: Historical overview of the Danish Trade Monopoly Period in Iceland

The word monopoly derives from the Greek *monopōlion* “right of exclusive sale”, which itself is a combination of two words: *monos* “single, alone” and *pōlein* “to sell”.³⁶ It can be further defined as “the exclusive right of a person, corporation or state to sell a particular commodity” (Lerner, 1934, p. 157).

Iceland’s isolated geographical position in the North Atlantic and relatively few natural resources beyond fish, sulphur and (after settlement) wool has ensured a dependence by its population on imported goods to supplement domestic resources since the Norse settlement in the late 9th century CE. This dependence gradually increased in regularity and consistency since the 13th century with mainly fish and woollen products being exported in exchange for cereals, wood, metal goods and alcohol (Gelsing, 1981; Þorláksson, 2017). By the 17th and 18th centuries – the period of interest in this study – these same commodities were still in transit, though the trade now also included an increase in imported luxury goods such as fine pottery, glassware and tobacco pipes, which is attributed with the rise of a trans-Atlantic consumer culture (Kaller & Jacob, 2019; Lucas *et al.*, 2021). This historical overview will be divided into two main parts. The first part will be a general chronological outline of the Trade Monopoly Period and the second part will discuss some key themes and issues that have framed the previous historical narrative of this period.

German dominance comes to an end

It’s evident that the foundations for the 186-year period of Danish Trade Monopoly (1602-1787) in Iceland were laid in the latter half of the 16th century as the culmination of the deliberate actions and restrictive policies of the Danish King Frederick II (reigned 1559 - 1588), in regards to the arrangement of the Icelandic trade, which at that point was predominantly in the hands of German (Hamburg & Bremen) Hanseatic merchants³⁷ who were renting licences for individual harbours from the Danish Crown and essentially for a time operating a trade-monopoly-by-proxy for the Danes (Holterman, 2020, pp. 103-107;

³⁶ Source: <https://www.etymonline.com/word/monopoly> , (Barnhart & Steinmetz, 1988, p. 674).

³⁷ The Hanseatic League began as an association of north German merchants and developed in the mid-14th century into a community of cities which in its heyday comprised nearly 200 maritime and inland towns (Dollinger, 1970). Hanseatic merchants first came to Iceland in 1423 (Freidland 1984). By the 16th century the league was already in decline and was disbanded in the mid-17th century (Dollinger, 1970).

Karlsson, 2000).³⁸ In 1561, the lucrative sulphur³⁹ trade which had been largely in the hands of Bremen and Hamburg merchants was monopolised by the King, and this act is considered a prelude of the increasing restrictions on foreign merchants which then followed (Mehler, 2015, p. 209). In 1563, attempts to disrupt this German dominance was clearly evident with the trade privileges at the specific Icelandic harbours of Arnarstapi, Rif and Grundarfjörður, being granted to Danish merchants rather than the Hamburg merchants, who, by 1574, were totally prohibited by the Crown from any continued trade with Iceland (Holterman, 2020, pp. 109-112).⁴⁰ From an archaeological perspective, it's suggestive that the increasing regularities of restrictions and uncertainties of the trade port licence terms would likely have led to a reduction in infrastructure investments by the German merchants in Iceland consequently resulting in fewer potential remains of buildings existing from this period at these locations today. Though without archaeological investigations at these sites, this suggestion is unconfirmed. From their perspective it makes sense; why invest resources into harbour facilities and port structures when their trade privileges could be revoked or not renewed?⁴¹ An additional directive issued in 1608 by Christian IV (reigned 1588-1648) to demolish all the existing Hanseatic merchant buildings at the Icelandic trade ports may have also played a major part in reducing the surviving archaeological footprint from the Hanse merchants at the port locations today (Holterman, 2020, p. 227).⁴² The fact that this directive was issued in the first place suggests that by the end of the first decade of the 17th century, there was still a substantial quantity of buildings still standing at the ports of which the Danish merchants were likely to have made use. Despite these interventions of Frederick II and Christian IV, the formal monopolising of the Iceland trade for Danish merchants only was a lengthy process and the German merchants still played a part in running the Icelandic trade up until 1620's (Grassel 2017, p. 223; Gunnarsson, 1983, p. 61; Holterman, 2020; Karlsson, 2000, p. 139; Mehler, 2015, p. 202).

³⁸ These included "the prohibition of the sulphur trade to foreigners and the grant of a monopoly on this trade to Stefan Loitz. Additionally, he also prohibited the sale of horses, fox and bear skins and walrus and whale teeth to foreigners before they had been offered to the Danish officials on the island" (Holterman, 2020, p. 107).

³⁹ A commodity considered almost as profitable as fish (Mehler, 2015, p. 202) citing (Baasch, 1889, p. 78).

⁴⁰ Despite this prohibition, the Hamburg merchants continued to trade with Iceland (though under more restrictive and time-limited harbour licences) until the start of the Danish trade monopoly in 1602 (Holterman, 2020, p. 113). They still remained active in the Icelandic trade beyond this as Grassel (2017, p. 223) noted that between 1603-1623 an average of three ships per year travelled from Hamburg to Iceland with this number increasing to seven ships for the years 1617 and 1618.

⁴¹ "The risk of losing a harbour to competitors was a real problem, made even more acute by the extensive extension of credit, which left merchants in danger of holding a great deal of debt on Iceland that they could not reclaim in case of loss of a licence" (Holterman, 2020, p. 113).

⁴² The original reference Holterman cited for this is (Ketilsson, 1776, p. 244).

Organisation of the Danish trade monopoly

Officially, the monopoly of all trade with Iceland to Danish merchants or citizens of Copenhagen, Elsinore (Helsingnøre) and Malmö (then still part of Denmark) – was enacted by royal decree on the 20th of April 1602 (Aðils, 1919; Karlsson, 2000; Lovsamling for Island, Vol. 1, p. 138).⁴³ This was a deliberate mercantilist⁴⁴ policy of King Christian IV to legitimise, maintain and strengthen Danish claims to its North Atlantic territories of Greenland, Iceland and the Faroe Islands, and moreover should be viewed as part of a larger global trade expansion by the Danes into parts of Asia, Africa and The West Indies, mirroring the better known trade companies of the Dutch and English (Blussé & Gaastra, 1981).⁴⁵ The charter of 1602 included articles which aligned and conformed to previous Icelandic laws and traditions enforced by the Icelandic elites which tied the monopoly system into the existing ‘archaic socio-economic system’ with its specific measurements, weight values, fixed prices and strict regulations about merchants over-wintering, hiring Icelanders and investing profits from the trade back into the domestic economy (Gunnarsson, 1983, pp. 27-28). Holding back technological innovations⁴⁶ particularly in the fisheries was a deliberate strategy of the Icelandic landowners who feared that “independent fisheries would threaten their control of resources, ratepayers that an influx of would-be workers would enlarge the poor rolls, and farmers that alternative employment would give independence to landless workers and bargaining leverage to servants” (Vasey, 1996, p. 370).

⁴³ “The Danish monarchy after 1660 comprised the Kingdom of Denmark, the Kingdom of Norway with the North Atlantic possessions of the Faeroes, Iceland and Greenland*, together with the Duchies of Schleswig and Holstein” (Feldbaek, 1981, p. 135). *From 1721.

⁴⁴ His father and predecessor, King Frederick II (1534-1588) had previously introduced mercantilist policies to the North Atlantic trade (Holterman, 2020, p. 103). Mercantilism was an economic approach which became popular in Europe from the 16th-18th century. Its premise was improving the wealth of the state through foreign trade, where colonial or external possessions should serve as markets for exports and suppliers of raw materials to the mother country through trading monopolies and privileges Source - <https://www.britannica.com/topic/mercantilism>

⁴⁵ Examples of which included: The Dutch East & West Indian Companies, and within England, The Eastland Company which controlled the trade with Scandinavian countries and the Baltic, The Russian Company, The Levant company which traded with the Mediterranean region, the East India Company in Asia, the African company, The Virginia Company, Plymouth Company and the Hudson Bay Company all related to trade with a particular area of North America (Blussé & Gaastra, 1981).

⁴⁶ The use of fishing lines with multiple hooks as well as worm bait was forbidden by the Icelandic courts during the 16th & early 17th century (Gunnarsson, 1983, p. 169).

Period	Organisation responsible for the monopoly trade
1602-1619	Individual merchants
1620-1662	The Iceland, Faroe & Northland Company
1662-1684	Four Merchant Groups
1684-1732	Separate Traders Period
1733-1742	The Second Icelandic Company
1743-1759	The Chandlers Guild (Flaxmongers Company)
1759-1764	Royal Trade Company
1764-1774	The General Trade Company
1774-1787	Second Royal Trade Company

Table 1. Period and responsible organisation of the monopoly trade with Iceland. Source: (Aðils, 1919; Gunnarsson, 1983).

Throughout the monopoly period the Icelandic trade was operated by several different organisations for various time periods as listed in Table 1. Initially, the trade was operated by individual merchants who bid for licences to operate at 22-27 specific ports around Iceland and it was arranged more or less as it had been during the latter years of the 16th century (Table 2).⁴⁷ This arrangement was shared between merchants from Copenhagen who catered for six harbours, those from Elsinore who took seven and merchants from Malmö also took seven harbours (Karlsson, 2000, p. 139). The ports were located at known and previously used natural anchorages or harbours around the country with the greatest density of them situated in the southwest, west and northwest (Figure 1). One of these trade ports, Arnarstapi, featured as the location of a case study for this project (Chapter 5.2). Once the trade licence was issued it became obligatory for each merchant to make use of it regardless of the potential economic outcome or an increased loss-of-profit risk such as in times of famine or war (Gunnarsson, 1983, p. 28). The odds of profit however were always stacked in the merchants' favour as "profits were acquired through the exports, not through the imports" (ibid., p. 33). A statistical examination of the number of ships involved in the trade has shown that during periods of company organisation of the trade, fewer ships sailed to Iceland than during periods when the trade was in the hands of individual merchants (ibid., p. 67). The main reason behind this was that often ports situated close together would be serviced by the same ship. On average, over the entire trade monopoly period, 21 ships per year were

⁴⁷ Not all of the trade ports operated simultaneously or for the entire duration of the Trade Monopoly Period. Some were used only temporarily such as anchorages at Hrutafjörður and Straumfjörður. Operations at others such as Kumbaravogur were suspended in 1662 and combined into those at the nearby port of Grundarfjörður. See Table 11, Chapter 5.1 for further details of the trade port timelines.

employed (Table 2) with records from the Chandlers Guild Third Iceland Company 1743-1759, indicating the annual average size of the fleet during this period was approximately 1,500 commercial lasts which divided by the number of ships the trade at this time (20) indicates the average ship size was about 75 commercial lasts (ibid., pp. 61, 66).⁴⁸ Analysis by Gunnarsson (1983) of the Sound Toll Registers for the same period for ships arriving from Iceland indicates that the size of vessels varied in relation to the importance or size of the trade port it had departed from, with the range of ship size of 31-126 lasts (62-152 tonnes) being recorded (ibid., p. 66).⁴⁹ There was evidently not such a dramatic increase in terms of the average number and size of ships used in the Icelandic trade when comparing the period of German trade in the 16th century and the Danish Trade Monopoly Period. Written sources from the mid-16th century indicate a vessel size range of 35-100 lasts (70-200 tonnes) and a sailing frequency of 15-22 ships per year, rising to 25 ships per year in the latter decades of the 16th century (Holterman, 2020, pp. 139-141). The *Melckmeyt*, estimated to be 140-150 lasts (280-300 tonnes)⁵⁰ in size, was evidently an outlier in terms of the average size of Danish merchant ship involved in the monopoly trade during the 17th and 18th centuries, which, based on the lastages of ships recorded passing through the Øresund Sound Toll with Iceland as a destination, was 58 lasts.⁵¹

⁴⁸ 1 commercial last = 4000lbs = 2 tonnes (Gunnarsson, 1983, p. 81).

⁴⁹ See Chapter 3, The Danish Sound Toll Registers for a more detailed analysis of the Sound Toll Registers in relation to the Iceland bound merchant shipping.

⁵⁰ (Heijink, 2017).

⁵¹ See Chapter 3, The Danish Sound Toll Registers.

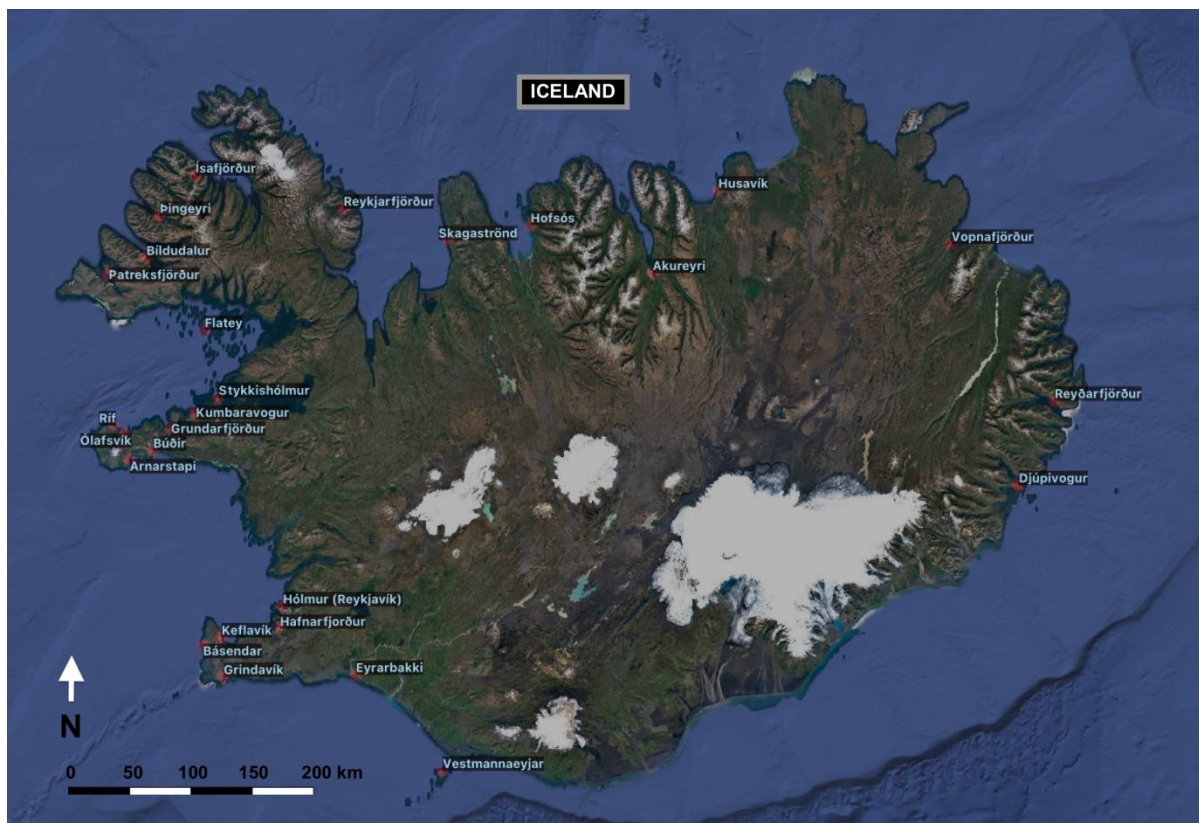


Figure 1. Location map of the licenced trade ports used by the Danish merchants in Iceland during the period 1602-1787. Source: Map based on (Gunnarsson, 1983, p. 58), using Google Earth as background map layer.

From 1620-1662 the responsibility for the overall trade was in the hands of the Iceland, Faroe and Northland Company, which comprised a group or 'brotherhood' of 36 merchants mostly based in Copenhagen (Aðils, 1971, p. 92; Karlsson, 2000, p. 139). The members were referred to as 'brothers' and the company seems to have been arranged along the lines of a medieval trade guild, closed to outsiders with no admission into the company except through the consent of all its members (Aðils, 1971, p. 93). The year before saw market prices for imports and exports fixed by the Crown, in line with the internal trade prices which had existed in Iceland since the High Middle Ages (Gunnarsson, 1983, p. 28).⁵² The radical departure from the previous policy of leasing individual harbours to separate merchants and the fixed pricing decree issued by the Crown coming within a year of each other was a way to strengthen the merchants negotiating position and also cut out the reliance on German merchants continued involvement in the Icelandic trade which was still occurring particularly associated with merchants from Malmö (Aðils, 1971, p. 89; Gunnarsson, 1987, p. 77). This reliance on outsourcing the trade with Iceland to non-Danish merchants and ships did not

⁵² The 1619 price list was updated in 1684 which proved less favourable to Icelanders and in 1702 the old list was reissued with some slight changes. This was used until 1776 when a new price system was introduced roughly in line with European market prices (Karlsson, 2000, p. 141).

necessarily stop once the 'brotherhood' took over in 1620, as records of boats passing through the Sounds Toll evidence. A royal decree issued in 1634 to combat this issue required the company to only use ships from its own fleet for the Iceland trade and it was given five years to get its affairs in order to achieve this (Gunnarsson, 1983, p. 61). Although Danish ships in the trade increased after this decree, the company was still relying on five to six non-Danish (mainly Dutch) ships per year from 1639-1657 (ibid.).

Though profitable over a few decades of its tenure in the monopoly trade, the cumulative impact of issues⁵³ arising out of the Danish-Swedish War of 1657-1660, proved to be too much for the company to overcome and by 1662 it was bankrupt (Þorláksson, 2004, p. 54). Contrary to the fate of the company, the war's impacts on the monopoly trade with Iceland opened opportunities for a number of enterprising individuals, including the Amsterdam-based Danish merchant Jonas Trelund, who sent Dutch merchant ships to Iceland during this period when no Danish ships at all made the journey (Aðils, 1971, p. 111; Simon Thomas, 1935). One of the seven ships sent by Trelund in 1659 was called *Melckmeyt* and it sank during a storm off the west coast of Iceland in October of that year. The remains of this ship represented one of the case study sites examined in this study and will be explored in more detail in Chapter 4.1.

After the war, absolutism was introduced by the Crown in Denmark in 1660 (Karlsson, 2000, p. 140) and the responsibility of the monopoly trade was essentially shared amongst groups of four merchants, most of whom had supported the King in increasing his authority (Gunnarsson, 1983, p. 55).⁵⁴ Iceland was divided into four trade regions and each of the groups apportioned equally the fish and meat ports within those regions amongst themselves from 1662-1684.⁵⁵ The use of non-Danish ships by the merchants was still a regular feature of the trade in this period with as much as 50% of the ships used between 1661-1670 being registered outside of Denmark and most sailing directly from Iceland back to the Netherlands or northern Germany with their exported goods (ibid., p. 65). Royal decrees issued in 1671 and 1674 attempted to address this by allowing the merchants to use boats from Schleswig and Holstein as the reality was that the Danish merchants did not own big enough fleets themselves to operate the trade (ibid., p. 66). Further decrees issued in 1677, 1683, and 1692 recognising this reality formally granted the merchants permission to have foreign ships involved in the trade (ibid.; 2017, p. 254).

⁵³ These included the Swedish capture of Danish merchant ships and cargo and the rise in commodity prices which drove profits down (Aðils, 1971, p. 109; Þorláksson, 2004, p. 54).

⁵⁴ This group included the merchant Jonas Trelund who had relocated to Copenhagen in 1662 in order to gain a more legitimate foothold in the Icelandic trade (Aðils, 1971, p. 114).

⁵⁵ Most of the ports in the west and northwest were classified as fish ports given their proximity to the rich offshore fishing banks.

Period	Ports	Ship no.
1602-1613	23	19-22
1614-1619	23	19-23
1620-1641	23	18-22
1642-1657	22	17-21
1662-1663	25	20-22
1664-1680	26	20-22
1681-1706	24	20-22
1707-1732	24	22-23
1733-1742	24	20-23
1743-1758	24	19-20
1764-1776	24	20
1777-1787	25	20-21
Avg.	24	21

Table 2. Estimated number of merchant ships and ports involved in the monopoly trade with Iceland 1602-1787. Source: (Gunnarsson, 1987, p. 85, Table 5.2).

The monopoly arrangements changed again in 1684, driven mostly by the Crown's attempts to extract more revenue out of the Icelandic trade. Separate port licences were auctioned to the highest bidder regardless of their competency or experience in expediting the trade, a new trade price list was introduced which increased the price of imports in relation to the price of exports as well as stricter rules and punishments governing the trade districts within Iceland which until 1706 effectively tied each customer to their local trade port, thereby removing any competitive elements from cross-district trade which had previously existed (Gunnarsson, 1983, p. 55, 2017, p. 258; Karlsson, 2020, p. 141). Records indicate that during the period 1684-1706 the Crown's revenue grew higher with every trade port licence auction but the new rules of district trading were taking their toll on the local population which was dwindling in number due to low fertility rates arising from low nuptiality rates caused by the prevailing economic woes (Gunnarsson, 1983, p. 16). To address this demographic crisis and reduce the increasing economic peril many Icelanders found themselves in, in the early 18th century penalties of trading beyond one's specified district were lowered so that trading outside of district limits became a viable option for local producers even if fines were imposed. The former commodity fixed-price list from 1619 which had been in use prior to 1684 was also reintroduced and continued to be used without any major updates (apart from

some minor changes in 1702) until 1776 (*ibid.*, p. 56)⁵⁶. The Crown also proposed, in 1701, to allow the merchants to stay in Iceland during Winter to ease issues of supply but this was vehemently protested by the Icelandic elites who eventually won out on the issue (*ibid.*, p. 24).

The Separate Traders Period which lasted almost 50 years ended in 1732 when the Second Iceland Company took over the reins of the monopoly trade. This company was largely formed by individual merchants who had been involved in the Icelandic trade previously and who brought along not only their experience in the trade but also their existing infrastructure possessions as an investment contribution to the new company's foundation (*ibid.*, p. 84).⁵⁷ From this point onwards until the end of the monopoly the trade would stay in the hands of companies rather than revert back to individual merchants. The Second Iceland Company secured a ten year lease for trade at all the Icelandic ports for an annual rent of 8,000 Danish rigsdalers (from here on referred to as rdl.), however, at the end of the lease the Crown had doubled the annual rent to 16,000 rdl., which proved too much for the company and the trade now moved to the control of the Chandler Guild (Flaxmongers Company) (Aðils, 1971, p. 186; Karlsson, 2020, p. 141).⁵⁸

The Chandlers' Guild had been selling Icelandic commodities including train (whale) oil, tallow, salted meat and dried fish since 1722⁵⁹ in the Copenhagen markets and their primary reason for securing the monopoly trade to Iceland was to secure the monopoly on Icelandic commodities being sold in Copenhagen. In 1743, they obtained a lease of ten years on the Icelandic trade, but this was changed with their subsequent takeover of the Finnmark trade in 1745 when both leases were combined and extended to 1771 or 18 years (Gunnarsson, 1983, p. 92). Many members of the Chandlers' Guild had been founders of the Second Iceland Company and from 1732-1733, 32 of the 100 shares of this company were owned by members of the Chandlers' Guild (*ibid.*, p. 90). By 1742, most of the experienced merchants in the Iceland trade had left the Guild leaving only those inexperienced to manage it moving

⁵⁶ Prices of commodities were fixed in this trade with no free bargaining allowed. The Danish crown determined which prices should exist and until 1776 they essentially corresponded with the former price lists in Iceland's internal trade which had been in use since the High Middle Ages. (Gunnarsson, 1983, p. 28). The following are the references to the main fixed-price lists issued by the crown in the years 1619, 1684, 1702, and 1776: Forordning om Taxten paa den islandske Handel. Khavn 16/12 1619". Lovsamling for Island. I. 1096-1720. pp. 184-194; Forordning om den islandske Taxt og Handel. Khavn 6/5 1684". Lovsamling for Island. I. 1096-1720. pp. 415-425. Forordning om den islandske Taxt og Handel. Khavn 10/4 1702". Lovsamling for Island. I. 1096-1720. pp. 563-575; Forordning om den islandske Taxt og Handel. Fredensborg 30/5 1776". Lovsamling for Island. IV. 1773-1783. pp. 314-353.

⁵⁷ These included: remaining goods (exports and imports), houses with all effects (inventarium), outstanding debts based on IOU's (Gunnarsson, 1983, p. 84). The houses reference the existing structures at the trade ports in Iceland.

⁵⁸ The exact figure paid was 16,100 rdl. (Gunnarsson, 1983, p. 91).

⁵⁹ By royal decree (Gunnarsson, 1983, p. 90).

forward (*ibid.*, p. 94). This issue came to a head in 1756 when a royal committee was appointed to investigate their trading standards and practices and particularly the constant negative reports of their spoiled grain imports to Iceland. The companies' own specific focus on the interests of the Copenhagen markets over traditional German markets led to an increased export from Iceland of meat products with less emphasis on fish exports with a resulting decline in imports to Iceland (Gunnarsson, 1987, p. 132).⁶⁰ As a way to stimulate the companies' abilities and help raise their supply standards, the royal committee lowered the annual trade lease rental by 50% for the years 1756-1758, but it was a case of too little too late. A perfect storm of factors including: periods of serious famine in Iceland and population decline⁶¹ during the late 1750's which drastically affected export supplies, as well as the fall in the relative price of exports by as much as 46% and the deteriorating grain supply in the Baltic as a result of the Seven Years' War made their position untenable, and by the end of 1758, they had relinquished their trade privileges in accordance with the royal committees previously set out conditions (Gunnarsson, 1983, pp. 92,96; Karlsson, 2000, p. 141).

Perhaps as a result of others observing the dwindling fortunes of the Chandlers' Guild, no bids were made in the public auctions to manage the Icelandic trade in 1759, which in turn compelled the Crown to take over the entire trade itself for the next five years under the stewardship of the newly formed Royal Trade Company (Gunnarsson, 1983, p. 119). Despite the hardships described in relation to the 1750's, some economic reforms had also taken place in Iceland and these included the establishment of the Privileged Icelandic Company in 1751 which was set up by Icelandic officials and several wealthy farmers with the considerable support of the Crown (Róbertsdóttir, 2018, p. 29).⁶² The aim of the company was the "general regeneration of the Icelandic economy, involving all areas apart from trade", which remained monopolised (*ibid.*, p. 30).⁶³ Moreover, the overwintering of merchants at the Hólmur (Reykjavík) trade port from 1759 and their employment of locals during parts of the year also represented a shift from previous policies (*ibid.*, p. 42).⁶⁴ It is estimated that in the second half of the 18th century there were, on average, about six to

⁶⁰ These declining imports included timber and iron and also production goods, such as hemp, flax and fishing lines (Gunnarsson, 1983, p. 98).

⁶¹ This is estimated to be as much as 6,000 people between 1751-1759 (Jackson, 1982, p. 45).

⁶² The supports from Copenhagen included "positive policy, privileges, two big ships, capital, tools and materials as well as skilled artisans and farmers with families who moved to Iceland to take part in the development" (Róbertsdóttir, 2018, p. 34).

⁶³ These reforms included development of the fisheries using decked ships, the setting up of a tannery, textile and shearing workshops, a fulling and stamping mill, dye-works, agricultural experiments around the country, sulphur mining and rope making (Róbertsdóttir, 2018, p. 29).

⁶⁴ Financial records from the merchant at the Hólmur port in 1762 show there were 24 Icelanders including several women in his employment that year doing various jobs who received an average per diem wage of 8 fishes (Róbertsdóttir, 2001, pp. 195,198).

twelve people (150-300 in total) including Danes and Icelanders working at the merchant stores in each of the trade ports (Róbertsdóttir, 2012, p. 106). Though the Royal Trade Company had taken over the Iceland trade out of necessity and despite contributing little to no risk capital into the trade, by 1764 they had returned a profit, which may be attributed in part to the efficient running of the company by its director Niels Ryberg (Gunnarsson, 1983, pp. 119-120, 2017, p. 267).

In 1764, interest had once again returned amongst the companies in operating the trade monopoly with Iceland and it was taken over by the General Trading Company, which had been one of the biggest trading companies in 18th century Copenhagen, who ran it for a decade until 1774 (Gunnarsson, 2017, p. 267). The General Trading Company already had their fingers in a number of overseas trading pies, including the Greenland trade, the North Atlantic whale fisheries and the triangular trade of African slaves and the products of sugar plantations based in the West Indies (Gunnarsson, 1983, p. 120). Along with the Iceland trade, the company had also acquired the Finnmark trade privilege. Whilst linking Icelandic exports into profitable new markets in southern Europe and the Mediterranean, this expanding trade portfolio had clearly over-extended their reach, and with substantial losses piling up from their many ventures they were ultimately bought out by the Crown in 1774.⁶⁵

The last company to run the trade monopoly with Iceland before it was abolished in 1787 was the Second Royal Trade Company. A cameralist economic approach “placing emphasis on production (or labour) as a source of wealth” was now promoted as a direct result of the absolute monarchy rule and state ownership of the trade company was one pragmatic policy considered helpful in achieving this, all of which came as a direct result of the absolute monarchy rule (Gunnarsson, 1983, p. 138).⁶⁶ One of the main differences between the first Royal Trade Company (1759-1774) and the Second Royal Trade Company was that the latter was run as an independent trade company separate from the state finances (ibid., p. 139). A radical change in the economic policy resulted in the trade becoming “capital intensive”, with the company getting directly involved in the fishing activities in Iceland using its own newly imported decked vessels for fishing and transport (ibid.). Levelling of hayfields and the sale of church and crown lands also took place (Vasey, 1996, p. 370). These developments particularly in the fisheries overlapped well with those promoted earlier in the 1750’s by the Privileged Icelandic Company. The restrictions on merchants overwintering were also abolished for the whole country and by 1777 it became obligatory for them to offer

⁶⁵ Average profits from the Iceland trade over the period 1764-1774 were 3,938 rdl. from an annual average turnover of 229,024 rdl. which represented only 1.7% net profit (Gunnarsson, 1983, p. 121).

⁶⁶ A cameralist approach saw the longer-term economic development of the North Atlantic provinces as being of vital interest to the Danish state rather than a sole short-term goal of operating a monopoly trade for profit by private enterprise (Gunnarsson, 1983, p. 138).

year-round trade (Róbertsdóttir, 2018, p. 42). This resulted in increased investments in infrastructure at the 24 trade stations then in use, including more permanent timber houses for the merchants and their families as well as warehouses for the trade goods (Gunnarsson, 1983, p. 140). The records show, however, that prior to 1777 investments in more permanent infrastructure at several of the trade ports was already taking place and this issue is further explored and addressed in Chapter 5.1. The direct trade between the Mediterranean and Iceland which had developed during the era of the General Trading Company was now further promoted and grew as an important source of revenue particularly during the period 1774-1782 (*ibid.*, p. 139). Profits also increased with a rise in fish prices due to a drastic reduction in fish exports from North America to Europe during the American War of Independence (1775-1783) (*ibid.*).

Buoyed by this growing profitability, a rising optimism in the success of the monopoly trade led to the adoption of a new trade charter in 1781, which outlined a continuation of the trade monopoly in Greenland, Iceland, Finnmark and the Faroe Island for the next 30 years or until the end of 1810 (*ibid.*, p. 140).⁶⁷ However, two events which occurred in the summer of 1783 changed this plan and more or less sealed the fate of the monopoly trade under the Second Royal Company. The first was the eruption (and subsequent effects from the ash fallout) of the Lakagígar volcano in June which continued until February of the following year and the second was the ending of the American War of Independence in September of 1783 which led to a resumption in fish exports to Europe from America and a decline in prices for Icelandic fish in the European markets (*ibid.*, p. 144).⁶⁸ The Second Royal Trade Company continued operating in 1784 and surprisingly maintained their normal fish purchase export quotas despite the prevailing hardships going on around them (*ibid.*, p. 145).⁶⁹ Mutton, rather than fish, comprised a more important component of the Icelander's diet supplemented with dairy products such as butter, skyr, and whey so this issue might explain the fish stock availability for export as well as the significant population decline (Gunnarsson, 1983, p. 17; Jackson, 1982, p. 44).⁷⁰ Moreover, records show that the merchants actually exported more

⁶⁷ Three new trading companies: Det Vestindiske Handels Kompagni (1778), Det Östersöisk-Guineiske Kompagni (1781) and Det Dansk-Norske samt Slesvig-Holstenske Handels of Kanalkopagni (1782) were formed and though profitable initially this was short-lived and they were bailed out by the Crown after the war ended in 1783 (Gunnarsson, 1983, p. 140).

⁶⁸The ash fallout from Lakagígar prevented the normal growth of grass around much of Iceland, which resulted in catastrophic declines in domesticated animal populations between 1783-1784. Losses have been estimated at 10,000 cattle or 50% of the total stock, 27,000 horses or 75% of the total stock and 190,000 sheep or 80% of the total stock. This in turn led to widespread starvation and famine amongst the Icelandic population with an estimated 9,000 people dying or 20% of the total population over the next three years (Jackson, 1982, pp. 44,47).

⁶⁹ Fish exports in 1784 were the same level as the annual average of the previous 10 years (Gunnarsson, 1983, p. 146).

⁷⁰ An estimated 60% of the daily caloric intake for an Icelander consisted of milk products in 1703 (Gunnarsson, 1983, p. 17).

food out of the country than they brought into it during the period of 1783-1784 (Gunnarsson, 1983, p. 144). The capital-intensive directions which the trade monopoly had taken were dependent on an expanding domestic economy where production increased year-on-year and had a knock-on effect on the company's income. From 1784-1787 this did not happen, and despite maintaining normal fish and wool commodity export levels for some of this period, losses mounted up in the company's Icelandic and Copenhagen stores (*ibid.*, p. 146).

In 1786, six trade ports⁷¹ in Iceland received official royal town charters which established them as the main regional commercial trade centres in their areas, and included a licence for foreign trade, but by this point the Danish state had decided to wind up the activities of the Second Royal Trading Company (its own company), and in the summer of 1787 the Iceland trade was expanded and opened up to include independent merchants and traders from all over the Danish-Norwegian state with no obligations on them to trade at specific ports or districts (Gunnarsson, 1983, p. 147). The Second Royal Trading Company, on the other hand, was still obliged to carry on trade at all of the 25 Icelandic trade ports used in 1787 further exacerbating its losses with its obligations to the Icelandic trade ending in 1788 (*ibid.*). Changing ideologies relating to agricultural reforms in Denmark along with the Crown's hesitancy to bail out the trade company, ultimately brought the 186-year monopoly to an end (*ibid.*, p. 148).

In the decade that followed, mostly due to the unfixed commodity prices, values of exported fish more than quadrupled while the prices of imports to Iceland also increased though not so substantially as the exports (Þórhallsson & Joensen, 2014, p. 201). This meant that those Icelanders who traded fish benefitted the most whilst poorer sections of the population only saw their situations getting worse than even during the monopoly times (*ibid.*).⁷² The Napoleonic wars (1803-1815) effectively severed regular Danish merchant shipping to Iceland and after the British bombardment of Copenhagen in 1807 the Danish merchant fleet was lost to Britain which shortly afterwards had taken control over shipping in the North Atlantic.⁷³ Following this, in addition to British merchants now trading directly with Iceland, Danish merchant shipping was permitted to again sail to Iceland, initially under the guise of humanitarian reasons. In the period 1817-1834 an average of 55 ships (2,342 commercial lasts) was recorded going to Iceland, rising to 70 ships (3,200 commercial lasts) in the year 1840 (Gunnarsson, 1983, p. 149; Þórhallsson & Joensen, 2014, p. 201). In 1854, trade with Iceland was officially opened to merchants of all nations (Gunnarsson, 1987, p. 207).

⁷¹ Reykjavík, Vestmannaeyjar, Grundarfjörður, Ísafjörður, Akureyri and Eskifjörður (Valsson, 2003, p. 106).

⁷² In the period 1787-1807 an average of 56 merchant ships (2,275 lasts) sailed to Iceland each year (Gunnarsson, 1983, p. 149).

⁷³ This came as a result of the Danish siding with Napoleon in the war (Þórhallsson & Joensen, 2014, p. 201).

Imported and exported commodities

Imports

The range of imported goods transported by the Danish merchants to Iceland during the monopoly reflected the basic types of resources and raw materials which Iceland generally lacked such as grains, wood and metal (Table 3). In addition to these necessities, *luxury* and special-order products (dk. *bestillingsgods*) or (dk. *commissionsgods*) also featured on the import manifestos of the merchants and will be detailed separately below (Róbertsdóttir, 2012, p. 72).⁷⁴ Ground flour and cereals including rye and corn-meal, barley, oats and buckwheat were the most substantial import commodities and a source of frequent complaints from the Icelanders regarding their quality (Aðils, 1971, pp. 436-437). In terms of the quantities being imported, the records indicate that in 1645, 4,000 barrels were imported, and this reflected the average import level during this period (Þorláksson, 2004, p. 59). In the 18th century, these quantities increased, and figures indicate 8,000 barrels annually came in over the decade 1732-1742, while 9,000 barrels came in 1745, and 12,000 in 1754 (ibid.). By 1770 this had increased to 11,000-13,000 barrels per year (Aðils, 1971, pp. 438-440). Baked goods in the form of wheat bread (is. *skonrok*) and black bread known as ships-bread (is. *skipsbrauð*) and pepper cakes (gingerbread) were also popular (ibid.). Gunnarsson's (1983, p. 47) analysis of the prices of import commodities during the monopoly period evidenced that for the *necessities*, including grain, their prices were undervalued by the merchants while in the case of the 'luxuries' such as brandy, they were overvalued. The merchants often required a luxury item to be purchased with the flour (Þorláksson, 2004, p. 59). The idea behind this was that in return for selling commodities like rye at below cost prices (by as much as 40%) they could recoup their losses and eventually even make substantial gains through the sale of codfish which they accepted in exchange for the rye with very low relative values and which afterwards in the Copenhagen markets sold for up to 300% more than their barter exchange rate in Iceland had valued it (ibid., p. 40).

After food consumables, wood and timber for boat and house building were the next most frequently purchased imports. Iceland's natural forests had been in decline since its settlement in the late 9th century through a mixture of exploitation for fuel, house building and deforestation for animal grazing (Smith, 1995) and though substantial quantities of driftwood were known to be available, particularly in the northern parts of Iceland, these were mostly controlled by the wealthy farming elites and bishoprics and so were not easily accessible or

⁷⁴ *Hagskinna* (G. Jónsson & Magnússon, 1997, pp. 434-443) provides a good overview list of the import and export products to and from Iceland in the period 1625-1819 and is referenced in Table 3 of this study. See (Aðils, 1971, pp. 436-514) for a detailed overview and discussion of the main imports and exports during the monopoly period. See also (Bjarnadóttir, 2014) for a discussion of excesses in Icelandic society in the late 18th century.

a viable resource options for the majority of the Icelandic population (Kristinsson, 1995, p. 34). According to Aðils (1971, p. 445), timber imports were divided into two main categories: tree wood (is. *trjáviður*) and cut boards (is. *borðviður*). The merchants were generally not transporting timber cargo longer than 6.5m (11-12 *álnir*) and instead imported mostly lengths up to 3.4-4.6m (6-8 *álnir*) (ibid.).⁷⁵ From the merchant's perspective timber was a bulky commodity to transport and returned less profit than more portable high value items such as spirits, but under the monopoly rules they were obliged to import basic raw materials such as timber regardless of the expected profit margins. The types of wood imported included oak from Germany, Norwegian/Danish pine and spruce as well as larch from Sweden (ibid., p. 446).

Iron and metal goods of copper, tin, bronze and brass including tools, utensils and domestic pots, kettles and containers were also frequent imports (ibid., p. 450).⁷⁶ Due to the expense of the boiler cauldrons many of the poor in society would rent these from wealthier farmers in their regions rather than buy them for themselves and this was still evident even in the early 18th century (Þorláksson, 2004, p. 60). Around the mid-17th century, the merchants started importing cheaper Dutch cast iron cauldrons (considered by some to be of lower standard) which perhaps made these types of items more easily accessible amongst the population (Aðils, 1971, p. 451).

⁷⁵ One Icelandic *álnir* equalled 0.57m (Ólsen, 1910, p. 5). One Danish *alin* equalled 0.63m (Gestsson, 1968, p. 47). The figures listed are converted to metric using the Icelandic measurement.

⁷⁶ This included anvils, hammers, tongs, axes, shovels, knives, scissors, files, locks, nails, horseshoes, rivets, kettles, buckets, basins, cauldrons and boilers (Aðils, 1971, p. 450).

Food Beverages and alcohol	
Rye, Meal	Malt, Hops
Other cereals, un-milled	Spirits
Peas	Wine
Hardtack	Beer
Dark bread	Mead
Barley	Coffee
Pearl barley	Sugar & treacle
Other cereals, milled	Other foodstuffs.
Other import products	
Tobacco	Paper
Soap	Salt
Iron and steel	Tar
Coal	Hemp
Whetstones	Timber and related products
Panels	Stringers
Nails	Building materials of stone and glass
Indigo	Other raw materials
Cotton and linen fabrics	Burlap
Woollen fabrics	Other textiles
Hats and caps	Lines
Fishing lines and hooks	Twine
Net yarn	Woollen yarn and thread
Horseshoes	Ironware and other hardware
Barrels and manufactured articles of wood	Miscellaneous products
Other manufactured products	

Table 3. A list of imported commodities to Iceland 1625-1819. Source: (Jónsson & Magnússon, 1997, p. 436, Table 10.5).

Many of the iron and metal import items were tools and utensils connected with areas of domestic agricultural production and housekeeping.⁷⁷ Imports for fisheries included iron farming tools, tar to make fishing boats watertight, fishing lines, hooks and yarn for net-making (Þorláksson, 2004, p. 61).

Luxuries and special imports

In terms of luxury goods imported to Iceland during the 17th century, few records from the merchants themselves survive and (Aðils, 1971, pp. 469-473) suggested that special orders during this period were mostly limited to wealthier individuals in society such as bishops, lawyers, magistrates and the clergy (Róbertsdóttir, 2012, p. 101).⁷⁸ Probably the most cited order list of special imports in the 17th century, subsequently used by historians to illustrate the gap between the rich and poor at the time in Iceland is that of Þórður Þorláksson Bishop of Skálholt (held office: 1674-1697) whose tastes included: smoked bacon (pork), smoked

⁷⁷ Axes, funnels, ropes, pumps, scales, taps, pans, pots, sieves, ladles, taps, razors, knives, brooms, brushes, shovels (Róbertsdóttir, 2012, p. 92).

⁷⁸ Aðils (1971, p. 471) references special orders of gravestones, baking ovens, gold and silver items.

herring, German sausages and beer, sugar, raisins, prunes, almonds, cinnamon, pepper, mustard, nutmeg, plums, cloves, cardamom, ginger, horseradish, slippers, rubber boots, suede boots, pig-skin-boots and a gilded silver necklace chain (Aðils, 1971, pp. 471-473). During this time luxuries were also being sent as gifts to Icelandic officials from abroad, as the gift in 1663 of two barrels of sugar (is. *sykurtoppa*) from the merchant Jonas Trellund to the local sheriff (is. *sýslumaður*) Eggert Björnsson at Skarð in western Iceland shows (Þorláksson, 2004, p. 61). Due to a lack of historical sources for the 17th century period it's difficult to estimate how frequent or rare orders of special imports by the general public were occurring. At this time it's likely amongst the ecclesiastical orders particularly the bishoprics that special orders were a more regular occurrence. By the mid to late 18th century, the documentary sources evidence that special order imports by the general public particularly of tobacco, sugar and coffee were an increasingly regular occurrence.

Róbertsdóttir's (2012) analysis of the merchant store books from 1784 provided a very detailed insight into the types, quantities and values of special-order goods which were coming into Iceland via the merchants in the later 18th century and the regional buying habits of people of various social classes around the country. Special imports amounted to 667 different product types and approximately 1.4% of the total value of imports in the Icelandic trade in 1784 (ibid., pp. 87-88). The inventory lists show that over 80 types of special ordered foodstuffs were imported to Iceland in that year including more than ten types of spices such as ginger, pepper, cinnamon, saffron, cloves, nutmeg, cardamom, anise, cumin, mustard and all-spice (ibid., pp. 80, 88). Dried fruits, including raisins, currants, prunes, plums, lemons, figs, cherries, apples and pears were also popular (ibid., p. 80). Owing to developments and efforts in Iceland since the mid-1750's of domestic vegetable cultivation, seed imports had become an established special import by 1784 and the store books show as many as 30 species of seeds⁷⁹ were imported into five ports (Grindavík, Básendar, Keflavík, Hafnarfjörður and Patreksfjörður) with most going to the latter (ibid., p. 81). Vegetables and herbs including kale, beets, turnips, radishes, celery, spinach, marjoram, thyme and parsley were also noted (ibid., p. 82). Clothing, textiles, fabrics and wigs were also imported. Construction materials⁸⁰ were also featured, reflecting the growing adoption of Danish styles of architecture and interior decoration, which were starting to be more commonly seen in Iceland amongst the upper classes in the later 18th century, perhaps initially inspired by the merchants' own houses at the trade ports and from there influencing

⁷⁹ This included tobacco seeds imported to Básendar where people attempted to grow tobacco (Róbertsdóttir, 2012, p. 82).

⁸⁰ White sand, windows, locks, bricks, hammers, nails, lime, multi-coloured paints and dyes (Róbertsdóttir, 2012, p. 90).

those living nearby also featured (ibid., p. 90). Additionally, large furniture items and tableware⁸¹, though less common than food orders were also coming into the country. Many of the artefacts including ceramics and clay pipes recovered during the two seasons of fieldwork at the case study excavation site in Arnarstapi were likely originally special-order products which were imported into Iceland through the Arnarstapi trade port directly opposite the excavation site. These included bricks, ceramics, timber panels, leather and even a glazed oven tile fragment (part of a larger oven which no longer survived), (K. Martin, 2017b). In terms of the respective economic backgrounds of the people making special orders, it wasn't just those members of the upper classes (public officials, merchants and their employees, craftsmen, major landowners, clergy) who featured, but in fact, Icelanders without status made up the majority (60%) of the customers (Róbertsdóttir, 2012, p. 101). By the end of the 18th century and continuing into the 19th century, criticisms of the masses for luxury consumption pervaded as the consumer culture in Iceland steadily developed. As products such as alcohol, coffee, sugar and tobacco became more easily accessible the perception of them being luxuries shifted to recognising them more as necessities. The use of import tariffs in the late 19th century to control consumption developed out of this normalisation of luxury imports (S. H. Sigurðsson, 2010).

Exports

Fish in the form of stockfish⁸² or dried codfish (is. *skreið*) or (dk. *plattfisk*) was by far the biggest export commodity from Iceland during the monopoly period as it had also been in the centuries previously when the German merchants had operated the trade. This is not surprising as it was the commodity which had achieved the most profits for the merchants on the international markets (Gunnarsson, 1983), (Figure 3). Aðils (1971, pp. 477-514) lists the other export commodities from Iceland and these are also listed in G. Jónsson & Magnússon (1997, p. 436 - See Table 10.5) where they are divided into marine and agricultural products which is referenced in Table 4 with an additional entry of gyrfalcons to the list by the author. The monopoly trade ports themselves were categorised and valued accordingly by the Crown based on their exports of either fish or farming products with one port (Reykjarfjörður) specifically specialising in the production of shark liver oil for the export trade. Icelandic climatic conditions with its long winters and perpetual winds were particularly suited to the production of stockfish which requires the fish to be hung outdoors on racks or laid flat on

⁸¹ Glasses, porcelain, dishes, bowls, coffee cups, sugar baskets and silverware (Róbertsdóttir, 2012, p. 93).

⁸² Defined as air-dried fish made from species of the cod family (*Gadidae*), typically cod (*Gadus morhua*) but including other species also. Etymologically the name is thought to derive from the German/Dutch 'stock' meaning stick, in that after drying the fish was as hard as a stick. Moreover, the method of hanging the fish to dry from horizontal wooden racks (Old Norse: *stokkr*) as seen still today in Iceland and Norway might have lent itself to the English term (Holterman, 2020, p. 27).

stones and air dried or dehydrated which inhibits the growth of bacteria and micro-organisms (Figure 3). This method produces “an exceptionally hard fish, which requires a thorough pounding and a couple of days of soaking in water before it can be cooked and eaten, but which also has an extremely long shelf life” (Holterman, 2020, p. 28). In terms of logistics for export by the merchants, processing the fish in this way made it an ideal export commodity (light and flat) as its weight was reduced by as much as 90% of its original mass (Þorláksson, 2004). Salted fish was also exported in smaller quantities⁸³ in the first century of the monopoly trade though by the 18th century exports began to pick up (Aðils, 1971, p. 488).⁸⁴ It was more expensive to produce than stockfish as the salt had to be imported first (Holterman, 2020, p. 41). The market for saltfish abroad was also more limited than stockfish with most of it being sold to the poor in the Copenhagen markets, though in the later 18th century it was also being exported to markets in Spain, Italy and the South of France (Aðils, 1971, p. 489).



Figure 2. A fish market in Flanders depicted by Frans Snyders 1618-1621. Source: Hermitage Museum, Inventory Ref. ГЭ-604, Public Domain.

⁸³ As indicated in the *Melckmeyt's* cargo manifest (Heijink, 2017).

⁸⁴ In 1655, 27 times more stockfish than saltfish was exported. In the period 1733-1742, this had reduced to 10 times more stockfish than saltfish exports (Aðils, 1971, p. 488).

Marine Products	
Stockfish (dried cod)	Salted fish
Shark liver oil	Fish oil and seal liver oil
Cod roe	Salmon
Dogfish skins	
Agricultural Products	
Mutton, salted	Beef, salted
Tallow	Butter
Wool	Sheepskins, salted
Lambskins	Cattle hides
Fox pelts	Sealskins
Goatskins	Mittens
Stockings, one-ply, two-ply	Jumpers
Other knitted articles	Woollen yarn
Homespun cloth	Eiderdown
Down and feathers	Swan quills
Swan skins	Sulphur
Miscellaneous	Gyrfalcons

Table 4. A list of export commodities from Iceland 1625-1819. Source: (Jónsson & Magnússon, 1997, p. 436, Table 10.5).



Figure 3. Stockfish (is. *skreið*) racks in Seltjarnanes from 1981. Image credit: Helgi Sveinbjörnsson, Sarpur Database. Public Domain.

After the food exports of fish and meat, woollen and knitted products were the next most frequently exported commodity. Woollen products and woven textiles had been exported from Iceland since the Middle Ages (Hayeur Smith, 2020), but the export of knitwear (socks and mittens) increased significantly during the 17th and 18th centuries under the Danish monopoly trade rising to almost match fish exports in scale and value during some decades in the second half of the 18th century (Róbertsdóttir, 2008, pp. 69, 374).

We are fortunate to have the cargo manifest recorded in the documentary sources of the case study shipwreck *Melckmeyt* which sank fully laden in 1659, and this list gives us an insight into the typical exports leaving Iceland for the markets in Europe during this period. According to a statement made by the surviving crew to the notary Pieter van Buijtene on their return to Amsterdam in 1660, the ship's hold contained "70,000 pieces of salted fish⁸⁵, 28 barrels of salted meat, 1,000lbs of dried fish, 100 sheep-skins, an ox-head⁸⁶ of train-oil⁸⁷ and 1.5 tonnes of talc⁸⁸ as well as some unsold cargo⁸⁹" (Heijink, 2017). The archaeological surveys carried out on the wreck did not record any surviving remains of the organic cargo listed onboard, though the ceramic assemblage recovered represented more than 50 tin-glazed tableware vessels, mostly majolica and faience dishes and plates (Lucas, 2017). These were interpreted to represent a portion of the unsold cargo listed in the manifest which the ship was carrying back home (ibid.)

Illicit trade

How extensive smuggling and illicit trade was occurring between Icelanders and non-Danish merchants and fishermen during the monopoly period is a subject of debate (Gunnarsson, 1983, p. 49). Where there is no debate though, is that it was occurring to some degree and perhaps came about because of the increased monopoly trade restrictions on inter-district exchange within Iceland, the remoteness of the island itself and the resulting difficulty for the Danes in patrolling the waters around it whilst at the same time trying to police the Norwegian Sea and manage its own merchant shipping ventures and naval affairs. The 17th century saw great advances in the organization and techniques of smuggling in the North Atlantic including newly developed social networks and specially built ships with hidden

⁸⁵ The Icelandic annal *Ballarárannáll* alternatively records this as 60,000 pieces of wet-fish (is. *blautir fiskar*), (Annálar 1400-1800, Vol. 3, 1933-1938, p. 216). The figures noted in the Dutch notary archive reference to the cargo manifest is used in the main text.

⁸⁶ 1 oxhead = 232 litres - https://wikivisually.com/wiki/Dutch_units_of_measurement

⁸⁷ Derived from the Dutch (nl. *traanolie*) for the oil obtained from boiling whale blubber - <https://en.glosbe.com/nl/en/traanolie>

⁸⁸ An alternative translation of 1.5 barrels of tallow has been suggested by (Haraldur Baldursson, pers. comm. 2017).

⁸⁹ Unspecified in the manifest.

cavities and shallow draughts (Rediker, 1987, p. 72). Illicit trade became so prominent a feature that it has been estimated that it accounted for at least one half of all English overseas trade in the Early Modern Period (ibid.). Many fishing and whaling vessels of English, French, German, and Dutch nationality were active in Icelandic waters, particularly in northern Iceland, during the Trade Monopoly Period, and by 1786 it is estimated there were as many as 200-300 annually (ibid.). Illicit trading between foreign whaling vessels, mainly Basques, French, and Dutch, and the people of Strandir in the Westfjords was evidently a well-established practice in the 17th century, particularly as the trading station of Skagaströnd was located across the Húnaflói Bay and the expectation was generally on the people themselves to get to the station to trade (Edvardsson & Rafnsson, 2006, p. 8). The whalers offered whale meat, hammers, axes, iron, tobacco and burlap (hessian cloth) in exchange for dairy products, meat, hand-knitted garments and even dogs (ibid.). The relations between locals and whalers in the Westfjords were not always amicable however, as the macabre events of 1615, which later became known as the '*Slaying of the Spaniards*' (is. *Spánverjavigin*) illustrates. During this year, 31 shipwrecked Basque whalers were killed by locals with the support of the local sheriff Arí Magnússon in retaliation for the robbery of the merchant's store at the Þingeyri trade station (Edvardsson & Rafnsson, 2006, p. 6)

It wasn't just foreign fishing vessels which the Danes had to contend with though. Corsairs and pirates such as the Englishman Thomas Tucker⁹⁰ had been an active threat in the Atlantic and North Sea particularly during the 17th century. They could not only engage in illicit trade but also could commandeer legitimate merchant vessels, seizing crew and cargo or even carry out raids on settlements in Iceland, as occurred in 1627. Close to 400 Icelanders were kidnapped and sold into slavery by Algerian corsairs led by the Dutch born pirate Jan Janszoon van Haarlem aka Reis Mourad the Younger (c. 1570 – c. 1641), (Helgason, 2018; Hreinsson & Nichols, 2008, p. 20; Kelleher, 2020, pp. 268-269).⁹¹ Estimates of 1,000-2,000 active pirates⁹² at any one time within the Atlantic zone have previously been suggested (Rediker, 1987, p. 256).⁹³ Geo-political activities such as The Danish-Swedish Wars (1658-1660) provided perfect windows of opportunity for merchants like Jonas Trellund to operate quasi-legitimately in the Icelandic trade when neither official

⁹⁰ Tucker was ultimately executed in Denmark for his crimes of piracy and plundering of Danish merchant ships (Kelleher, 2020, p. 261).

⁹¹ Close to 400 Icelanders were kidnapped and sold into slavery by Algerian corsairs led by the Dutch born pirate Jan Janszoon van Haarlem aka Reis Mourad the Younger (c. 1570 – c. 1641), (Hreinsson & Nichols, 2008, p. 20; Kelleher, 2020, pp. 268-269).

⁹² This term "includes *buccaneers* of the Caribbean and the *privateers*, the fleets of state-sponsored brigands who attacked enemy ships on behalf of nations" and who were most active in the period 1650-1725 (Winchester, 2010, p. 225).

⁹³ As late as the 1830's, pirates were still being convicted and executed in England (Winchester, 2010, p. 226).

monopoly merchant ships or naval vessels were around to compete with or be interfered by (Simon Thomas, 1935, p. 98). A pricelist of goods imported by Dutch traders in the year before Trelund's ships (reported to be seven in total which included *Melckmeyt*) arrived to trade with the Icelanders in Breiðafjörður and Snæfellsnes in 1659, evidences that the Dutch ships were bringing in similar goods to those from the official Danish merchant ships but less bulk cargo goods such as grain and timber and instead more luxury/special order type goods (Table 5). The Dutch, like the Danes, were interested in trading for fish but also woollen products, especially socks, as indicated by a mid-17th century reference to one of the Dutch ship captains Cornelis Cornelisz. Ankers regular personal quotas of 200 pairs of Icelandic woollen stockings (ibid.). This reference also suggests that side-trading amongst the visiting ships crews to supplement wages was also an openly accepted feature within the Icelandic trade, as it was within the English merchant shipping at the time; although as Blakemore (2017, p. 1178) has previously highlighted, this opportunity was greater for those higher up the maritime hierarchy ladder than something equally available to all crew members. Examples of this practise from early modern Norway are also known (Sanden, 1988).⁹⁴

Dutch listing	English translation by author
een smal tonne gort	a small barrel of barley
een pont ijsere ketels en potten	a pound of iron boilers and pots
het stuck van yder slecht bootsmansmes.	A piece of iron from a boatman's knife of low quality
een pot france wijn, gaende vijff potten in vier mingelen	A jar of French wine, divided into five pots and four mingelen ⁹⁵
een pot coorn of slechte brandewijn	a jar of corn and low-quality brandy
een smal tonne erreten	a small barrel of peas
een pot rosolis (soort likeur) ende anijs	a jar of rosolis (kind of liqueur) and anise
een pot goet bier	a pot of good beer
een pot scheepsbier	a pot of ship's beer
een elle coesvelts (Koesfeldsch) linnen	1 ell ⁹⁶ (circa. 70cm) of linen from Coesfeld in northwest Germany
een el osenbrughs (Osnabrücksch) linnen	1 ell (circa. 70cm) of linen from Osnabrück in northwest Germany
een kinnetje seep	1 kinnetje ⁹⁷ (125kg or 40kg) of soap
een tonne teer	1 barrel ⁹⁸ (163.2L) of tar
een tonne sout	1 barrel (163.2L) of salt
een banck rijcxdaelder	1 Rijksdaelder coin

⁹⁴ Blakemore (2017, p. 1175) refers to this practise as "the right to carry a 'furthing' of cargo (a word probably related to the Dutch word *voering*)".

⁹⁵ Mingel = 1.2 litres - <https://financial-dictionary.thefreedictionary.com/Mingel>

⁹⁶ The Dutch ell varied in length 55-75cm but likely to be 70cm (De Gelder & Ramakers, 1824, p. 169), <https://www.meertens.knaw.nl/mgw/plaats/1107>

⁹⁷ 1 kinnetje = 1/8 ton or 125kg - <https://rabbel.nl/Olddumes.html>. May also be 40kg - <https://www.meertens.knaw.nl/mgw/plaats/1107>

⁹⁸ <https://www.meertens.knaw.nl/mgw/plaats/1107>

een el slecht ruych off wantlaken	1 ell of low-quality rough wall linen
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Table 5. A list of imported trade goods by Dutch ships active in Breiðafjörður prior to 1659. Source: (Simon Thomas, 1935, p. 98).

For some of the Dutch ships visiting it was no doubt easier to take the goods directly than go through the process of trading. An account of a raid on the merchants' stores at the Skagaströnd trade station by two Dutch fishing boats (is. *hollenskar duggur*) in 1686 illustrates this. Aðils (1971, p. 606) referenced that a group of 20 men broke in through the roof of the merchants' storehouse and made off with a variety of goods valued at 2600 rdl. (ibid.). By the 1740's, records show that Danish warships had captured many Dutch fishing boats in Icelandic waters, which on inspection revealed the presence onboard of large quantities of Icelandic woollen stockings (Gunnarsson, 1983, p. 49). The Dutch fishers, were according to Paula Vermeyden (1998, p. 109) known to be masters of circumvention and their ships were well stocked with merchandise which the Icelanders sought most, including flour, candles, tobacco and gin. For the Icelanders, the illicit trade meant generally more favourable exchange terms than the monopoly's official price lists offered.⁹⁹ According to the Icelandic treasurer (is. *landfógeti*) Skúli Magnússon¹⁰⁰, this had been going on since the 1620's and they (northern Icelanders) would then internally trade their ill-gotten goods like (tobacco, iron goods, grain and brandy) for profit in exchange for fish with people in the south until his policies put a stop to it in the 1740's (Gunnarsson, 1983, pp. 49, 50). It was therefore evident that for a time the illicit trade was an important factor in the domestic trade within Iceland.

Previous historical research on the Danish Trade Monopoly Period

The existing dearth of targeted archaeological research into the Danish Trade Monopoly Period was highlighted in Chapter 1, the situation with regards to the historical research of this period, though in somewhat better shape, is far from what could be described as prolific. Several key historians have contributed to the narrative and this section will briefly summarize their contributions. The Icelandic political activist¹⁰¹ Jón Sigurðsson also known to Icelanders as (is. *Jón forseti*) or *Jón the President*, was one of the first to write about the

⁹⁹ The Dutch paid twice the price for Icelandic stockings than the merchants did (Gunnarsson, 1983, p. 50).

¹⁰⁰ In 1734 Skúli Magnusson was appointed sheriff (is. *sýslumaður*) in region of East / West Skaftafellssýsla and from 1737 he was appointed the sheriff in Skagafjarðasýsla northern Iceland. He served as the first Icelandic born treasurer (is. *landfógeti*) from 1749-1793 (Karlsson, 2000).

¹⁰¹ He was the leader of the late 19th century Icelandic independence movement and served as president of the parliament (is. *Alþing*) several times as well as the president of the Copenhagen Department of the Icelandic Literature Society (is. *Hið íslenska bókmenntafélag*), (Friðriksson, 2002). This explains how the nickname *Jón the President* originated.

monopoly period and published several articles in 1843¹⁰², and 1862¹⁰³, highlighting what he viewed as the negative impacts which the restrictive trade had brought upon Iceland. His research, based largely on the selective use of secondary sources, fed into a predetermined political agenda of Icelandic independence that sought to emphasise the reported hardships the monopoly had brought upon 'regular' Icelanders to the benefit of an unsympathetic and foreign occupying power namely the Danish Crown. Sigurðsson's writings on the trade monopoly should therefore be viewed more as having strategic motivations behind them rather than any impartial scholarly intentions to explore the period. His articles obviously hit a note with the public and "brought him great popularity and recognition among Icelanders of how rationally and emphatically he asserted demands for freedom of trade and employment for the nation" (Jónsson, 2011, p. 125). His claims for owed reparations to Iceland from Denmark for the financial losses incurred by Icelanders¹⁰⁴ as a result of the monopoly's terms of trade, came about as part of his work on the Finance Committee of Iceland and Denmark in 1861-1862. These claims which were ultimately rejected by the Danish were more provocative than realistic as his findings were based largely on 19th century exchange rates and ignored any data which contradicted his case (Gunnarsson, 1987, p. 243). Sigurðsson was also of the belief that the monopoly trade had continued after 1787 and at least up until 1854 when trade with non-Danish merchants was officially sanctioned (Sigurðsson, 1862, p. 77). His provocations ultimately bore fruit as in 1874 Denmark granted Iceland home-rule status with its own constitution from which independence as a sovereign state followed in 1918 (Karlsson, 2000).

Sigurðsson was not alone in his use of perceived past economic hardships to engender nationalistic sentiments. Around the same time as his 1862 article was published, Irish nationalists including the journalist and historian John Mitchel were also discovering the effectiveness of stirring the past for political gains in the present. The Irish famine had ended in 1852 resulting in a catastrophic population decline in Ireland through a combination of death and emigration.¹⁰⁵ Mitchel, writing in 1860, held that while "the Almighty, indeed, sent the potato blight,...the English created the famine" (Mitchel, 2005, p. 219). The association amongst historians of the monopoly trade being an overtly negative chapter of Iceland's history has persisted into the 20th century and in many ways stems from an analysis of this

¹⁰² *Um verzlun á Íslandi í Ný Félagsrit*, pp. 1-127.

¹⁰³ *Um fjárhagsmálið í Ný Félagsrit*, pp. 22-99.

¹⁰⁴ Sigurðsson's calculations assumed that "all the net income of the monopoly was indirect taxation on Icelanders, and it did not matter whether this was the rent paid by the merchants to the King for the licences, or the profits which the merchants made when all the costs were incurred" (Gunnarsson, 1987, p. 244).

¹⁰⁵ Estimates of one million dead and one million emigrated during the Irish famine are accepted (Crowley, Smyth, & Murphy, 2012).

period through the lens of modern economic policies, business ethics and the supports of a welfare state rather than viewing the events as a product of their time and historical setting.

Jón Jónsson Aðils is potentially the most cited historian in relation to the Trade Monopoly Period. This is perhaps more reflective of the thoroughness of his seminal work '*Einokunarverzlun Dana á Íslandi*' published in 1919¹⁰⁶ (a year before his death) as a useful collation and synthesis of the primary source documents¹⁰⁷ from the period rather than any particular narrative dictated by a certain stance on the rights or wrongs of the trade monopoly, as his other published work in 1895 on the topic had previously taken.¹⁰⁸ Though Aðils (1919) did not shy away from reporting on instances of hardship and cruelty against Icelanders which no doubt occurred during the monopoly period, his book is not specifically about those things and the narrative is written from quite a clinical perspective in which the primary sources effectively guide the discussion in chronological order. His book, which runs to nearly 800 pages, is essentially a reference manual for the monopoly period from which later historical narratives on the subject have selectively drawn. Criticisms of his approach contended that it failed to include any economic assessments or statistical analysis of the monopoly trade and rarely interrogated the period from perspectives of the various classes of people involved (Gunnarsson, 1987, p. 249).

One of the first historical narratives of the monopoly period to appear in English is that of the Norwegian-American historian Knut Gjerset, published in 1924 as part of his '*History of Iceland*'. In his book, the section on the Danish trade monopoly is sandwiched between a section called '*Great Calamities in Iceland*' and '*New Literary Activity*'. Gjerset may as well have included the trade monopoly summary under the former title given the perspective he takes in the prose, which is clearly one-sided, anti-monarchy, and focussed essentially on highlighting the terrible wrongs done to the Icelanders by the merchants as agents of the Crown.

Gjerset (1924, p. 326) set out a miserable scene of life in Iceland for the common peasant farmer who lived in a "cheerless hovel without even the most basic of comforts, built not of wood (as the merchants brought little timber to trade because it took too much room on their

¹⁰⁶ This was republished in 1971 and that version is also cited in the main thesis text. It was also published in Danish in 1926-27 entitled '*Den danske Monopolhandel på Island 1602-1787*' af Jón Aðils: oversat af Friðrik Ásmundsson Brekkan. København: Dansk-íslandsk Samfund, 1926-27.

¹⁰⁷ Including legal papers (Lovsamling for Island), official correspondences and Icelandic Annal references.

¹⁰⁸ Aðils (1895) had taken a supportive stance of the monopoly trade defending its continuation in the 1770's from the Danish perspective in '*Den danske regering og den islandske monopolhandel id et 18. århundrede*' in *Historisk Tideskrift, Sjette række, 4. Bd.*

ships), but built of stone and sod". The lack of windows he noted only added to the cheerless atmosphere with the effect that the occupants sat in continual darkness even in the middle of the day. Their only comfort came from pipe smoking which "came as a result of the Danish merchants making them believe that by smoking more, they would protect themselves from the very diseases such as tuberculosis which the damp, smoke filled houses caused" (ibid., p. 328). He (ibid., p. 329) advocated that "the spirit of the Icelandic population, having been so whittled down to a position of obedience and economic dependence fostered an unprogressive and apathetic spirit to social development" which then set up nicely the Danish aims of controlling the trade with the island. His introductory description of the trade monopoly as being the single biggest grievous factor which "plunged the Icelandic people into so disheartening economic and social conditions", sets the sorrowful tone for the rest of his overview of the period (ibid.). Gjerset's narrative played into the Icelandic nationalistic and liberal perspectives which dominated historical writing in the mid-20th century and fuelled the perception of past transgressions by an occupying colonial power on a small homogeneous nation and should be viewed in the context of its time and as part of a new nation defining itself, coming only six years after the Act of Union was signed in 1918 (Karlsson, 2020).

Gísli Gunnarsson's doctoral dissertation '*Monopoly trade and economic stagnation: studies in the foreign trade of Iceland 1602-1787*', published in English in 1983 and later translated and reformatted into Icelandic in 1987¹⁰⁹, was the first in-depth scholarly attempt to research the monopoly from an economic and statistical perspective using the surviving accounts of the companies who operated the trade with Iceland. His main argument was that the monopoly system maintained, perpetuated and prolonged the existing archaic socio-economic system in Iceland - of a landowning elite who controlled the labour force who lived off farming supplemented with fishing - and thereby strangled the country's chances of economic development (Gunnarsson, 1983). Reciprocally, the monopoly trade just further enabled this system as this system, itself, further enabled the monopoly trade. His approach essentially quantified the trade monopoly, and his discussion has more the characteristics of a quarterly financial report dealing with profits and losses than any typical historical analysis. This isn't too surprising considering his investigation was from an economic historical perspective rather than a purely historical one with his dissertation submitted to the Department of Economic History at Lund University. It could be argued that Gunnarsson's use of financial sources as primary reference material for his study was an untested avenue for presenting the mainly negative aspects of the monopoly period which previous historians

¹⁰⁹ The Icelandic title was: *Upp er boðið Ísland: einokunaverzlun og íslenskt samfélag 1602-1787*.

before him had initiated. Gunnarsson should also get credit for being the first researcher to examine and highlight the influence and connection of the Icelandic elites to perpetuating the monopoly trade for their own benefit.

A narrative based on financial footings could be used to clearly address the *cui bono*¹¹⁰ and *cuis culpa*¹¹¹ aspects of the monopoly trade. It perhaps also gave those previous arguments more legitimacy and support through the presentation of clinical financial data of the commodity trade across the North Atlantic rather than relying solely on accounts of hardships and episodes of spoiled flour imports which previous scholars had emphasised. Gunnarsson (1987, p. 178) highlighted the unrealised reformative ambitions of the treasurer (is. *landfógeti*) Skúli Magnússon as Aðils (1919) before him had done, as well as the innovative efforts in the trade of his contemporary rival, the merchant Niels Ryberg, Director of the first Royal Trade Company (Gunnarsson, 1983, pp. 119-120). The fact that this company turned a profit in the monopoly trade is treated somewhat differently by Gunnarsson, and perhaps because of his regard for Ryberg and his measures to improve the Icelandic fisheries, than, for instance, the activities of the “wiley” profiteering monopoly merchants from the Chandlers Guild (1743-1759) (Gunnarsson, 1983, p. 127). There is an element of contradiction in this selective viewpoint.

Gunnarsson’s analysis highlighted the significant gaps which existed in historical research of the monopoly period and evidenced that there was a lot more depth to understanding the dynamics of the period than had been previously appreciated. As a body of work, it still today remains relevant and a significant contribution to our understanding of the economic aspects of the trade monopoly. It offered to the reader a chance for a greater level of immersion in much finer detail than the reprinted and transcribed official correspondences and legal sources of the period had previously done. From the perspective of the previously neglected maritime history of the monopoly times, Gunnarsson’s use of the Sound Tolls records and subsequent analysis of the ship sizes, quantities, nationalities and frequencies involved in the trade are noteworthy and represent a significant contribution to the field.

Gunnar Karlsson’s ‘*Iceland’s 1100 Years*’, published in 2000 and republished again in 2020 with some new additions, provided a concise (6-page) overview of the 186-year monopoly period. It’s perhaps asking too much of Karlsson to have devoted more attention to the period than he does, given that the book was essentially written as a general textbook, rather than as a specific analysis of the monopoly times. However, owing to this generality,

¹¹⁰ Latin for who benefits? - <https://translate.google.com/>

¹¹¹ Latin for whose fault? - <https://translate.google.com/>

and the fact that he published in English, his potential audience will likely be much larger than some of the specifically focussed trade monopoly literature, so some assessment of his approach may be warranted.

Karlsson's view on the monopoly period is overall supportive of the perspectives of the older nationalistic generation of Icelandic historians who viewed the Icelandic trade as playing a considerable part in the growth of Denmark as a commercial colonial power (Karlsson, 2020, p. 166). While in agreement with much of Gunnarsson's views of the monopoly system being a 'conservative force' in terms of Iceland's economy he somewhat tempers this outlook by noting that the monopoly worked as a 'levelling force' equalling out price fluctuations and bringing trade to poorer, less-populated districts in Iceland that would never have otherwise have occurred in a free trade situation (ibid., p. 165). These arguments were mostly occurring in the 18th century and are visible in the documentary sources of the Regional Committee or (is. *Landsnefndin*) from 1770 which is further outlined in a section below. Both merchants and Icelanders he noted were more or less content with the monopoly arrangements as time went on, with few expressing any desire to have the system abolished (ibid., p. 165-166). He also draws attention to the less-interrogated issues of the 'how and by whom' were the decisions in the governing of Iceland made in this period and that the monopoly system potentially "developed as an alliance between the Crown, the Copenhagen merchants and the Icelandic aristocracy (better-off farmers)" (ibid.). This was something which Gunnarsson (1983) had also alluded to.

Karlsson's (2020) trade monopoly chapter is followed directly by a chapter entitled '*The Gloomy 17th Century*' which focuses on the Algerian pirate attacks in the 1620's and the witch trials that began around the same time. It appears that for certain Icelandic historians the negative connotations and outcomes¹¹² from this period are a firmly set part of the historical narrative whether caused directly by the enforced trade monopoly or not. Karlsson rather than taking the more commonly used perspective of blaming the Danes for much of the Icelanders woes chooses instead to highlight issues such as natural disasters, climate change, land degradation and epidemics (Gustafsson, 2002, p. 257). The work on the historiography of the period by Haraldur Gustafsson (1998) and Agnarsdóttir & Róbertsdóttir (2016) is worth mentioning here also in relation to an examination of the reasons behind the common negative historical characterisation of this period and a recognition that the situation deserves a more complex discussion beyond Danish oppression.

Helgi Þorláksson's (2003, 2004) main contribution to the monopoly period discussions was

¹¹² Population declines and negative economic outlook.

published in volumes six and seven of the eleven volume *Saga Íslands* series, which provided a general history of Iceland since the settlement until independence in 1944. Though heavily drawing on the work of Aðils (1919) and Gunnarsson (1983, 1987), Þorláksson's (2004) discussion was more sanguine in tone than that of previous historians on the topic and he questioned the notion of holding the Danish completely accountable for the oppressions existing or experienced by Icelanders during the monopoly period, given that he also highlights the role of natural disasters as bearing some of the responsibility. He draws attention to the Icelanders' own harsh treatment of themselves and not standing together as being an under-appreciated aspect of this period, when the interests of the Icelandic elite became more important than the interests of the society as a whole (Þorláksson, 2004, pp. 8,198). He also recognised the importance of the historical context which the monopoly trade was part of as being a major contributing factor to its existence and perpetuation (ibid., p. 189). For Þorláksson (2003) the trade monopoly system was a notably indistinct concept from how foreign trade had been previously conducted with Iceland which had also involved the issuing of trade privileges and licences.

Hrefna Róbertsdóttir's 2008 publication of her doctoral thesis '*Wool & Society: Manufacturing policy, economic thought and local production in the 18th century Iceland*' brought some much-needed perspective change and direction to trade monopoly research in general. Central to her investigation was the examination of the activities of the Privileged Icelandic Company and its efforts to develop the economic situation. Her research contrasted wool production in two regions (northeast & southwest) of Iceland during the 18th century and examined regional differences in the characteristics of the communities within the trading zones, the nature of textile production and its relation to the socio-economic conditions within those regions (ibid., p. 24). Róbertsdóttir (ibid., p. 20) recognised the shortcomings of previous historians and research into this period who had "viewed the development of manufactural production and economic change in the context of the 19th century, rather than in the context of 17th century Iceland or developments in neighbouring countries in early modern times". This was quite an important observation to make and that realisation, in turn, guided her own evaluations of the economic conditions existing in Iceland at the time. That the introduction of wool manufacturing was more to do with internal developments and utilisations amongst the "Old order" in Iceland than external industrialisation developments in the 19th century was one of her principal suppositions (ibid., p. 21). Her research illustrated that economic output in rural Iceland was of a more diverse nature than had hitherto been accepted or understood. Moreover, she advocated viewing the monopoly trade as being trade from the "region of Iceland" within the Danish-Norwegian state and not explicitly foreign export trade (ibid., p. 133). This contrasts with the traditional nationalist historical view of the

monopoly system which was that of a restricted import/export trade controlled by wealthy foreign Danish merchants to a mostly homogenous Icelandic society. This was a period when the Danish authorities were becoming increasingly interested in examining Iceland's resources, sending numerous expeditions during the 18th century to collect data on the Icelandic society, economy, population, livestock, and land ownership. Róbertsdóttir clearly saw a shift in their interests during the middle and later 18th century. The 1750-1770's focussed on analysis of the economy and society but after 1775 this focus migrated to the utilisation of the country's natural resources (ibid., p. 147). The 18th century saw a new policy emerging from the Danish crown in relation to Iceland, where its natural resources and its people (workforce) would now provide for "strengthening the structure of the Danish state" (ibid., p. 380). It would take until 1750 before the Danes began to implement an effective economic policy in Iceland and the setting up of the wool manufacturing workshops were the start of these changes.

Róbertsdóttir (2008) has shown that a change in textile production took place in the northeast of Iceland from around the middle of the 18th century and this was most likely due to the influence of the merchants there who initiated a 'putting-out system', which the local inhabitants played a central role in. This system involved the merchants importing raw materials to Iceland such as flax and tow which would be worked, spun and prepared for re-export to workshops in Copenhagen (ibid., p. 281). It's evident that the role of the merchants at least in the northeast of Iceland during the monopoly period was a lot more dynamic and interactive with the local inhabitants than has previously been accepted. That the merchants had the knowledge and ability to influence local production and draw on the skill sets available from existing cottage industries shows a high level of integration within the rural communities around their trade ports. The 'putting-out system' was not implemented by the merchants trading at the Hólmur port in Reykjavík. This was likely due to the yarn being sent directly to the wool manufacturing workshops which had been set up in Reykjavik previously instead of being exported to Copenhagen (ibid., p. 371).

The development and specialisation of specific regions of Iceland in wool production and yarn spinning towards the end of the 18th century also allowed people a chance to work and earn a living outside of the traditional farming society which had been in place since the settlement of Iceland. Particularly those who were without land or even their own livestock could get involved in this activity as they could acquire the wool or flax raw material from the merchants themselves. Her work showed that the traditional roles of men and women were also starting to alter, as within the manufacturing workshops, it was men who were employed and trained in textile production to become weavers, spinners, and shearers as well as other professions, working alongside their female colleagues (ibid., p. 364).

Róbertsdóttir has made several other notable contributions (2001, 2012, 2018) to

Danish/Icelandic trade monopoly studies over the years. Her interrogation and use of previously unknown or little-used primary source documents from the Danish National Archives (*Rigsarkivet*) are worth highlighting, in particular the merchants' account books of the First Royal Trading Company 1759-1763, and the special orders trade books of the Second Royal Trade Company from 1784, which contain very detailed inventories of the import/export commodities and special orders, logs of goods left at the ports over the winters and registers of customer transactions at the port stores. These resources, particularly the special orders books, have allowed for a microeconomic assessment of the monopoly trade to be explored from the client's perspective and delivered new insights into the consumption habits, social structures and regional cultures existing in Iceland in the late 18th century (Róbertsdóttir, 2012, p. 111). Chapter 5 of this study which examines the archaeology of the monopoly trade ports, will reference a number of additional unpublished primary source documents from the Danish National Archives which Róbertsdóttir has previously identified.¹¹³

There have been various other publications which have dealt with specific aspects or characters related to the monopoly trade and the most relevant of these include P.P. Sveistrup's (1943) article on the activities of the General Trade Company in Greenland, Aage Rasch's (1964) biography of the merchant Niels Ryberg, S.R. Christensen's (1979) article on the Royal Trade Company, and J.K. Margeirsson's (1978) article on the Second Iceland Company. The activities of the treasurer (is. *landfógeti*) Skúli Magnússon and those of the Privileged Icelandic Company have also been further investigated and reported on through various works such as (Aðils, 1911; Clausen, 1971; Björnsson, 1974, 1998).

Several recent publications which focussed on examining contemporary documentary sources from the monopoly period included the six volumes published on the records of the Regional Research Committee for Iceland¹¹⁴ (is. *Landsnefndin fyrri*) 1770-1771.¹¹⁵ The first volume (2016) edited by Hrefna Róbertsdóttir & Jóhanna Þ. Guðmundsdóttir containing

¹¹³ These are listed in the Bibliography for this study under the un-published primary sources.

¹¹⁴ "The Regional Research Committee for Iceland was set up to examine the general economic situation in Iceland and submit corrective proposals on anything that might be of benefit and usefulness to the country. It was estimated that the committee members spent more than a year in Iceland or from the spring of 1770 until the autumn of 1771, where they were to get to know all the circumstances first-hand" - <https://landsnefndin.is/um-landsnefndina/landsnefndin-sjalf/>

¹¹⁵ These include: I. Bréf frá almenningi (Hrefna Róbertsdóttir & Jóhanna Þ. Guðmundsdóttir, 2016), II. Bréf frá prestum (Hrefna Róbertsdóttir & Jóhanna Þ. Guðmundsdóttir, 2016), III. Bréf frá embættismonnum (Róbertsdóttir & Guðmundsdóttir, 2018), IV. Bréf frá háembættismonnum (Róbertsdóttir & Guðmundsdóttir, 2019), V. Fundargerðir og bréf nefdarinnar (Róbertsdóttir & Guðmundsdóttir, 2020) and VI. Vinnugögn nefdarinnar (Róbertsdóttir & Guðmundsdóttir, 2022). Volume VI (forthcoming) in particular details a number of letters from Icelanders to the committee which reference and mention various aspects and details of harbours and anchorages around Iceland and provides an excellent insight of the level of local knowledge of these places in the later 18th century.

letters from the general public to the Committee is potentially the most relevant to the issue of trade in this period. These were published as part of a collaborative project between the National Archives of Iceland (Þjóðskjalasafns Íslands), The Historical Society (Sögufélag) and the Danish National Archives (*Rigsarkivet*). These documents consist of letters and reports from a broad spectrum of Icelandic society - farmers, peasants, sheriffs, merchants, lawyers, priests and other officials - and detail a range of views and local attitudes on a variety of issues including trade, agriculture and fisheries.¹¹⁶ Mar Jónsson's (2015) *Sterbúsins fémunir* which outlined the probate inventories of 96 Icelanders who lived over the period 1722-1820, is additionally a useful reference to the primary sources which contextualises the lives of a selection of people who lived during this time.

In relation to specific contemporary writings during the monopoly period - mostly in the form of letters, policy and legal documents and travel journals - there are a number of published works worth mentioning, such as those by Skúli Magnússon (1783, 1784), Ólafur Stephensen (1786a, 1786b) and Carl Pontoppidan (1787-1788, 1792-1793) (1787-1788; 1792-1793). The travel accounts of Uno von Troil, a Swedish nobleman and chaplain who travelled as part of the Joseph Banks British Expedition to Iceland in 1772, additionally provide some first-hand albeit one-sided commentary on the monopoly trade (Robson, 1780).^{117 118}

Other relevant recent publications have given significant attention to addressing the monopoly period and additionally included the lead-up and aftermath of it. These included the first volume of Friðriksson & Þór's (G. Friðriksson & Þór, 2013) book *Kaupmannahófn sem Höfuðborg Íslands* and the first volume of Þorláksson *et al.*, (2017) *Líftaug Landsins: Saga Íslenskrar Utanlandsverslunar 900-2010*.¹¹⁹ Finally, the reader's attention should be drawn to the recently published doctoral thesis of Bart Holterman (2020) '*The Fish Lands*', which although primarily focussed on the German trade in the North Atlantic in the period before the Danish trade monopoly began, still provides an excellent comparative source to

¹¹⁶ <https://landsnefndin.is/category/hverjir-skrifudu/>

¹¹⁷ Von Troil's '*Letters on Iceland*' are a collection of letters he wrote to various contemporaries which detail his naturalist observations on various aspects of Iceland's geographical and geological features, historical places and antiquities as well as notes about the society he encountered including daily habits, dress, diseases, social traditions, ecclesiastical affairs and also the nature of their trading.

¹¹⁸ See also (Holland & Wawn, 1987) for a travel account by Sir Henry Holland who visited Iceland in 1810 and again in 1874. Additionally, the travel accounts of Carl W. Pakjull (1868) who visited Iceland in 1865 make specific reference to the impacts of the monopoly trade and commodity imports on the Icelandic economy and society.

¹¹⁹ This volume provides an overview of trade in Iceland from the settlement times and essentially includes the previously published research of Þorláksson and Gunnarsson for the section covering the monopoly period. Anna Agnarsdóttir's (2017) contribution to the volume deals with the period of trade from 1788-1830.

contextualise the development of the trade monopoly arrangements which followed.¹²⁰ Holterman (2021) has additionally recently published an article in the 2021 edition of the Icelandic historical journal *Saga* exploring various insights into the transition period in the early 17th century from German to Danish merchants in the Icelandic trade through his examination of a remarkable previously un-studied primary source document from Hamburg (a witness testimony of eight persons accused of illegally trading in Iceland in 1602).

Just as Róbertsdóttir (2008, p. 19) had kept “wool from many angles” at the centre of her dissertation in order to “channel to central aspects of the period”, this dissertation will attempt a similar endeavour with archaeology instead as its probe. The hope is that through this new avenue of research, the trade monopoly narrative can be brought onto a different plain, beyond where the long shadow where much of its past historiography has cast itself.

¹²⁰ This research was carried out as part of a larger project ‘*Between the North and Norwegian Sea*’ investigating Hanseatic trade in the North Atlantic - <https://fishandships.dsm.museum/>

Chapter 3: Merchant shipping in the North Atlantic during the Early Modern Period

“For whosoever commands the sea commands the trade; whosoever commands the trade of the world commands the riches of the world and consequently the world itself” Sir Walter Raleigh, late 16th century explorer and courtier (Raleigh, 1829, p. 325).

Ships as vessels of cultural exchange

In the Pre-Industrial Age, from the Upper Palaeolithic to the 19th century A.D., the ship has been described as the largest and most complex machine ever produced (Muckelroy, 1978, p. 3). Moreover, these vessels represented more than just complex machines, particularly in the context of the Early Modern Period (c. 1500-1800), and Steffy's (1994, p. 5) definition adds some necessary descriptive flavour to the picture.¹²¹ Whatever value of the cargoes they carried during this period the ship itself was the largest single good bought and sold in Europe, and the increasing size and design complexity which developed to meet the expanding trade horizons had the knock-on effect of increasing the financial outlays for construction and the subsequent risks of financial losses suffered due to wrecking (Unger, 1997, p. 126). Their central role in fostering the “world’s interconnectedness” should not be under-estimated as terrestrial trade links were replaced by sea-routes with ships acting as “an essential engine of consolidation” driving forward exploration and providing a medium for trade relationships and reciprocal cultural exchange (Kahlow, 2018, p. 16; Marboe, 2009, p. 136).

The discussion from here will now examine the issues of merchant vessel typologies and construction methods with particular emphasis on merchant shipping in the North Atlantic before and during the Early Modern Period and how archaeologists have defined these. Following this, the rise of the Dutch as leaders in merchant shipping and shipbuilding during the 17th century will be outlined as well as the emergence of the flute ship as the ubiquitous bulk cargo carrier of that period. The narrative will then steer back to an overview of Danish merchant shipping during the monopoly period and an analysis of the Sound Toll Registers in relation to the vessels operating the Icelandic trade.

¹²¹ “But a wooden ship was, in reality, far more than a lifeless structure. It began as a desire for profit, a hope for victory, or a dream of exploration or conquest in the minds of its originators. The idea moved to the shipyard, where the efforts of shipwrights, carpenters, and smiths who sometimes left the marks of their tools or the signs of their ingenuity converted hundreds of trees into a variety of shapes and joined them together. Tons of timber, metal, caulking, paint, rope, and cloth were fabricated into a type of structure that was perhaps the most complex of its time—one that could carry cargoes far heavier than any other form of transport and travel distances landsmen could only ponder” (Steffy, 1994, p. 5).

Merchant vessel typologies and traditions

The objects these ships carried when found today are usually part of the material remains excavated from archaeological contexts and have themselves become part of museum collections which have long been the subject of research (Kahlow, 2018, p. 17). But the ships themselves have figured less in this research picture. Why is that? This is of course due to a variety of reasons including project budgets, accessibility, availability in the archaeological record and a dominant research focus on the producer and consumer ends of the exchange network rather than the space *in-between* as already highlighted in Chapter 1.¹²² Even when the vessels themselves are archaeologically examined the focus tends to be on individual shipwrecks in their own context rather than any broader collective approaches incorporating research on multiple vessels, which is a difficult task even when funding is substantial due to the fact that shipwrecks are often enormously complex, differently preserved and for pre-industrial wooden ships any close parallels maybe thousands of miles apart (McCarthy, 2020, p. 10). To that end, this study will direct its focus to examine the vessels of the trade monopoly and ask what do we know about the ships that went northwest from Europe to trade with Iceland in the 17th and 18th centuries? From an archaeological perspective in comparison with our historical knowledge of the period, unfortunately, we know very little.

Belasus (2019) recently highlighted this same issue in relation to our limited archaeological knowledge of the Hanse merchant ships which were active in the North Atlantic trade before the Trade Monopoly Period.¹²³ He cautioned against the acceptance of the development of ocean-going vessels in the Early Modern Period as being an “evolutionary or linear process” (ibid., p. 183). This view echoes that made previously by Maarleveld (1995, p. 4) who argued that developments of ship types were a function of human decision-making rather than being autonomously derived. Even in relation to the pre-industrial period, there has been a tendency amongst scholars to try and standardise the ship forms which were being produced but the evidence shows that shipbuilding in northwest Europe was rich in variations (ibid.). This is not too surprising given that this was a period where ships were built without written plans or drawings, where shipwrights relied on handed-down knowledge gained through generations of hands-on experience employing the rule of thumb method. As

¹²² Gately and Benjamin (2018, p. 30) have highlighted the existing issue of the “focus in popular culture on the methodological aspects of maritime archaeology, with the recovery of large, showcase artifacts in a raise-and-display fashion” particularly in relation to historic shipwrecks which perpetuates the myth of an artefact obsessed discipline.

¹²³ No Hanseatic era shipwrecks or parts thereof have been identified or documented in the Faroes, Shetland or Iceland (Belasus, 2019, p. 176). This statement can now be potentially updated with the probable 16th century C-14 dating results from timbers associated with a shipwreck discovered in Búðir, Iceland in 1998, that is outlined by the author in Chapter 6.

we will see later regarding the case study of the *Melckmeyt* shipwreck, ships in this time could be adaptable in design, multi-functional in nature and be repurposed over their lifetimes to serve in a variety of roles and settings. To that degree, this aspect dilutes the importance of a primary goal to technically categorise these ships into specific groups and typologies when questions exploring what the ship “was used for, in which waters and by whom” provide much richer avenues of understanding the past (ibid.).¹²⁴ That’s not to say that we should ignore the historical ship typologies entirely but it’s important to be aware that these defined types such as *cogs*, *galleons* and *carracks* were not originally analytically derived from archaeological investigations, but are based on historical vernacular nomenclature (Maarleveld, 1995, p. 6).¹²⁵ Several other researchers have discussed this issue and the pitfalls connected with establishing rigidly defined vessel types and classification schemes particularly relating to wrecks from the Medieval and Early Modern Period (J. R. Adams & Rönby, 2013; McCarthy, 2020; McGrail, 1995, 1998; Zwick, 2013).¹²⁶ Zwick (2013, p. 61) referred to the typologies as “fictitious” and argued that they should be viewed as “transient approximations and remain flexible enough to maintain an objective view as the database grows” rather than aiming to “fossilise types within a classification scheme” as McGrail (1998, p. 4) put it. Keeping the classifications “fuzzy” in relation to vernacular and pre-industrial ships offers a more robust approach to identify and interpret patterns, trends and variations within vessel datasets (McCarthy, 2020, p. 11, 12).¹²⁷ In summing up his discussion on this issue McCarthy (ibid.) referred to Hocker’s (2004, p. 8) previous highlighting of a long-standing classification scheme for vessels based on their function as being a more “reliable discrimination” for defining vessel types, though Hocker also identified the limitations of this approach in relation to multi-purpose vessels. As can be appreciated from the above section there is much debate behind the formal designation of a specific ship type and the approaches used particularly in relation to ships from the pre-industrial period. For the purposes of this dissertation, it is perhaps enough to highlight the issue for the reader and not get too overly distracted by it. Ship typology will

¹²⁴ “Typology and classification are beneficial so long as they remain tools rather than gospel” (Maarleveld, 1995, p. 6).

¹²⁵ McCarthy (2020, p. 10) addressing this aspect, considered that the ships own complexity and relative rarity of forms has compounded the problem of classification where maintaining conceptual distinctions between the physical and historical evidence has become a difficult task even for those nautical archaeologists who are aware of this issue from the outset. Endorsing McGrail’s (1995, p. 139) similar viewpoint he (ibid., p. 11) highlighted the “law of diminishing returns” when it comes to classifications of complex archaeological artefacts such as shipwrecks, where with every new defined parameter and variance updating the original definition the chance of matching the next discovery to this is reduced building up edge cases and outliers and often making the original definition redundant.

¹²⁶ Ships in the early modern period were often named in relation to “their area of operation, layout or hull shape” rather than their rig set up as was the practise during the 19th century (McCarthy, 2020, p. 14; van Bruggen, 1977, p. 44).

¹²⁷ Classifiers of vessel type might include “hull design, rigging, national origin and contemporary nomenclature” (McCarthy, 2020, p. 12).

feature again in the discussion when the case study of the *Melckmeyt* is presented. The following section will highlight the general technological developments which occurred within the Danish and northern European ocean-going merchant shipping fleets in this period. While a deeper interrogation and understanding of Danish merchant vessels active in the North Atlantic trade is of primary interest to this project's focus, any discussion of merchant shipping in this period cannot exclude the influence and impact of the Dutch shipping industry into this narrative particularly in relation to its neighbouring Scandinavian countries. This contribution will be addressed and serves to contextualise the results of the *Melckmeyt* investigations outlined in Chapter 4.

“What’s in a name? That which we call a cog by any other name would sail just as well”.¹²⁸

Though the focus period of this dissertation is on the latter half of the Early Modern Period, this section will go slightly further back in time to provide the reader a better overall background for the discussion of the general range in forms of merchant shipping which emerged in that period. As alluded to above, the reliance on designated ship types mentioned in the historical written sources is not without its problems. Illustrating this issue, Belasus (2019, p. 176) cited the German historian Ernst Baasch who had previously referenced an account from 1486 in which a ship belonging to Lutke Sten was attacked by English sailors while in Iceland. The ship was referred to as a ‘cog’ by the group from Hamburg, a ‘*holk*’ by the English party and a ‘*small carvel*’ by a Hamburg chronicler. Another example referenced by Holterman (2020, p. 140) highlighted the confusion and perhaps casualness with which medieval contemporaries had for ship types. In this case the Hamburg skipper Lutke Schmidt who referred to his own ship which had sailed to the trade port Bäsendar in Iceland in 1532 as a caravel (de. *kraffe*) while an English source referred to the same ship as a ‘*holcke*’. Holterman (ibid.) noted that most of the time in the primary sources the Hanse merchants used the generic term ‘ship’ to describe their vessels.

During the 13th and 14th centuries, a return voyage to Iceland from Norway usually took well over a year whilst by the 15th century fishing boats and trade ships were doing this within a year and by the 17th century within six months (Thór, 1996, p. 128).¹²⁹ Navigation at sea also became more reliable, following the invention and widespread adoption of the ship’s

¹²⁸ Paraphrased from the well-known line referring to a rose from Act 2, Scene 1 of *Romeo and Juliet* by William Shakespeare.

¹²⁹ By the mid-19th century screw schooners were completing a one-way journey from Denmark to Iceland in 10-12 days via the Faroe Islands but depending on weather conditions in the North Atlantic this trip could still take several weeks as reported by Carl W. Pajkull in his crossing on the schooner *Fylla* in May, 1865 (Pajkull, 1868, p. 4):
[http://www.navalhistory.dk/English/TheShips/F/Fylla\(1863\).htm](http://www.navalhistory.dk/English/TheShips/F/Fylla(1863).htm)

compass from the mid-15th century and the use of more accurate navigational charts and ship's pilots. Specific trade ports could be sailed to directly from Europe whereas before 1400 the ships were sometimes lucky if they even found Iceland (ibid., p. 129). The dogger ship is thought to have been the most commonly used foreign fishing vessel in Icelandic waters from 1400-1700. This vessel type was used initially by the English in the early 15th century and then later by Dutch fishermen in the 17th century (ibid.). This ship was referred to by the Icelandic chroniclers as (is. *fiskiduggur*), taking its name from the Dutch word for a cod fishing boat and is thought to have developed from the ketch ship type, originally single masted and later modified to be double masted and more suitable for long-distance voyages (Dear & Kemp, 2006, p. 256; Kemp, 2002, p. 56), (Figure 4). The Icelandic historical sources (mainly annals) referenced a variety of other ship types of visiting foreign merchant vessels active in the Early Modern Period including "*balingers, barges, crayers and caravelles*" (Thór, 1996, p. 129).¹³⁰ It's doubtful though, that the chroniclers were actually aware of any distinguishing characteristics between these vessel types or would have been able to identify ship types even if they had seen them in person.

¹³⁰ Crayer may also be spelt in English as krayer and Danish as (dk. *kreyerten*) and were also recorded in the Danish Sound Toll Registers as one of a number of vessel types involved in the Icelandic trade. See Chapter 3, The Danish Sound Toll Registers, Vessel Types for further details.

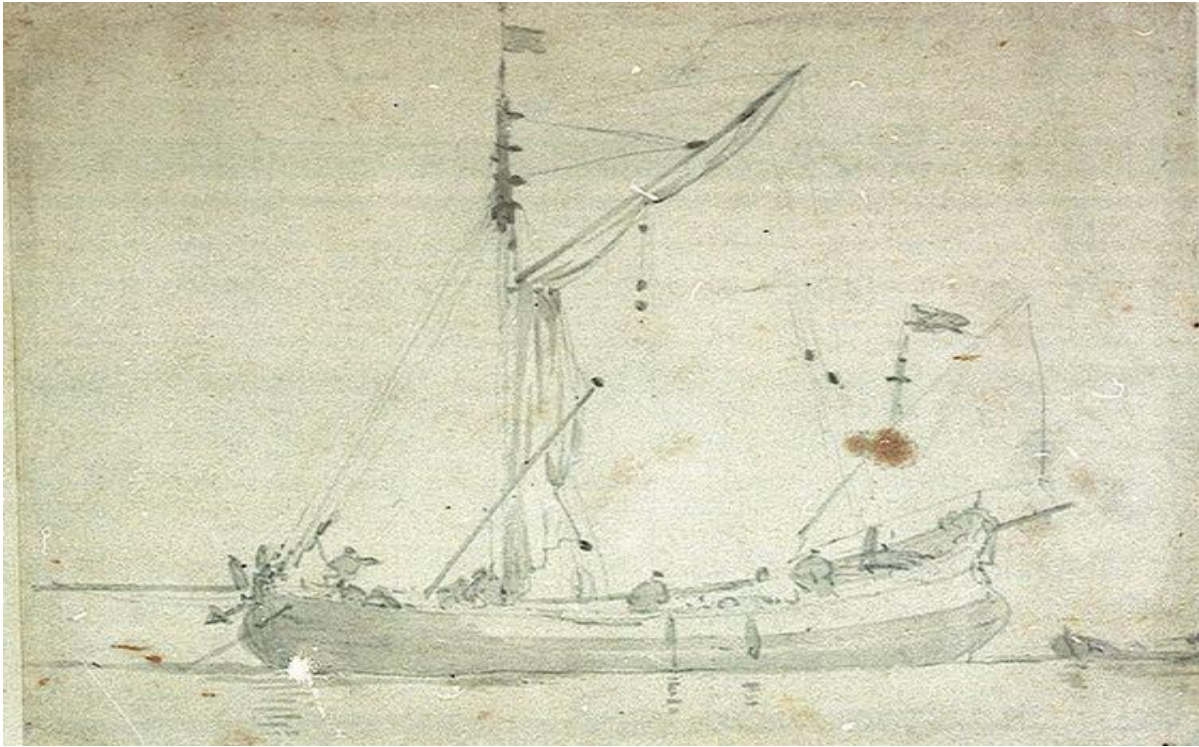


Figure 4. A sketch of a two masted Dutch dogger ship c. 1675 by Willem van de Velde the Younger. Source: Public domain, via Wikimedia Commons.

The bulk carrier of northern Europe in the 14th century had been the cog ship which had been frequently mentioned in Hanseatic merchant documents and often depicted on town seals as having “a high box like hull, clinker-built with straight and steep stem and sternposts, a centreline rudder with tiller, fore and aft castles, one mast and one square sail” (Gardiner & Unger, 1994, p. 30), (Figure 5). However as no one had seen a cog ship since they went out of use in the 15th century, it wasn’t until the discovery of the exceptionally well-preserved Bremen cog in the river Weser in 1962, that archaeologists were able to confirm and fill in the historical blanks in relation to the ship design and to “match the medieval written and iconographic evidence of cogs with a concrete archaeological find (Crumlin-Pedersen, 2000, p. 233), (Figure 6). Not everyone, however, has accepted the Bremen cog as “the paradigm for the cog-type”, highlighting that the lack of a “consistent theoretical framework for mechanisms of cultural inheritance and technological transmission” has essentially “ossified the narrative” of these vessels (Zwick, 2013, p. 61, 62). Whichever way one may ultimately define a cog-ship, Jonathan Adams (2013, p. 66) argued that they provided the maritime technological canvas onto which the impending changes in ship construction were applied. In terms of the ship sizes which the Hansa merchants were using in their trade with Iceland, Holterman’s (2020, p. 139, 140) analysis of the documentary sources reveal a range in sizes recorded from 35-100 lasts (70-200 tonnes) with 60 lasts

(120 tonnes) most frequently mentioned. Crew numbers on board typically numbered 40-60, with one record of 77 aboard being recorded “of which only 10-20 were crew members; the rest were merchants and their servants” (ibid., p. 141).

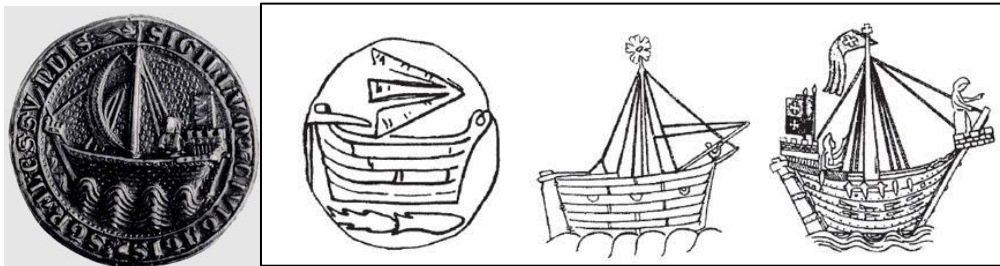


Figure 5. Vessels depicted on medieval town seals (l-r): Stralsund 1319, Stralsund 1267, Harderwijk 1280, Elbing 1350 which Crumlin-Pedersen (2000) identified as cogs. Source: left image Public Domain, Wikimedia Commons. Source of other three images (Crumlin-Pedersen, 2000, p. 232, Fig 2).

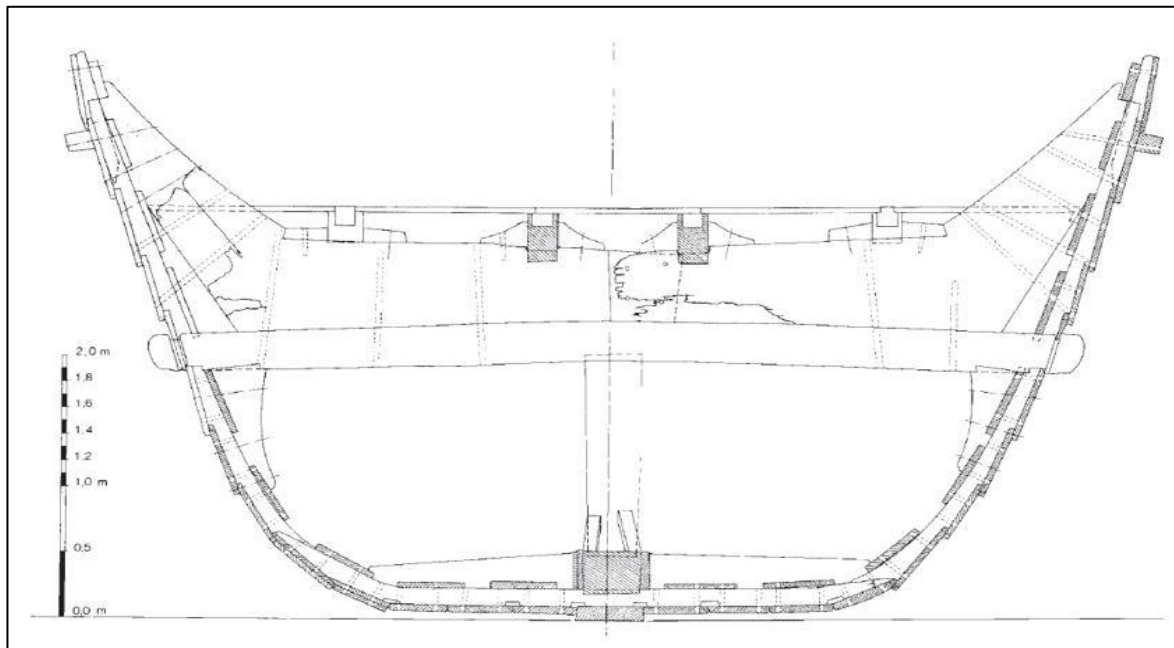


Figure 6. A cross-section amid-ships of the Bremen Cog. Source: (Crumlin-Pedersen, 2000, p. 232, Fig 3).

Two main shipbuilding methods have been identified from the archaeological record in relation to later medieval ocean-going ships: the clinker-built method and the Bremen-type method (named after the cog discovery) (Belasus, 2019, p. 177). The third construction method of flush-planked, carvel-built ships came later and spread into the north of Europe from the Mediterranean during the 15th and 16th centuries (ibid., p. 181). The most famous example of the clinker-built method is perhaps that of the 9th century Oseberg Viking ship from Norway, though its origins are much older and go back to the 4th century Mediterranean

area (ibid.). Clinker-built ships began with the laying of a keel with a stem and sternpost erected on either side of it. Along this 'backbone' the hull planking was fixed starting at the keel edge with strakes of planks overlapped and attached by iron rivets or wooden pegs (ibid.), (Figure 7).

The Bremen-type method employed some hallmarks of clinker-built construction though the floor planks of the hull only overlapped at the ends of the ship where they connected to the stem and stern posts and amidships, laid flat up against each other to create the signature box-shaped profile. Side planking was fixed in an overlapped manner using double clenched iron nails (ibid., p. 179), (Figure 6 & 7).

The carvel-built method developed from a shell-first to frame-first (also known as skeleton-first) construction technique and was characterised by its flush hull planking (ibid., p. 181), (Figure 7).¹³¹ The arrival of the carvel-built method did not, however, signal the immediate demise of clinker-built ships as archaeological finds in the Netherlands and Sweden of ships with clinker-built hulls dating from the mid-16th century attest, and Belasus suggested it was likely the case that shipwrights trained in clinker-built methods were building carvel ships under the guidance of foreign master shipwrights which allowed them to bring their own technical solutions into the process and adapt the ships to meet local (Nordic) conditions (ibid., p. 183).¹³²

This, in turn, led shipbuilders in other parts of Europe (mainly Dutch) to adapt their ships specifically to Nordic conditions from the inception, and this was borne out in relation to the development of the *Noordsvaarder* flute ship for the timber trade in Norway and the *Ostervaarder* for trade in the Baltic as well as the whaling flutes used in the North Atlantic and Greenland hunting trips (R. Gardiner & Bosscher, 1995, p. 65).¹³³

¹³¹ The frame-first method allowed the frames to guide the hulls' shape instead of being guided by the natural curvature of the planks as was the case with clinker-built ships (Belasus, 2019, p. 181).

¹³² Even in the 18th century several ships are known to have been built with a combination of clinker and carvel techniques "that is with a lap-strake lower hull, and with carvel-built topsides" (Gardiner & Bosscher, 1995, p. 62). Zwick (2013, p. 55) referred to these hybrid ships as 'half-carvels' which were clinker-built below the water-line and carvel-planked above "at the visible portion of the hull, where fashionable analogous features mattered". He advocated that these ships were not necessarily a "transient 'freak feature' within a gradual move towards carvel-built ships but more an established standard in their own right (ibid.).

¹³³ This point has specific relevance to the *Melckmeyt* case study and will be addressed in further detail in Chapter 4.

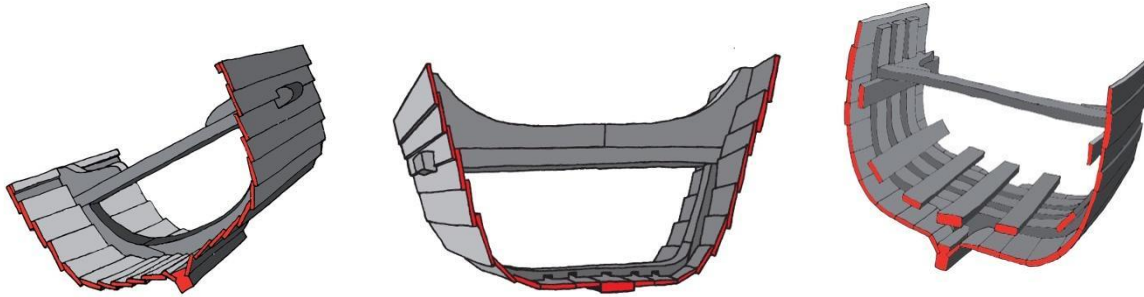


Figure 7. Cross-sections (l. to r.) of clinker-built, Bremen-type and carvel-built vessel construction. Source: (Belasus, 2019, p. 177, 178, 181, Figs. 2, 3 & 7).

In the early 16th century, carvel-built construction methods tended to be reserved for warships primarily but were also to a lesser degree being adopted in the merchant shipping construction and by the 17th century had become the standard method of shipbuilding in northern Europe (ibid.). The end of the 16th century was a watershed in terms of the direction and scale of production of merchant shipbuilding, steered largely by the efforts of one small nation which came to dominate the business for the next century: the Netherlands.¹³⁴

The Dutch *takeover*

Around the beginning of the Danish trade monopoly in the early 17th century, the Dutch economy prospered to such a degree that the century became known as the Dutch ‘Golden Age’, and was even described as the ‘miracle of the Dutch republic’ by Swart (1969). De Vries (1976, p. 93) described the Dutch industrial advancement as “an anomaly in seventeenth-century Europe”. Wallerstein (2011, p. 20) citing Cipolla (1974, p. 12) summarised the economic situations of the major European nations in the 17th century as being a “black century for Spain, Italy and Germany and at least a grey one for France. But for Holland it was a *golden age*, and for England, if not golden, at least silver”. While an in-depth assessment of the reasons behind this economic prosperity is outside the scope of this project, it’s still important to highlight the spectacular rise of the Dutch shipbuilding industry during this time which came to dominate European markets and also influenced the North Atlantic trade, as will be outlined in relation to the *Melckmeyt’s* involvement in the Iceland trade. This was also a time when new geographical discoveries brought expanding inter-regional commerce that, in turn promoted developments in nautical technologies (Unger, 1997, p. 126).

¹³⁴ Zwick (2013, p. 54) highlighted that Dutch shipwrights were more disposed than others to implement carvel techniques quicker because of their existing familiarity with flush-laid planks “due to the predominant locally-employed bottom-based tradition, in which the bottom planking was flush-laid too”.

De Vries (1976, p. 93) considered that the roots of the Dutch domination in shipbuilding could be directly linked to three innovations which they implemented before their European rivals. These included the use of wind-powered lumber sawing mills¹³⁵, the invention and refinement of a bulk cargo vessel which became known as a flute ship (nl. *fluitschip*) and the reduction of construction costs through centralisation of shipbuilding yards which operated cranes and stockpiled pre-cut timbers.¹³⁶ In remarks that likened the Dutch approach to shipbuilding to the production innovations of the Ford Motor Company's approach to car manufacture in the early 20th century, Wilson (1973, p. 329) argued that the shipbuilding industry of the Dutch was of "modern dimensions, inclining strongly towards standardised, repetitive methods". Similarly, Michell (1977, p. 152) viewed the consistent delivery of quality for the end product as being a more important factor overall than the actual size of the ships produced.

Indeed, the statistics speak for themselves. In the period 1500-1700, Dutch shipbuilding grew tenfold.¹³⁷ By 1670, the "Dutch owned three times the tonnage of the English, and more than the tonnage of England, France, Portugal, Spain and the Germanies combined" (Wallerstein, 2011, p. 46).¹³⁸ In the same year, it is estimated the Dutch merchant marine totalled 568,000 tonnes which represented about half of the European total (Blanning, 2007, p. 96).¹³⁹ Vessel production became prolific and reached a hitherto unprecedented scale, which at its peak produced up to 500 ocean-going vessels annually (De Vries, 1976, p. 93).¹⁴⁰ It has been estimated that the total number of Dutch sea-going vessels in the 17th century was approximately 40,000 ships (Daalder, 2005, p. 8), equal at its height to half the world's inventory of such vessels (Israel, 1989, p. 12). All these technological innovations combined to lower the overall cost of ship construction for the Dutch and in turn their foreign

¹³⁵ The invention of this sawmill is attributed to Corenlis Corneliszoon in 1594. The resulting impact on timber production quantities recorded in the Lowlands increased by 3,000% over hand-sawn timber production (van Duivenvoorde, 2015, p. 10). There was not a uniform adoption of this technology however across the Netherlands owing to resistance from hand-sawyers' guilds and mill owners, and it wasn't until the 1630's that Amsterdam built its first wind-driven sawmill (ibid., p. 12).

¹³⁶ Within the published literature the terms flute, fluyt and fluit are commonly used synonymously to refer to the same ship type. To avoid any confusion flute will be used in this thesis but where quotations are included that include the term the original form of the word will be used.

¹³⁷ Its share of the European fleet increased from approximately 16% in 1500 to as much as 40% in 1670 (van Zanden, 2001, p. 82).

¹³⁸ In a sense, the Dutch were making up for lost time in terms of international and intercontinental seafaring. "Among the European powers, the Dutch had entered the world's oceans last, more than a century after the Spanish, Portuguese, and French and a few decades after the English" (van Duivenvoorde, 2015, p. 15).

¹³⁹ See (Gardiner & Bosscher, 1995, p. 57) for further detail on the structure and relative size of Dutch shipping in the 1670's. See also (van Zanden & van Tielhof, 2009).

¹⁴⁰ Unger (1978, p. 11) estimated a production figure of 300-400 vessels over 100 tonnes annually for the domestic market and 150-200 vessels of similar size for the export market.

customers.¹⁴¹ Wallerstein (2011, p. 55) citing Parry (1967, p. 211) outlined multiple cost advantages the Dutch had over their competitors which brought the overall cost of production down by as much as 50% compared with their closest shipbuilding rivals in England.¹⁴²

Jan Glete (2007, p. 21) argued that the rise in Dutch maritime and mercantile supremacy in the 17th century was based not only on their technological innovations but also on “institutional change” as an overlooked salient factor through which the Dutch state protected its merchants by the development of a sophisticated convoy system with warships guarding merchant ships.¹⁴³ When not traveling as part of larger convoys, single merchant ships often carried small arms on board.¹⁴⁴ van Zanden & van Tielhof (2009, p. 390) have similarly highlighted the importance of recognising how intertwined political and technological factors were for the Dutch in this period and have argued that state policies such as the *Pax Hollandica* allowed trade particularly in the Baltic, to expand as well as greatly contributed to the rise in the technological development of the flute ship which “was made possible by the pacification of the routes to the Baltic and related routes, to northern Germany and Norway”.¹⁴⁵

Jón Thór (1996, p. 126) highlighted the links between the technological developments in ship design and rigging and the dramatic increases in foreign commercial fishing in the Icelandic waters from the 15th century onwards, in which the Dutch became the most dominant nation during the 17th and 18th centuries. To get an accurate estimate of the numbers of vessels this represented, Simon Thomas (1935, p. 260) tabulated archival references of Dutch fisheries off Iceland from 1751-1786 (records for the 17th century are not known or as comprehensive) and showed that approximately 3,129 Dutch fishing boats were active in the Icelandic waters

¹⁴¹ To satisfy domestic and export demands shipyards multiplied in number. Zaanstreek (an area north of Amsterdam) had 25 shipyards in 1650 and over 60 by the year 1700 (Nørlund Christensen, 2021, p. 92). The Dutch export market for ships was significant in the early to mid-17th century and included sales to Sweden, Denmark, Russia, France, England, the Italian states, Hamburg, Bremen and the wider Baltic area (van Duivenvoorde, 2015, p. 9).

¹⁴² These advantages included: 1) the skill of Dutch shipwrights, 2) an economy in the use of materials, 3) labour-saving devices, 4) large-scale standardized production, 5) large-scale purchasing of materials and 6) the cheap transportation of construction materials in Dutch ships.

¹⁴³ Glete’s point here is an important one. Technological advances alone are not enough to explain the radical trajectory that the Dutch economy took in the 17th century. As economist David McWilliams (2021) has recently argued “Change happens when technology and culture move in the same direction. Technological change is never enough to drive social change. It is necessary but not sufficient. There needs to be a cultural buy-in too”.

¹⁴⁴ As was evident on the *Melckmeyt*.

¹⁴⁵ *Pax Hollandica* was a pro-active state policy of intervening either through peaceful means such as diplomacy, via war and the preparation for war to further its own economic interests particularly in the Baltic province (van Zanden & van Tielhof, 2009, p. 390).

over this 35-year period, which averages to about 89 boats per year. For the 17th century period, if we assume a similar amount of fishing activity and include merchant and whaling vessels, both legal and illegal, into the overall equation, then it would have represented a substantial enough presence in the North Atlantic waters. While improved navigation and larger ships meant more reliable journeys with higher potential profits, Akveld (1977, p. 330) noted that difficulties developed between the Icelanders and the Dutch fishermen in the early 18th century when trading opportunities between both parties were greatly reduced because the Dutch no longer used dogger ships but instead opted to use much larger *hoekers* (nl. *hoeker* or *houchboot*). This, in turn, reduced their need to have contact with the shore since they could store more provisions onboard, process catches and stay at sea for longer periods.¹⁴⁶ The Icelanders also viewed the Dutch fishermen as being in direct competition with to their own stockfish production which was mainly purchased by Danish and Dutch merchants and used in exchange for imported goods. In tandem with the development of larger fishing vessels, Dutch merchant ships also grew with their average ship sizes rising from 50-70 lasts (100-140 tonnes) in the mid-16th century to 100-150 lasts (200-300 tonnes) by the mid-17th century (van Zanden & van Tielhof, 2009, p. 400). While average cargo capacities increased, tonnage ranges decreased resulting in an optimal homogenous composition of the Dutch merchant fleet (ibid., p. 391).

All this shipbuilding activity required a constant, substantial supply of suitable timber, much of which was oak.¹⁴⁷ It is estimated that up to 2,000 oak trees, which needed a century of maturation so as not to split, were required to construct a single warship (Wallerstein, 2011, p. 23). All of this had to be imported as the local timber supplies in the Netherlands were conserved and were themselves nowhere near large enough in quantity or of suitable quality to keep up with a growing demand. Timber for ship and building construction were imported largely from the German Rhineland, North Germany and Norway, although the Baltic area also became a major source of this timber for the Dutch who capitalised on their existing dominance in the textile production and trade in this region. Glete, when referencing the economic situation in that area, noted that the “Baltic was by the 1650’s politically a Swedish lake while it economically was a Dutch lake” (2007, p. 22). The North Sea region was at the time the “centre of gravity of the world’s shipping” with trade between Norway and the Dutch Republic accounting for one-third of all export clearings from Amsterdam in 1652 (Gardiner

¹⁴⁶ The *hoeker* had wells for live catches and featured two light masts both with squared sails. The position of the mainmast amidships also created a working platform in the foredeck area for the fishermen (Nørlund Christensen, 2021, p. 97).

¹⁴⁷ It’s been estimated that nearly 320,000m³ of oak were used by Dutch shipyards for the production of seagoing vessels alone, which represented 2,500 hectares of oak forest per year (van Duivenvoorde, 2015, p. 9). This figure rises to 450,000m³ (3,500 hectares) when inland-water ships are included (ibid., p. 268).

& Bosscher, 1995).¹⁴⁸ Wendy van Duivenvoorde (2015, p. 10, Table 2-1) citing Porsius (2002, p. 11) provided figures for foreign timber imports into the Netherlands, which in 1650 totalled 172,000 lasts (344,000 tonnes) and in 1750 were slightly lower overall at 171,000 lasts (342,000 tonnes).¹⁴⁹

The development of the flute ship

The Dutch produced a number of different ocean-going vessel types during the 17th and 18th centuries including *East Indiaman (retourschip)*, *jachts*, *flutes*, *pinas*, *hekboot*, *katschip*, *bootschip*, *boeir*, *galjoot*, *hoeker* and *buis*¹⁵⁰ (Daalder, 2005; Gardiner & Bosscher, 1995, pp. 42-53; Hoving, 2014; Unger, 1978).¹⁵¹ Amongst these, the flute ship was by far the most common (mass-produced) merchant ship type and most impactful in terms the advancement of merchant shipping technology in this period. The influence and impact of flute ship design and construction should not be underestimated and its adoption and popularity would come to define bulk cargo transport in western and northern Europe during the 17th century. In this region, the history of the merchant ship in the Early Modern Period quite simply can be divided into two eras. Everything that came before flute ships and everything that came after.

As it is also the most directly relevant type of ship produced in Holland during this time in relation to this project's case study investigation and its focus on the Danish monopoly trade in the North Atlantic, it will be singled out for further discussion in this section. A significant body of literature and general historical research exists for flute ships (Hoving, 1997; Unger, 1978, 2000; Wegener Sleeswyk, 2003) but until recently few have considered the results

¹⁴⁸ Timber and stockfish were the main import commodities by the Dutch from Norway while exports comprised cloth, wine, salt, tobacco, cheese, spices and manufactured items such as bricks and tiles (Gardiner & Bosscher, 1995, p. 57). The introduction by the English of the Navigation Acts of 1651 which banned Dutch ships transporting timber into English ports severely weakened the Dutch hold on the Norwegian timber trade which the ships of the Danish-Norwegian state would ultimately take over (ibid.).

¹⁴⁹ Timber imports from Norway to the Netherlands declined by 53% between 1650-1750 with imports from the Baltic Sea and Rhine areas increasing by 31% and 21% respectively to compensate over the same period (van Duivenvoorde, 2015, p. 10, Table 2-1). For an overview by a contemporary observer Nicolaes Witsen of the various provenances and types of timber being imported to the Netherlands for shipbuilding during the 17th century, See (Hoving, 2012, pp. 21-24). Though slightly earlier in time frame, see also Daly (2019) for a dendro-chronological analysis of shipwreck timbers from the 12th-17th centuries which indicates the connections between various regions in Europe in relation to timber sourcing.

¹⁵⁰ A number of these vessels belonged to the flute family or were heavily influenced by the rounded hulls of the flute family though incorporated some individual variations including *pinas*, *katschip*, *bootschip*, *buis* and *hekboot* (Gardiner & Bosscher, 1995; Unger, 1978).

¹⁵¹ According to Unger (1978, p. 41) the pace of technological change for Dutch ships slowed significantly for the larger warships and ocean-going vessels (though it continued for smaller craft) in the later 17th and 18th centuries compared to innovations which had occurred in the previous two centuries.

from underwater archaeological investigations of wrecks, many of which have taken place since the 1970's (McCarthy, 2020, p. 208). A number of these excavations will be highlighted in the later sections focussing on previous shipwrecks investigated in the North Atlantic area. Whilst the common thread that links these wrecks was the lack of actual physical remains of the ships, in more recent times work by Niklas Eriksson (2012, 2013, 2014, 2015) on the spectacularly well-preserved flute wrecks in the Baltic Sea has taken the narrative of flutes into previously uncharted waters beyond the 'standard' historical analysis which often placed a lot of emphasis on the ship's construction or design typology.

The flute ship, long considered to be the workhorse or "sailing tramp" as described by Unger (2000, p. 122), of the Dutch merchant fleet is one of the few ships in history for which its invention date and purported inventor are recorded.¹⁵² Pieter Janz Liorne from Hoorn (north of Amsterdam) was identified by a contemporary chronicler Theodorus Velius as building and launching the first flute in 1595 (ibid., p. 121). However, the veracity of this account is long-disputed and it could be interpreted that in this year an already established type of ship (flute) was first built in Hoorn rather than originating from the city itself (Hoving, 2014, p. 64).¹⁵³ The rising popularity of flute ship production in the following years was later noted by Velius, who claimed that 80 flutes were in service within eight years of the first one being built (Hoving, 2014, p. 64; Unger, 2000, p. 121). Richard Unger (2000, p. 121) suggested that the flute's origins belong earlier than the last decade of the 16th century and were an end product of continuous innovations and experiments in cargo ship design which in particular from the mid-16th century, was focussing on increasing ratios of length to width. The lengthened ships known as (nl. *verlangers*) - literally ships which were cut in half and lengthened - were an example of this development and were in use from 1587-1619 (van Duivenvoorde, 2015, p. 13; Wegener Sleeswyk, 2003, p. 39).

Flute ships were essentially designed under the '*less is more principle*' with a "relatively long but shallow drafted hull, nearly flat bottom, sharp turns to the bilges and sharply angled stem-and sternposts" and an interior hold space resembling a box in shape (Unger, 2000, p. 121; van Tielhof, 2002, p. 185). The hull form was pear-shaped in cross-section (also known as turret built or kettle bottomed) and the ship featured a narrow main and poop (stern deck) with the maximum width of the ship falling below the waterline (van Duivenvoorde, 2015, p.

¹⁵² The flute (nl. *fluit*) name for the vessel may originate from the shape of the vessel at the stern which with the narrowing of the upperworks (aftercastle) resembled a "thinly shaped glass, a flute" (Unger, 1994, p. 121).

¹⁵³ Adding further doubt to Velius's claim, van Duivenvoorde (2015, p. 13) previously highlighted ship scholar Wegener Sleeswyks (2003, pp. 29-35) finding that Liorne was not a shipbuilder himself but the mayor of Hoorn with a vested interest in shipbuilding so undoubtedly played a part in sponsoring its development in Hoorn but was likely not the original inventor.

13), (Figure 12). Rigging was kept as simple as possible with tall masts, small sails (drawing on influences from smaller inland craft) and the use of blocks, pullies, sheaves and tackles for easier handling, which also had the consequence of requiring smaller crews onboard to manage the vessel (*ibid.*, p. 15; Unger, 2000, p. 121).¹⁵⁴ Flutes were regarded as slow vessels, overall, with speed sacrificed in favour of manoeuvrability (Unger, 2000, p. 121).¹⁵⁵ These ships were, however, particularly well-suited to deal with the rough waters often encountered in the North Atlantic Ocean, as the hull design incorporated a low centre of gravity offering “excellent capability for riding out bad weather” (Unger, 1978, p. 37). Hoving (2012, p. 190) noted that 17th century sea-going vessels such as flutes would normally also carry a sloop on deck, towed behind or sometimes even sailed separately. These could be rowed or sailed and were essential for transporting people and goods in places where the ships lay at anchor in a harbour or bay with limited or no substantial quay facilities available, as was the case at the Icelandic trade ports.

These vessels typically had a tonnage range of 200-500 tonnes with some outliers over 800 tonnes known to have been built, but the optimum size for servicing the intra/extra-European trade was considered to be 400-500 tonnes (Unger, 1978, p. 38, 2000, p. 122).¹⁵⁶ Flute lengths varied with the earliest versions being about 28m long and examples up to 40m in length being built by the end of the 17th century (Hoving, 2014, pp. 66-67). Likely drawing on influences from the length to breadth ratios used in the (nl. *buss*) cargo carriers and the (nl. *verlangers*) elongated ships of the late 16th century, flutes typically had relatively high length-to-beam ratios between 4:1 and 6:1 (Unger, 1978, p. 37, 2000, p. 121; van Tielhof, 2002, p. 185).¹⁵⁷

In terms of the crew required on board an average sized flute, Hoving (2014, p. 74) suggested 12 men were needed, while Unger (1978, p. 45; 2000, p. 122) noted that seven men and one boy could handle a flute (nl. *Noorvaarder*) of 150-160 tonnes in the Norwegian trade. All the innovative design features had culminated to keep the crew numbers as low as possible in relation to the tonnage with ratios of 20:1 for tonnes served per crew man being

¹⁵⁴ The standard rigging on a flute was three masts (two with topmasts) and a bowsprit (a spar extending forward of the vessel's prow) (Hoving, 2014, p. 71).

¹⁵⁵ The sail area was relatively small in relation to the overall size of the ship and the low rig setup slowed speed but improved seaworthiness (Nørlund Christensen, 2021, p. 95).

¹⁵⁶ Wendy van Duivenvoorde (2015, p. 13) noted an average size of flutes in 1600 as 200 tonnes rising during the 17th century to 360 tonnes. Richard Unger (1978, p. 38) argued that the development of the flute essentially halted the expansion in the size of cargo ships well below a technically feasible maximum of 2,000 tonnes.

¹⁵⁷ By the early years of the 19th century, such length-to-beam ratios of 6:1 were commonplace and were quickly increased to 8:1, 9:1, or more (Unger, 1978, p. 43).

easily accomplished.¹⁵⁸ This ratio had increased to 25:1 by the beginning of the 18th century (van Tielhof, 2002, p. 186).

Very few contemporary written sources on Dutch shipbuilding in the 17th century exist with the two best known being '*Aeloude en Hedendaagsche Scheeps- bouw en Bestier*' (Ancient and contemporary shipbuilding and management) published in 1671 by Nicolaes Witsen and '*De Nederlandsche Scheepsbouw Konst Opengesteld*' (The Art of Dutch Shipbuilding exposed) by Cornelis van IJk published in 1697 (van Duivenvoorde, 2015, p. 20). Both Witsen and van IJk described two different construction methods used at the same time by Dutch shipbuilders which may have reflected the regionally favoured techniques employed within their localities.¹⁵⁹ For Witsen, writing from Amsterdam, this was the shell-first or bottom-based construction method and for van IJk based in Rotterdam, this was the frame-based construction method (Hoving, 2012, p. 7). The shell-first method has been outlined earlier in relation to clinker-built ships and begins "with the planking or skin of the hull, after which the frames are fitted into the shell formed by the outer planking; with the latter method (bottom-based) the frames are raised first, after which the planking is applied to them" (ibid., p. 9), (Figure 8 & 9).¹⁶⁰ Because no schematic drawings were used to build from using these methods particularly the shell-first approach, the master shipbuilders' hands were free to experiment and vary from the traditional shipbuilding formulas where the effects of small adjustments or tweaks in the design could produce the most suitable end product (ibid.).

¹⁵⁸ Sir Walter Raleigh noted the equivalent English ratio at the time (1605) was 7:1 (Unger, 1978, p. 44).

¹⁵⁹ Unger (2000, p. 124) argued the determining factor in the ultimate building method chosen by shipbuilder was unclear and could have been a provincial factor, the ship type itself, or the relevant experience and inclination of the builder.

¹⁶⁰ The frame-based method was to eventually supersede the shell-first method for the construction of warships and large merchantmen by the early 18th century (van Duivenvoorde, 2015, p. 31). See (Hoving, 2012, pp. 7-11) and (van Duivenvoorde, 2015, pp. 21-34) for a more in-depth discussion of these two Dutch shipbuilding methodologies.



Figure 8. An etching by Siewart van der Meulen (1690-1710) of a Dutch shipyard around the year ca.1700 showing the shell-first, bottom-based construction method favoured by the Dutch shipbuilders particularly in the Amsterdam region in the early-mid 17th century. The temporary wooden holding cleats mentioned by Witsen used on the hull planking are visible as well as the recognisable pear-shaped stern of a flute ship. Source: Rijksmuseum, Amsterdam, Catalogue ref. FMH 3013-A/2. Public Domain.



Figure 9. The Amsterdam Admiralty shipyard with three warships being constructed using the frame-based construction method. Painting by Ludolf Bakhyzen, 1655-1660. Source: Rijksmuseum, Amsterdam, Catalogue ref. SK-A-1428. Public Domain.



Figure 10. The frame-based construction method and ship's skeleton visible in a reconstruction of a 17th century Dutch vessel named *De Zeven Provinciën* (*The Seven Provinces*) from 2017 at the *Batavialand* shipyard in Lelystad, the Netherlands. Image credit: Kevin Martin.

Despite the small numbers of contemporary written sources for flute construction, the building process is known to have been extremely short relative to other ships of similar size, with the prices also kept comparatively low.¹⁶¹ Shipwrights would often use cheaper pine and fir timber for the decks, sides and superstructures, reserving oak solely for the hull itself (Nørlund Christensen, 2021, p. 95; Unger, 1978, p. 37). This made the ships lighter, which in turn increased cargo capacity (ibid.). Pine was also easier to source and work with than oak, which further reduced expenditures and labour costs, though the trade-off was in the vessels' overall durability and longevity and in increased requirements for maintenance and repairs (Unger, 2000, p. 122; van Duivenvoorde, 2015, p. 15).¹⁶² Unger (ibid.) suggested a 20-year lifespan as being the normal life expectancy for such ships.¹⁶³ Because of the convoying system of protection put in place by the Dutch admiralty over their merchant fleets, flutes were also generally lightly armed or carried no arms at all, further reducing their operating costs (Unger, 2000, p. 123).¹⁶⁴ Hoving (2014, p. 67) based on earlier estimates from Witsen has suggested that a team of 20-22 men could produce a 40m long ship with all necessary fixtures and fittings for taking to the high seas (sails, anchors, guns) within a period of four to five months.

One of the biggest advantages of flute ships design was in their adaptability, since they could be tailored and modified during the building process to account for specific routes or cargo types.¹⁶⁵ Though originally the ships had been developed to meet the needs of Dutch shipping in the Baltic trade¹⁶⁶, they were also built for use in the trade with the Mediterranean where they were known as (nl. *straatsvaarders*) strait-farers/traders. For the salt trade with

¹⁶¹ A flute built in the Netherlands costing 800 pounds sterling would cost 1,300 pounds sterling in England (van Duivenvoorde, 2015, p. 13).

¹⁶² Costs of the other main components: iron from Sweden and canvas from France were also kept low (Unger, 2000, p. 125).

¹⁶³ Witsen mentioned (Hoving, 2012, p. 200) that ships built in this time might last up to 70 years (based on an English ship of this age he had seen) though he concluded the average life span was 10-12 years (Unger, 1978, p. 44).

¹⁶⁴ McCarthy (2020, p. 210) noted that flutes became more heavily armed after the First Anglo-Dutch War in the 1650's. Hoving (2014, p. 64) has also highlighted how during peacetimes flutes grew longer in size when ordinance became less important and shorter during times of war.

¹⁶⁵ "For a ship that was to load corn which is extremely heavy, the shipbuilder intentionally diminished the depth of the hull a few feet, to prevent the ship from being overloaded. A ship transporting timber was squarer in shape; to make better space for the long baulks and a ship that was to sail in enemy waters was given a more raking stern and a bottom with more dead rise to make it faster" (Hoving, 2014, p. 66).

¹⁶⁶ It has been argued that the hull shape was considered specifically designed to evade or reduce Danish Sound tolls without reducing cargo capacity of the ships (van Duivenvoorde, 2015, p. 13). Additionally, shallower draught built ships like flutes were used on Baltic routes where many major trade ports such as at Danzig were located on river mouths and silted up more regularly (van Tielhof, 2002, p. 185). This feature would likewise have been advantageous for flute ships visiting the Icelandic trade ports, where many were also located on river mouths or parts of fjords which frequently silted up.

Portugal and Spain they were called (nl. *Spaniefarers*) Spanish-farers, and for whaling expeditions in the North Atlantic and Greenland they were referred to as (nl. *Noordsvaarders*) North-farers, (nl. *Groenlandvaarders*) Greenland-farers or (nl. *Walvisvaarders*) Whalers (McCarthy, 2020, p. 210), (Figure 11 & 13). The Dutch East India Company (VOC) also used flutes in Asia, building 300 between 1614 and 1720 (ibid.; Parthesius, 2010).¹⁶⁷

McCarthy (2020, pp. 213-214) additionally highlighted how in the early 17th century non-specialised vessels such as older merchant ships that were coming to the end of their working lives were often drafted and hired into use for the whaling trade, since they were a cheaper alternative than commissioning a specifically adapted double-planked hulled and strong masted whaling vessel. However, this practise decreased when whaling moved offshore and ice-floes in the North Atlantic became a more prevalent danger to the ships (Figure 11). This practise was also evident in reverse order, with older whaling vessels being re-purposed as merchant ships. The *Melckmeyt* was an example of this occurrence, as an exploration of the ship's biography will reveal later in Chapter 4.1.



Figure 11. An etching of a Dutch Greenland-farer (nl. *Groenlants Vaerder/ Groenlandvaarder*) *Swarte Beer* (*Black Bear*) by Reinier Nooms ca. 1655. Note the whaling flag being flown off the stern as well as the damage to the ships beakhead.¹⁶⁸ Source: Rijksmuseum, Amsterdam, Catalogue ref. RP-P-OB-20.542. Public Domain.

¹⁶⁷ Flutes were however not considered ideal for tropical conditions as the heat often caused warping and bending of hull planking at the stern leading to severe leaking. They were ultimately replaced by *pinasses* and *hoekers* (R. Gardiner & Bosscher, 1995, p. 50).

¹⁶⁸ McCarthy (2020, p. 213) citing Wegener Sleeswyk (2003, p. 80) noted the damage was likely from hitting an iceberg and suggested the ship was a hired vessel and not originally built as a whaler.

The popularity of flutes in the Baltic trade was without question. It's estimated that during the 1630's about 70% of all ships passing through the Danish Sound were flutes and by the following decade this had risen to 90% (Gardiner & Bosscher, 1995, p. 68).¹⁶⁹ These ships were mostly employed in the grain trade and were referred to as East-farers (nl. *Oostvaarders*). It had long been accepted by maritime scholars that all such vessels were specifically adapted by Dutch shipbuilders (with narrowed high positioned decks, wide bows and sterns and inward sloping sides 'Tumblehome') to reduce or lower their fee when passing through the Danish Sound (Figure 13).¹⁷⁰ However, more recently this has been challenged by Jensen (2018), who suggested based on his analysis of the Sound Toll Registers (1562-1632), that bills of lading were used to calculate vessel tonnage rather than by using length, width and breadth formulae.¹⁷¹ He highlighted that the toll evasion design referred to by Witsen as 'wasp-waisted' most likely referred to flutes involved in the Norwegian timber trade during the period (1647-1669) rather than all flutes operating in the Baltic. After 1669, this loophole was shut down by the Danish King who changed the terms of the toll assessment treaty whereby the flute design no longer mattered for toll calculation (ibid., p. 41).

¹⁶⁹ Research of the Sound Toll Registers indicates that Baltic flutes in the mid-17th century had a cargo capacity of approximately 150 lasts (300 tonnes) with some as low as 80 lasts (160 tonnes) recorded (McCarthy, 2021, p. 211; Wegener Sleeswyk, 2003, p. 71). Unger (1978, p. 46) reported that East-farers (nl. *Oostvaarders*) were generally larger than the North-farers (nl. *Noordvaarders*) or whalers and were 30-40m long and 300-600 tonnes.

¹⁷⁰ Ships frequenting the Danish Sound were obliged to pay a toll based on the size of ship, which was thought to have been determined on the measure of deck breadth amidships though Jensen (2018, p. 23) has shown otherwise.

¹⁷¹ From 1632 the Danes produced tables for the measurement of ships (Jensen, 2018, p. 32).



Figure 12. Dutch flute ships with typical round-bellied or kettle-bottomed hulls and narrow aftercastles at the stern depicted on an etching by Wencelaus Hollar in 1647. Source: Rijksmuseum, Amsterdam, Catalogue ref. RP-P-OB-11.352. Public Domain.



Figure 13. Two mid-17th century flute ships: *Geele Fortuijn* a (nl. Oostvaarder) Baltic trader and *De Liefde* a (nl. Noordsvaarder) flute in the Norwegian wood trade. Etching by Reinier Nooms, 1650. Source: Het Scheepvaartmuseum, Amsterdam. Public Domain.

Though they were still being built into the 18th century, the heyday for flutes was the first 75 years of the 17th century after which they started to lose their characteristic 'bulbous' shape (Gardiner & Bosscher, 1995, p. 51). Owing to increased regulation and standardisation within shipbuilding, construction times for vessels that had been the envy of European rivals in the mid-17th century also shot up from four to five months to a year or more during the 18th century (ibid., p. 41).¹⁷² Moreover, the output of the Dutch shipping industry declined after 1670 and essentially went into a period of stagnation during the 18th century while the fleets of other European nations such as the British and French expanded. Tonnage figures of the Dutch fleet in 1780 were at the same levels as recorded during their peak 110 years earlier in 1670.¹⁷³ The Dutch Republic's involvement in wars with its neighbours and rivals also played a part in diverting and depleting the economic resources of the state, and this was perhaps a large reason the Dutch remained neutral for much of the 18th century, as they simply couldn't afford to go war (van Zanden & van Tielhof, 2009, p. 401).¹⁷⁴

Danish merchant shipping in the Early Modern Period

The advances in ship design and technological progress made by shipwrights in the Netherlands, as outlined above, did not go unnoticed by other European states including the Danish kingdom. This resulted in the recruitment of Dutch and other "foreign shipbuilders who came to work for the Danish Royal Navy, and from these masters, the new knowledge was carried out into the realms by conscripted local shipwrights" (Nørlund Christensen, 2021, p. 53). Both Kings Frederik II and his son Christian IV of Denmark were directly involved in this recruitment, with the latter, in particular, being recognised for his personal interest and efforts to modernise and develop the Danish navy (Lemée, 2006, pp. 48,49).¹⁷⁵ Christian IV was known to have preferred shipwrights from the British Isles who focussed more on building heavily armed ships than the Dutch merchant ship specialisation (Nørlund Christensen, 2021, p. 59). During his reign, the Crown's own fleet was reported to have incorporated more than 300 vessels including 170 warships, 70 merchant ships and a number of others which were likely multi-functional types (Degn & Gøbel, 1997, p. 41). The appointment of the Dutch-trained Norwegian Cort Siversten Adelaer as admiral and head of the Danish fleet in 1663 saw a massive influx of Dutch ship's carpenters and master builders into the Danish state which profoundly influenced ship construction over the following 30

¹⁷² Standardisation and regulation of vessel sizes and rigging curtailed the freedoms of shipwrights to experiment and innovate during the shipbuilding process (Gardiner & Bosscher, 1995, p. 41).

¹⁷³ Dutch shipping tonnage figures: 1565: 160,000, 1607: 300,000, 1636: 310,000, 1670: 400,000, 1750: 395,000, 1780: 400,000 (van Zanden & van Tielhof, 2009, p. 394).

¹⁷⁴ The Dutch fought four naval wars with England (1651-1653, 1665-1667, 1672-1674, 1780-1784) and with France (1672-1678, 1700-1713), (van Zanden & van Tielhof, 2009, p. 401).

¹⁷⁵ There was already during the reign of Christian II in the early 16th century likely to have been a strong Dutch influence on Danish shipbuilding (Nørlund Christensen, 2021, p. 54).

years (*ibid.*, p. 89). Lemée (2006, p. 46) noted the lack of large commercial vessels in the Danish merchant navy during the 16th and 17th centuries and argued that this was most likely due to the dominant presence of Hanseatic and later Dutch and English trading vessels passing through the Sound, to which they could outsource cargo transportation. He (*ibid.*) supported this argument by referencing the figures of the Danish merchant fleet from 1639 which listed only 26 ships exceeding 100 lasts (200 tonnes) in cargo capacity and whose overall average vessel size was only 25.7 lasts (51 tonnes), (Table 6). This may also suggest that carvel-planked ships were first introduced through the naval shipbuilding channels and then spread from there into private merchant shipping (*ibid.*). Overall, the written sources on merchant and private shipbuilding during this period in Denmark are scarce in comparison to those on Danish naval shipbuilding (*ibid.*, p. 67). As mentioned earlier in relation to Dutch shipbuilding practices earlier, very few if any, production drawings were made for the ships and Lemée noted that “the shipbuilding methods in use outside the naval shipyard of Nyholm were still, up to the beginning of the 19th century, based on rules of thumb combined with the individual shipbuilder’s experience” (*ibid.*, p. 67).

Danish merchant shipping in numbers

Degn & Gøbel (1997, p. 28) as well as Kelsall (2007, p. 213) have previously examined the figures for the Danish merchant fleet which are summarised below in Table 6. The figures show a dramatic fall-off in lastage size after the war with Sweden (1657-60), a similarly dramatic fall in the average vessel size from the period 1639-1670 and an expansion of the fleet after 1680 (Kelsall, 1997, p. 213). Nørlund Christensen’s (2021, p. 39) analysis of the overall tonnage figures for the Danish-Norwegian merchant fleet in the 17th and 18th centuries is revealing in terms of its scale, particularly in comparison with the tonnage figures of the Dutch merchant fleet operating during the same period. Around the mid to late 17th century, it was approximately one tenth of the scale of the Dutch fleet. (Table 7).¹⁷⁶ However, by the end of the 18th century the Dutch merchant fleet had declined significantly in size to the point that it was approximately equal to the tonnage of the Danish-Norwegian merchant fleet which conversely had almost tripled in size during the 18th century.

¹⁷⁶ Nørlund Christensen (2021) separated Danish and Norwegian tonnage figures, but these are combined in this section.

Year	Vessels Nr	Lasts	Average Size
1639	705	18,143	25.7
1648	?	17,000	?
1656	?	14,500	?
1662	?	6,000	?
1670	772	7,521	9.7
1677	753	8,612	11.4
1680	615	7,187	11.7
1687	911	11,289	12.4
1696	1,249	23,799	19.1
1699	1,070	17,623	16.5
1707	1,008	13,851	13.7
1731	885	12,742	14.4

Table 6. The merchant fleet of the Kingdom of Denmark (excluding Norway) in the period 1639-1731. Source: Combination of (Degn & Gobel, 1997, p. 48, Table 13) and (Kelsall, 2007, p. 213, Table 1).

Year	Combined Danish-Norwegian merchant shipping tonnage figures	Year	Dutch merchant shipping tonnage figures
1634	70,000 tonnes	1636	500,000 tonnes
1680	57,000 tonnes	1670	600,000 tonnes
1696	132,000 tonnes	1676	900,000 tonnes
1767	112,500 tonnes	1750	500,000 tonnes
1786	386,020 tonnes	1786	397,709 tonnes

Table 7. Merchant shipping tonnage figures for the Danish-Norwegian state 1634-1767 and Dutch Republic 1636-1786 Source: (Nørlund Christensen, 2021, pp. 39,40; Unger, 1997).

As was the case with the Dutch, Danish involvement in wars negatively impacted its merchant shipping fleet, particularly those fought against Sweden and its allies (1643-1645, 1657-1660) and The Great Nordic War (1700-1720) which reduced the fleet numbers significantly (ibid.), (Gardiner & Bosscher, 1995, p. 58).¹⁷⁷ A period of growth was recorded in the 1740's and 1750's, driven largely by Danish neutrality during the wars of the Great Powers (1740-48) and (1756-63) and additionally by international crises including The

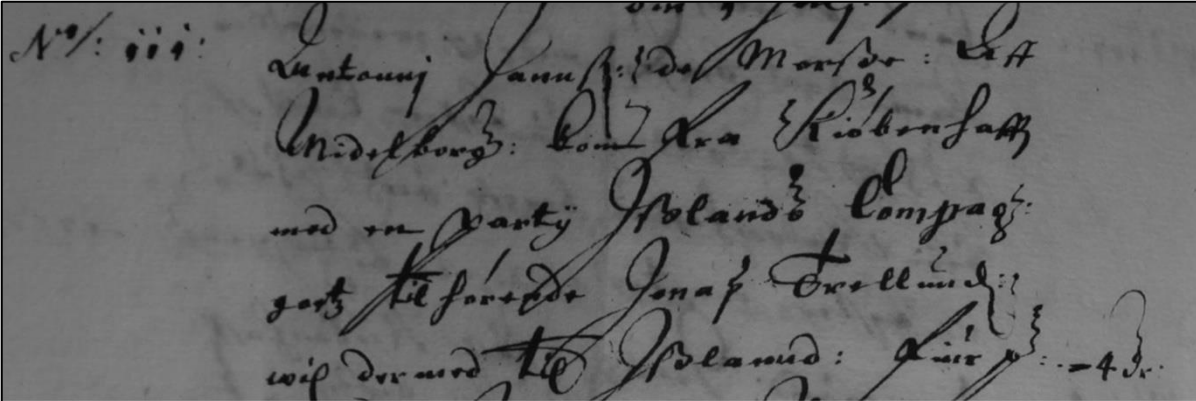
¹⁷⁷ During the 17th century the Danes were involved in at least 9 major wars including: Kalmar War (1611-1613), Thirty Years' War (1618-1648)**, Torstenson War (1643-1645)*, Second Northern War (1657-1660)**, Second Anglo-Dutch War (1665-1667)**, Second Swedish War on Bremen (1666)**, Third Anglo-Dutch War (1672-1674)**, Franco-Dutch War (1675-1678)**, Scanian War (1675-1679)**. *Wars where Dutch were enemies. **Wars where the Dutch were allies (Jespersen, 2004).

American War of Independence (1775-1773) and the French Revolution (1789-1799), both of which brought significant opportunities for the Danes who exploited gaps created in the international freight shipping markets (Nørlund Christensen, 2021, p. 40). However, the British blockade of Copenhagen in 1807 as part of the Napoleonic Wars (1803-1815) undid all of this previous growth, “resulting in a catastrophic decline in the merchant fleets of the Danish conglomerate state” (ibid.). Between 1800-1824, Copenhagen (the Danish centre for shipping and shipbuilding) recorded a decline of 50% of its registered shipping and 150 of its larger shipowners went bankrupt (Gardiner & Bosscher, 1995, p. 60).

The Danish Sound Toll Registers

One major primary source for merchant shipping leaving and entering Danish waters during the monopoly period are the Sound Toll Registers (henceforth STR). These are fiscal records of the tolls levied by the Danish King on ships passing through the narrow Øresund strait between Denmark and Sweden, which connects the North Sea to the Baltic. The registers contain information for approximately 1.8 million passages of vessels through the Danish Sound at the coastal town of Elsinore where the toll was collected during the period 1497-1857 (Gøbel, 2010, p. 305).¹⁷⁸ For each individual passage (eastwards and westwards) recorded, the register included information such as the shipmaster’s or skipper’s name, his home port, his port of departure and from (mid-1660’s) his port of destination, information about the cargo on board and the toll paid (Veluwenkamp, 2011, p. 1), (Figure 14). In some instances, the customs officials recorded supplementary information about the vessels themselves, including tonnage details and for many Swedish and Danish vessels between 1660-1800, the ship type/tonnage and occasionally also the vessel name (Gøbel, 2010, p. 309). The registers comprise an enormous dataset representing more than 700 volumes and millions of pages of text but thankfully since 2014, these have been transcribed and are now accessible freely online through the database (www.soundtoll.nl). Here the records are divided into two separate databases for the periods 1497-1633 and 1634-1857. For the purposes of this thesis which interrogates the period 1602-1787, relevant entries from both databases have been combined in the following section.

¹⁷⁸ This represented a huge source of income for the Danish State and revenue from the toll accounted for 4-10% of its national income during the period 1700-1850.



Recordid 1703910
 Date 5-7-1668
 Passage# 111
 Shipmaster Anttoni Jannssen de Morsse from Midelborg
 Section: Danske, Wender etc.
 Register: Indtægt (Anders Nielsen og Lambert Ebbesen) 1668
 Tonnage
 Cargo

Depart.	Dest.	Amount	Unit	Commodity	Toll	Toll (num)
1. Kiøbenhaffn	Issland	-	En party	Isslands compag. goetz tilhørende Jonas Trellund Fyrpenge	4 Da	4 Da

Images [Sonttolregisters-129_0345.jpg](#)

Standard geographical names (with link to Google maps)	Standard units	Currency
Midelborg Middelburg	En party	Da Daler
Kiøbenhaffn København		More information on currencies
Issland Iceland		

Figure 14. An example of an STR database entry showing the various data categories recorded for vessel passages. The upper image is a screenshot of a scan of the original register entry. The lower image is the digital transcription of that entry within the database. This entry refers to a vessel departing Copenhagen and destined for Iceland carrying goods for the Icelandic company on behalf of the merchant Jonas Trellund. The only category missing is the vessel lastage figure which was not recorded in this instance. Source: www.soundtoll.nl

Average number of vessels and size

In relation to the merchant vessels bound for Iceland, we are fortunate that for many of these ships additional information was logged by the customs officials in Elsinore. Merchant ships usually set sail for Iceland in April/May and returned around October (Feldbæk, 1997, p. 29).¹⁷⁹ Figure 15 charts the total number of vessels which passed through the Sound and listed Iceland as a destination within the monopoly period timeline. This represented a total of 3,623 recorded individual passages with an average of 20 ships per year over the course

¹⁷⁹ The timing of the departure for vessels to and from Iceland was often dependent on a number of factors. Vessels arriving too early from Europe particularly those heading to trade ports in the north of Iceland may have encountered fjords blocked by pack ice well into the Spring, whilst those trading at the 'slaughter harbours' or 'meat ports' were often delayed leaving beyond October (Feldbæk, 1997, p. 29). Delayed departures meant rougher seas and more unpredictable weather in the North Atlantic.

of the Trade Monopoly Period.¹⁸⁰ This figure of 20 merchant vessels, on average, sailing annually to Iceland, aligns with that previously suggested by Gunnarsson (1987, p. 85) and referenced in Chapter 2.

As a result of the Danish involvement in numerous wars which diverted much of the merchant fleet into the naval fleet, the STR also show that there was a dramatic fall-off in vessel numbers travelling to Iceland from Denmark during the period 1621-1667, with the exception of 1656, when 24 Iceland-bound ships were recorded.¹⁸¹ Excluding 1656, just five vessels per year, on average, are recorded going to Iceland during this 46-year period. Davies (1961) outlined how the Dutch merchants stepped into the frame of this under-supplied market particularly during the early decades of the Danish trade monopoly. Moreover, as mentioned earlier, German merchants also maintained a presence in the Iceland trade until the 1620's. Aside from those traders who were outright smugglers and blatantly disregarded the monopoly rules such as the Amsterdam merchant Hugo Davelaer (who in 1648 traded openly but illegally with Iceland and Faroes) he noted that "Dutchmen might be legally involved in the Icelandic trade by chartering their ships to Danes, by being shareholders or partners in a Danish-Icelandic enterprise or by furnishing the capital for such an enterprise" (Davies, 1961, pp. 148-149). It is this aspect of the Dutch involvement in the trade monopoly which is of most relevance to this project as we shall see later on when the details surrounding the *Melckmeyt's* involvement are fully explored. Davies (1961, p. 150) additionally noted that even in 1602, the year the monopoly trade began, two Dutch ships were recorded in the STR as being bound for Iceland with cargoes belonging to Danish merchants.¹⁸² It seems apparent that this working relationship of outsourcing between the Danes and Dutch was something that had existed for more than half a century before the *Melckmeyt* set sail for Iceland.

No merchant ships were sent by the Danish to Iceland in 1659 and this was the only year in the entire monopoly period when no vessel was registered passing through the Sound destined for Iceland.¹⁸³ However, it's known that some merchant ships did arrive in Iceland that year from the Netherlands, since the *Melckmeyt* was recorded in the Icelandic annals as

¹⁸⁰ This figure only includes ships which passed through the Danish Sound Toll and were registered as destined for Iceland. It doesn't include merchant vessels whose journeys originated in other jurisdictions such as the Netherlands or Norway and sailed directly to Iceland.

¹⁸¹ See Footnote 177.

¹⁸² Although the STR entry does not specifically state the vessels were Dutch, both skippers bear Dutch names and homeports. One was Carnilliss Banckerssen from Alkmaar, NL and the other Carnillis Petterssen from Huisduinen, NL (Record ID 889874, 891288 – www.soundtoll.nl).

¹⁸³ This was also stated in the Icelandic *Ballarárannáll* in 1659 - "Þá kom ekkert danskt skip til Íslands" – "Then, no Danish ship came to Iceland", (*Annálar 1400-1800*, Vol. 3, 1933-1938, p. 215).

being one of seven merchant ships sent to Iceland that year by the Amsterdam-based Danish merchant Jonas Trelund, most likely taking advantage of a break in trading by the Danes, who were fighting a naval war with Sweden at the time.¹⁸⁴ From the 1670's onwards, the shipping traffic to Iceland started to grow again, and though it included a number of dips, it went through a period of growth during the last decade of the monopoly period 1777-1787, peaking in 1784 with 57 ships recorded, almost two and a half times the yearly average for the Monopoly period.

Figure 16 represents the plotted lastages of the vessels which were recorded as destined for Iceland in the STR.¹⁸⁵ As mentioned above, Gøbel (2010) noted that this was only the practise observed for Danish-or Swedish-owned vessels, indicating that the majority of these Iceland-bound vessels were likely to have been Danish in origin which the crown officially demanded of the merchants and trade companies operating the trade. The port of origin for these vessels will be discussed further below. Lastage figures were only available in the database for Iceland-bound vessels from the period 1662 onwards, since as before this time ship's burthen figures were not recorded, as Gøbel (2010) also correctly highlighted. From 1662-1787, the dataset contained 3,306 entries of which 2,918 individual vessel lastages (88% of the total) were recorded, which, when tabulated, gives an average lastage size of 61 lasts for the Iceland-bound ships. Examining this dataset for the period 1662-1700 the average size of vessel was 57 lasts, while in the period 1700-1787 the average lastage size rose slightly to 62 lasts.¹⁸⁶

¹⁸⁴ The entry in the Icelandic *Bállarárannáll* stated "Þá komu 6 eður 7 skip hingað til landsins, útreidd af Jonas Trelund af Amsterdam" – "Then six or seven ships came to Iceland, sent by Jonas Trelund of Amsterdam" (*Annálar 1400-1800*, Vol. 3, 1933-1938, p. 215). In addition to the merchant ships of Jonas Trelund, the Dutch notary archives referenced by Marie Simon Thomas (1935, p. 97) recorded that other Dutch merchants had sent ships to Iceland to trade in 1659. These included Cornelis Roeloffsz. and Pieter Symonsz. van Landsmeer who chartered the vessel *de Swaen* skippered by Jan Jacobsz. The merchant Symon Claesz. sent the galiot (galjoot) *de Dop* skippered by Jan Cornelisz. Pieter Stolwijck, an Amsterdam grocer in combination with a group of merchants, sent the vessel *de St. Pieter*. Other merchant vessels left Rotterdam that year to trade in Iceland and included *de St. Jacob* skippered by Pieter Thomasz. for merchant Adriaen Pauwelsz and *de Eendracht* skippered by Jan Theunisz. on behalf of merchant Pieter Bisschop (*ibid.*).

¹⁸⁵ According to Philip Kelsall (2007, p. 221) we should be somewhat cautious in accepting these official lastage figures as being completely accurate for the actual carrying capacity of vessels which passed through the Sound Toll. He highlighted how the methods of calculating vessel lastage at the time were not only secretive and complicated but "were also purposefully misleading due to their utilisation in a clandestine trade war aimed at gaining a competitive advantage for domestic shipping" (*ibid.*). However, this issue may not have applied so much to the vessels employed in the Icelandic monopoly trade as most were Danish owned and the monopoly terms removed the need for the merchants gaining a competitive advantage.

¹⁸⁶ Grassel (2017, p. 222) citing Friedland (1973, p. 73) estimated that the average size of ships used by the Hanseatic merchants in the Icelandic trade was 60 lasts, though noted that bigger and smaller ships were traceable in the records. This approximate figure suggests though that vessels with similar sized cargo capacities were employed throughout the 16th-18th centuries in the Iceland trade by the German and Danish merchants.

Examining average lastage figures for the period 1743-1759, during which the trade to Iceland was operated by the Chandlers Guild Third Iceland Company, a figure of 69,3 lasts was calculated from the recorded vessels passing through the Sound Toll destined for Iceland. This is approximately five lasts lower than the average vessel size of 75 lasts previously estimated by Gunnarsson (1983, pp. 61, 66) based on his analysis of records from the Chandlers Guild. This slight discrepancy may be explained by the fact that not all passage entries in the STR for this period contained a lastage figure for ships destined to Iceland which likely has an effect of lowering the result of the average last size calculated. For the period 1720-1778, Ole Feldbæk (1997, p. 29) suggested a range in ship sizes of 31-126 lasts for vessels involved in the Icelandic trade with an average of 75 lasts per vessel. Comparing this figure to the dataset of vessel sizes which were logged in the STR an average size of 68 lasts per vessel was calculated by the author. Feldbæk's calculations were made almost 20 years before the STR were digitised so his figures may be based on a sample of vessels within the period 1720-1778, rather than factoring in each lastage entry of which there are 1,377.¹⁸⁷ There are also several passage entries that record larger vessel lastages than the maximum of 126 lasts which Feldbæk recorded. Examples include: 1724: 136 lasts, 1764: 156 lasts, 1769: 196 lasts. This discrepancy may again be based on Feldbæk's original sampling size.

This lastage dataset from the STR was further interrogated by the author to reveal how many of the vessels were above or below the overall average size of 61 lasts (Table 8). Of the total amount: 1,534 were less than or equal to the average size while 1,389 were greater than or equal to the average size. Moreover, 146 vessels were greater than or equal to 100 lasts and eight vessels were greater than or equal to 150 lasts.

¹⁸⁷ This figure is inclusive of entries for the year 1778 and exclusive of entries where lastage is not recorded.

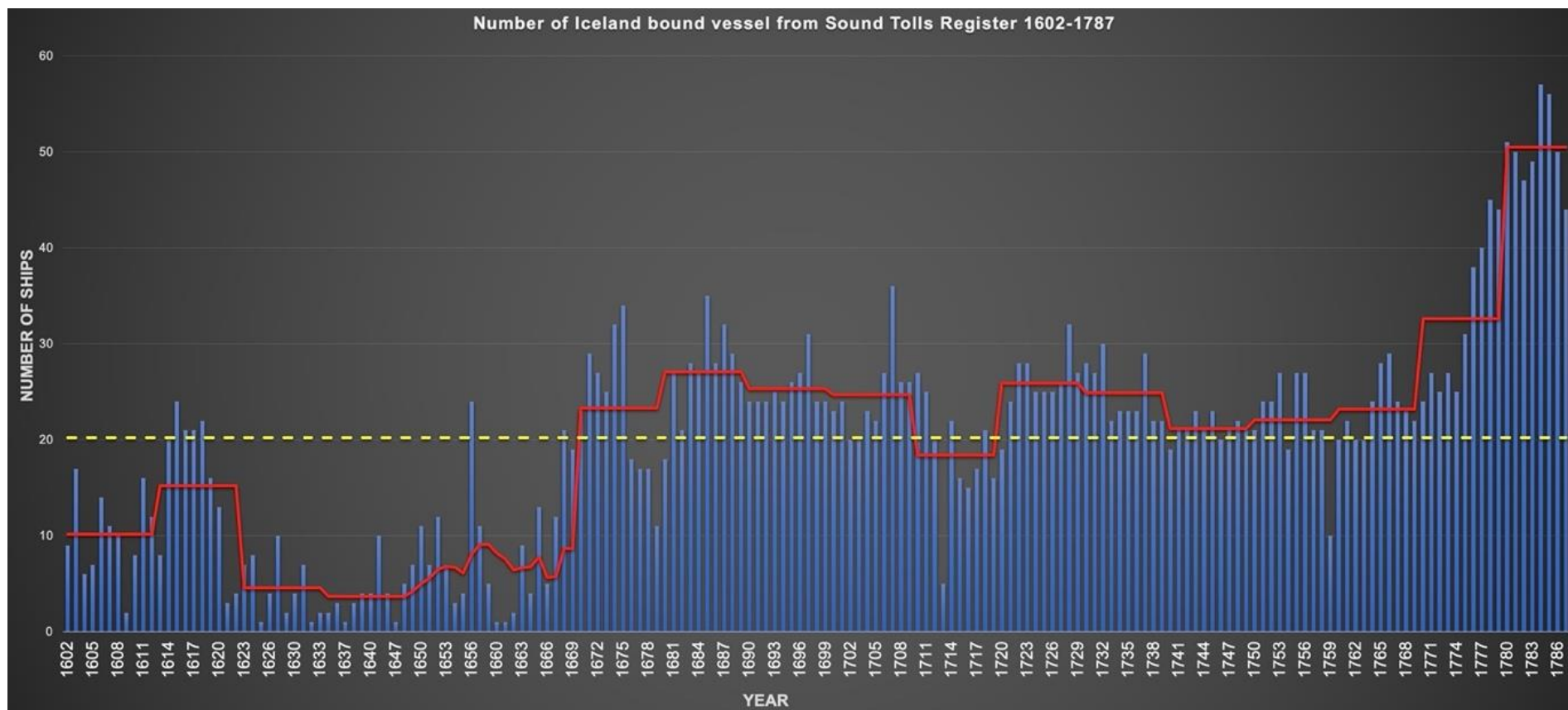


Figure 15. Vessel numbers which passed through the Danish Sound Toll and registered their destination as Iceland during the period 1602-1787. The total number of ship passages recorded within the period was 3,623 with the average number of 20,2 per year represented by the yellow dashed line. The red line represents the moving average of vessel numbers for each decade. Source: www.soundtoll.nl

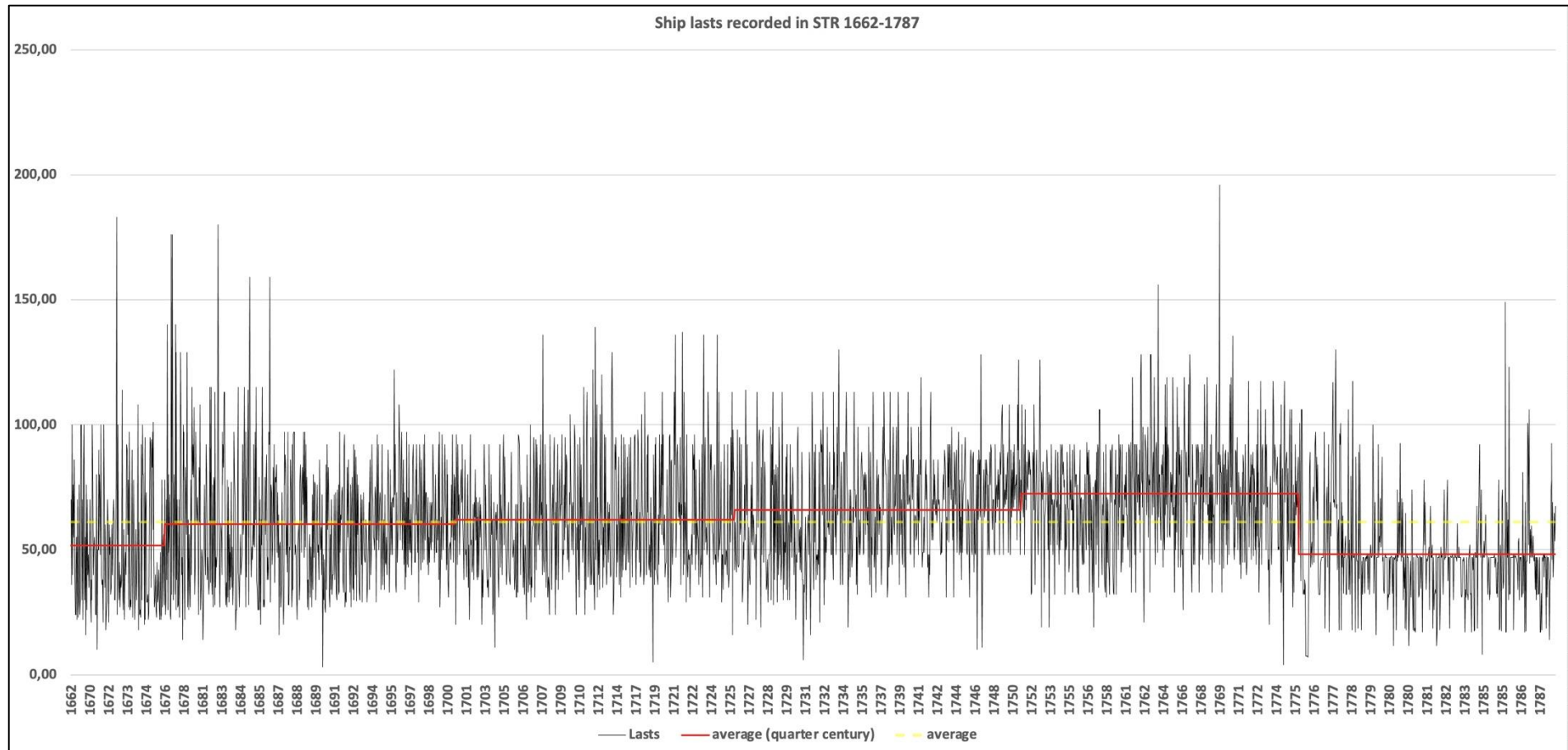


Figure 16. Lastage sizes recorded for vessels which passed through the Danish Sound Toll with Iceland recorded as a destination between 1662-1787*. The red horizontal line represents the moving average lastage size per quarter century and the yellow dashed line represents the overall average for the whole period of 61 lasts. *The *Melckmeyt* was estimated to be 140-150 lasts (280-300 tonnes) so would have been a notable outlier amongst these vessels. Source: www.soundtoll.nl

Lasts of vessels bound for Iceland 1662-1787	Amount	Percentage of total vessels
Less than or equal to 61 lasts (average)	1,534	52.5%
Greater than or equal to 61 lasts (average)	1,389	47.6%
Greater than or equal to 100 lasts	146	5%
Greater than or equal to 150 lasts	8	0.308%

Table 8. Vessel lastage figures based on the Sound Toll Registers dataset presented in Figure 16 for vessels destined for Iceland in the period 1662-1787. Source: www.soundtoll.nl

Skippers' nationalities

Examining the shipmasters/skippers' homeports from the STR allows us to get a more personal insight into the various nationalities and backgrounds of the crews which were involved in the Icelandic trade during this period (Figure 17). Not surprisingly the majority of the shipmasters were listed as being from the Baltic region (95% of the total number 3,551). This percentage can be further broken down into specific towns and cities within this region (Figure 18). Danish cities and towns were the most represented ports in this grouping with Copenhagen accounting for 78% of the Baltic total followed by Sønderborg in southern Denmark which provided 14% of the total.¹⁸⁸ Appel & Linnaa (2020, p. 120) have highlighted the cosmopolitan nature of the population of Elsinore during the Early Modern Period, which had a large community of German, Dutch and British immigrants living there, who represented 10% of the town's population in the mid-16th century and 30% around 1600. The large number of Dutch ships passing through the Sound Toll brought many Dutch merchants to base themselves in Elsinore to such an extent that the town was known as '*Little Amsterdam*' (ibid.). German cities and towns were also represented in the Baltic dataset including Lübeck, Rostock and Kiel. Homeports in Sweden, Poland and Latvia were also listed.¹⁸⁹ At the time it was often common for the shipmasters to source their crews from their own home towns or local areas so this would suggest that the crews on board ships

¹⁸⁸ These figures do not differentiate non-Danish from Danish shipmasters so are likely to also include foreign-born skippers living within Danish cities. An examination of the shipmasters' names recorded in the STR would allow a greater interrogation of this issue, but this is beyond the scope of this thesis. Moreover, Degn & Gøbel (1997, p. 47) previously highlighted how shipmasters recorded in the Registers with the homeport of Malmö and Copenhagen clearly bore Dutch names such as Dirick Douwes, Dirick Isbrandsen, Jan Claesen and Foppe Hessens among others, but were sailing under a Danish flag which at the time was considered a "flag of convenience", as the Dutch were at war with Spain.

¹⁸⁹ From 1630-1720 Szczecin (Stettin) was part of the Swedish Empire and from 1720-1945 was part of the Prussian/German territory transferring to Poland after 1945.

travelling to Iceland were largely made up of people from the Baltic region mostly originating or residing in the Copenhagen area and indicating a strong pattern of Danish local and regional cohesion in the recruitment of crews for the merchant shipping.¹⁹⁰ Feldbæk (1997, p. 163) highlighted how during the boom times in Danish merchant shipping it became harder for skippers to source crews locally within Denmark and so they were recruited from northern Germany, Norway, Sweden and the Netherlands. Icelanders based in Denmark may also have been recruited by Danish skippers to crew merchant ships bound for Iceland. Here a reference to two Icelanders (Árni Magnússon from Geitastekk and Eiríkur Björnsson from Hjaltabakki) who served as crew aboard Danish merchant ships in India and Asia during the 18th century should be noted as they wrote and published detailed travelogues of their journeys and life aboard (Kristjánsson & Skúlason, 2000). Moreover, there is also an historical reference to an Icelander named Einar Þóðarson who served as a ship's captain in Holland during the first half of the 17th century (*Ballarárannáll* 1597-1665, (Vol. 3), pp. 179-187).

Returning to the original breakdown of shipmasters nationalities in Figure 17, it's interesting to note that several Dutch, Norwegian and even British shipmasters were also at the helm of trade ships destined for Iceland. Given the recognised Dutch influences in Danish merchant shipping and shipbuilding particularly in the 17th century (Nørlund Christensen, 2021), the low numbers of Dutch shipmasters involved in the Iceland trade may be somewhat unexpected. The Baltic trade, though, was by far a much bigger trading market than the Icelandic one so the Dutch are evidently to be more represented in that either on Danish-owned vessels or their own.¹⁹¹ Overall, the figures would seem to counter an argument that the Danish merchants and companies relied heavily on hiring former Hanseatic shipmasters or crews to operate the monopoly trade to Iceland, although the statistics do show a larger presence of German shipmasters manning vessels in the period 1602-1633 than during the remainder of the monopoly period 1634-1787. The former date range corresponds roughly to the period mentioned previously (up to the 1620's) in which the German merchants were still active in the Icelandic trade.

¹⁹⁰ This was especially true of Dutch shipmasters involved in the Baltic trade who along with up to 70% of their crews mostly came from the northern part of the province of Holland (Gardiner & Bosscher, 1995, pp. 154-155).

¹⁹¹ From the 16th to late 17th century more than half of the ships passing through the Sound sailed under a Dutch flag which at certain times represented 80% of all the shipping traffic logged (Gøbel, 2010, p. 312).

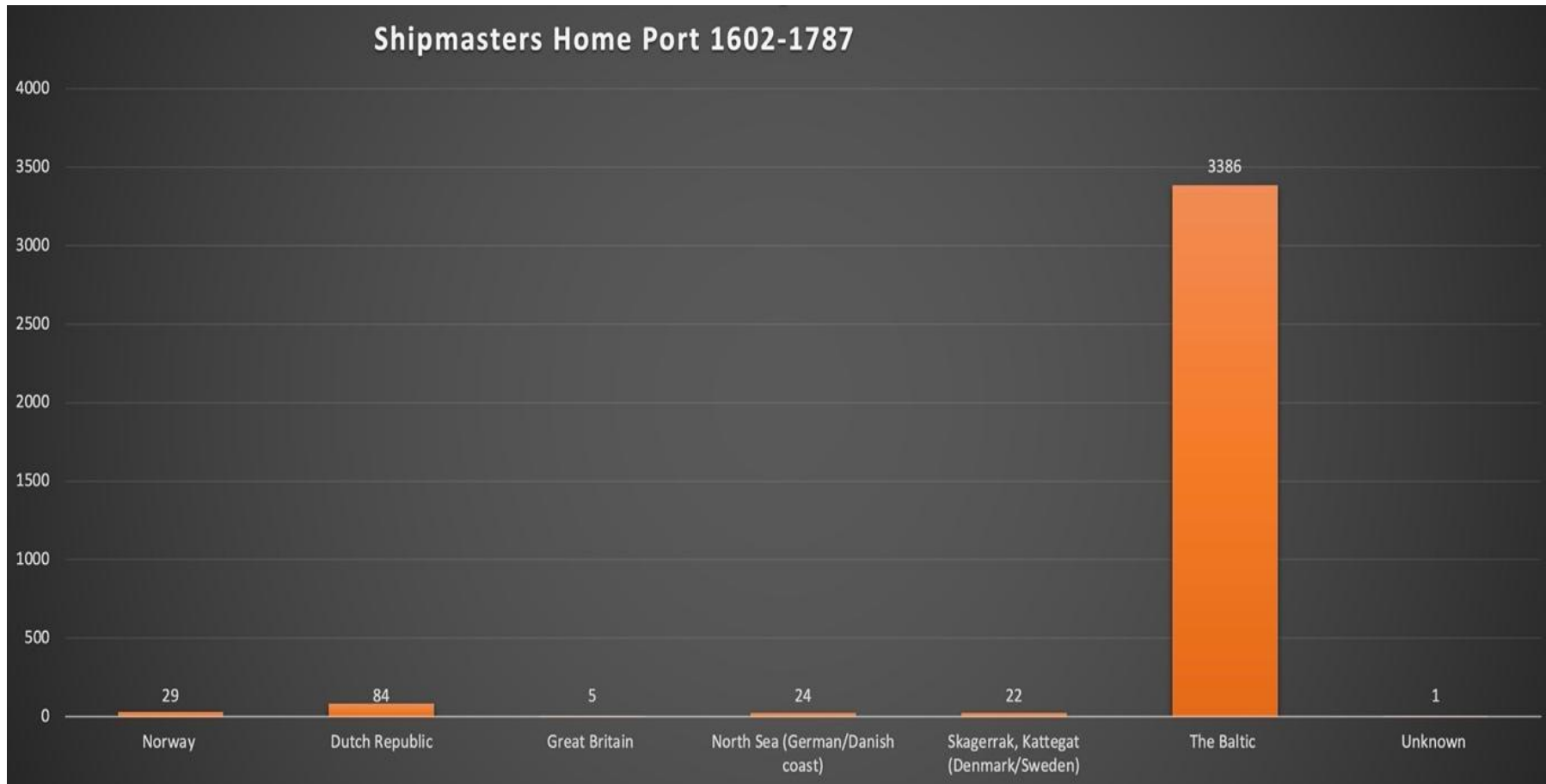


Figure 17. Shipmasters' homeports from vessels recorded as destined for Iceland 1602-1787. Source: www.soundtoll.nl

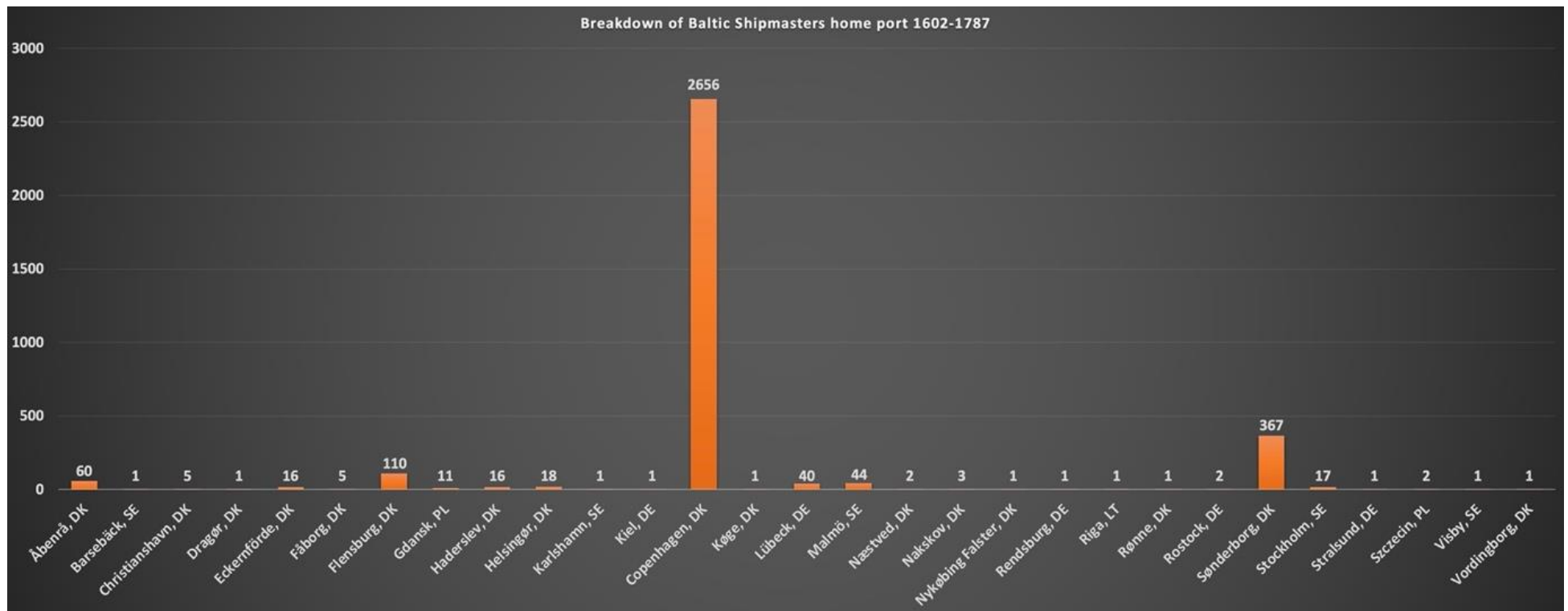


Figure 18. A breakdown of the homeports* of the Baltic region shipmasters recorded from vessels destined for Iceland 1602-1787.*The initials of the current modern state in which the homeport is located in, is used. Some of the ports such as Malmö were under the control of other states (Denmark) at specific times during the period 1602-1787. Source: www.soundtoll.nl

Vessel types

The final dataset category which will be discussed in relation to the STR and perhaps the most important category with regard to this project's focus are the vessel types recorded for the ships bound to Iceland (Figure 19). According to Feldbæk (1997, p. 166) two main vessel types were used in the Icelandic trade: fishing hukkerts and traditional sailing vessels. Crew numbers were usually kept low, particularly in vessels chartered by individual merchants with reportedly six to seven men crewing hukkerts of 30-48 lasts in size and ten men crews recorded on full-rigged frigates (ibid.). Feldbæk (1997, p. 165) additionally referenced ship lastage size to crew number ratios which operated in the Schleswig/Åbenrå regions in 1778: three men for vessels up to 20 lasts, five to seven men for vessels up to 50 lasts, eight men for vessels 50-60 lasts and anything over that size required ten men. A galiot of 38 lasts involved in the Finnmark trade was reported to have had a crew of three men in addition to the skipper, while three merchant vessels in the Faroese trade of 43, 43 and 57 lasts had crews of four, five and six men respectively (ibid.).

During the period 1662-1787, out of a total of 3,306 entries, 2,687 (81%) of these included a reference to a ship type. Unfortunately, the vast majority or (91%) of these references took the form of a nondescript generic word for ship with various differently spelled versions used including (dk. *Schibed, Schibet, Schiebet, Schibit, Schibbit, Schibbett, Schibet, Schiber, Schib, Schieb, Sckibit, Shibit, Shibet, Skib, Skibet, Skiibet*).¹⁹² This may not be an issue for which we can easily lay the blame solely at the door of the Sound Toll customs officers, however. As we have seen earlier in relation to the cog ship, contemporaries then and now often struggled to identify or agree on a particular vessel type. Erik Gøbel (2010, p. 320) also highlighted that clearance through the Sound was generally based on a review of the vessel's official documents and cargo manifests rather than the officers personally inspecting the holds of the ships themselves. It's possible they may have not even physically seen the ships they were registering. Ships' charter documents in this period were also notoriously scant in detail in terms of recording vessel types as was evident with those uncovered for the *Melckmeyt*. Vessel types were also evidently not considered such an important or critical component to record as part of a passage entry as the toll imposed was a cargo levy rather than a vessel levy. The customs officers may have just written down the term ship in the toll book based on the vessel's approximate lastage size. Several vessels over 150 lasts were also just listed as ships.

¹⁹² The Danish during the first half of the 17th century commonly recorded smaller vessels such as those from 2-27 lasts as (dk. *skude*) and slightly larger vessels 20-116 lasts as ships (dk. *skibe*) according to Degn & Gøbel (1997, p. 15). By 1677, the *skude* type included vessels within the range of ½ - 57 lasts and ships within a range of 8-220 lasts (ibid., p. 25). There is however some dispute about the term *skude* and whether it was itself a vessel type in its own right (Mortensøn, 2017). Gardiner & Bosscher (1995, p. 27) noted that British merchant vessels were classified according to their hull form until the end of the 18th century and then afterwards by specific rig type where a vessel square-rigged on all three masts was referred to as a ship.

Figure 19 provides an overview of the vessel types recorded which included: flute, frigate, galiot, ship (generic), hukkert, krayer, pink, skuta, smack, snow and several unrecognisable terms.¹⁹³ The generic category of ship represented a combination of types between a certain lastage size which differed in range depending on the period.¹⁹⁴ As flutes have already been extensively discussed in the earlier part of this Chapter, they need not be described in detail here again, but for the other vessel types, a short description will follow.

¹⁹³ The English spelling of the vessel type is used where available. The unrecognised terms included Kitzen*, Fiursen and Fjord and may not themselves refer to a vessel type but to something else such as a the vessel's name. They have been included in a separate category as the entry did not include any other recognisable vessel type reference. *It's possible that the term Kitzen refers to a vessel type known in Dutch as (nl. *katschip*), or kat in Danish and called (de. *ketzen*) in German. The reference in the Sound Toll Registers dates from 1673 and the ship was recorded as 26 lasts/52 tonnes. The katschip belonged to the flute lineage of ships but were generally smaller, more cheaply and simpler built and were single decked instead of double decked (Unger, 1978, p. 48). Their rigging was also different to flutes with no foretopsail or mast tops meaning they weren't as manoeuvrable at sea (ibid.). Their hold was designed to be even more box-like than flutes making them perfect for bulk carriage where they were used mostly as coastal traders particularly in the timber trade from Scandinavia to Holland (Gardiner & Bosscher, 1995, p. 52).

¹⁹⁴ In 1677, an official record of Danish ship types recorded the vessel category of ship as ranging in size from 8-220 lasts with an average size of 68 lasts (Degn & Gøbel, 1997, p. 25, Table 3).

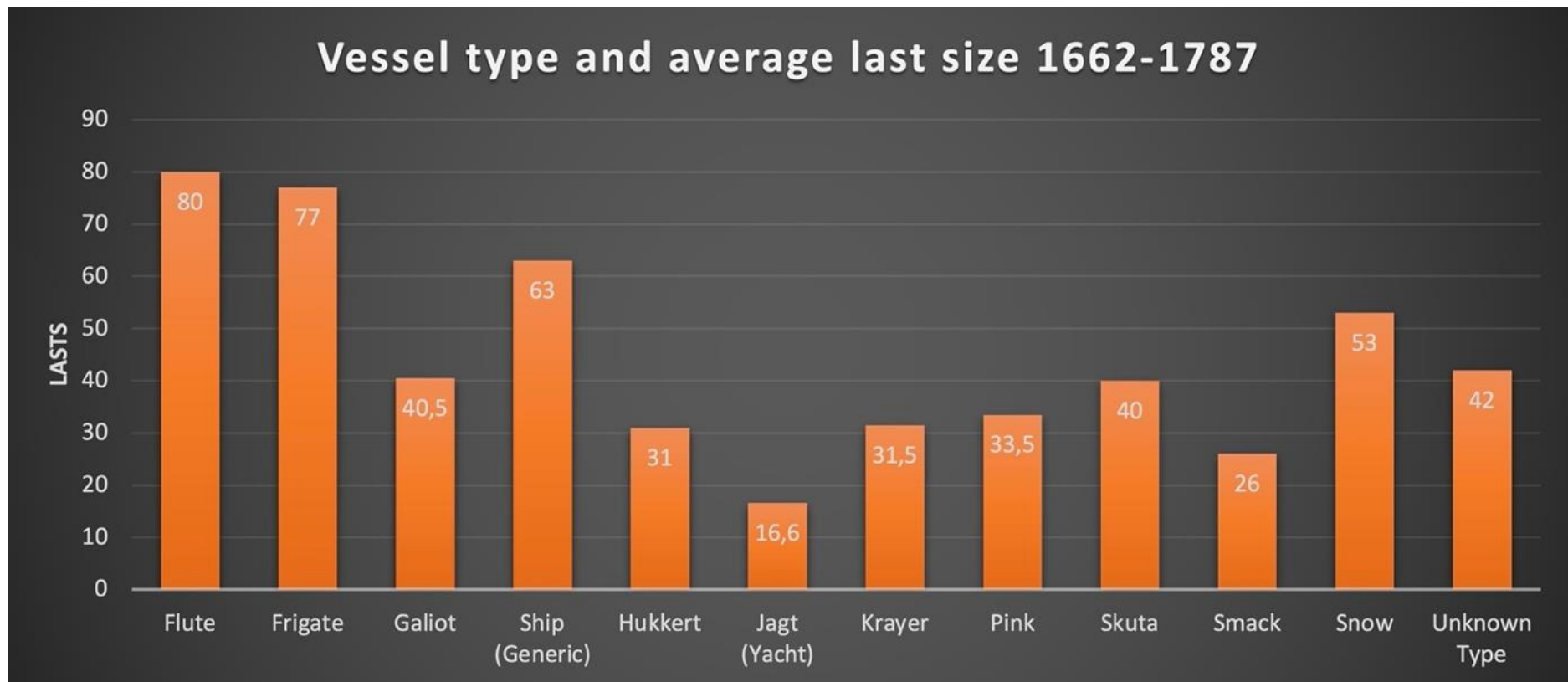


Figure 19. Vessel types and average last size recorded for ships destined for Iceland 1662-1787. Source: www.soundtoll.nl

These vessels were generally not excessively large in terms of tonnage, as Figure 19 (which plots the average last size per vessel type) shows. Amongst the various types recorded, the flutes and frigates had the largest average capacity of 80 and 77 lasts, respectively, and were followed by the generic 'ship' category with 63 lasts, which conforms closely to the average of 61 lasts established for all merchant vessels passing the Danish Sound Toll destined for Iceland during the period 1662-1787. The remainder of the ship types fall within a small-to-medium vessel category with a range in size of 17-53 lasts and were types known to be primarily used as coastal traders in the Baltic area during the 17th and 18th century, particularly the galiot, krayer, hukkert and smack. Compared to the Dutch ships, vessels in the Danish merchant fleet were relatively small in size. In 1640, only 11% of Danish merchant vessels measured over 180 tonnes (90 lasts) while for the Dutch the equivalent was 90%. Moreover, 43% of Danish vessels were between 54-180 tonnes (27-90 lasts) which represented only 9% of Dutch ships and 46% of Danish vessels were below 54 tonnes (27 lasts), while the Dutch had only 1% in this category (Nørlund Christensen, 2021, p. 108). Towards the end of the 17th century and throughout the 18th century, vessel sizes within the Danish merchant fleet grew, particularly in the period after the Great Nordic War (1709-1721) when the older smaller vessels were replaced with newer larger fully rigged types (ibid.). This development also included a decline in the larger-sized vessel numbers within the provincial Danish towns and a concentration of larger tonnage merchant shipping within the bigger cities such as Copenhagen (ibid., p. 109).¹⁹⁵

¹⁹⁵ In 1746, Copenhagen had 120 vessels which had grown to 450 vessels (of which 140 were full-rigged) by 1787 (Nørlund Christensen, 2021, p. 109).

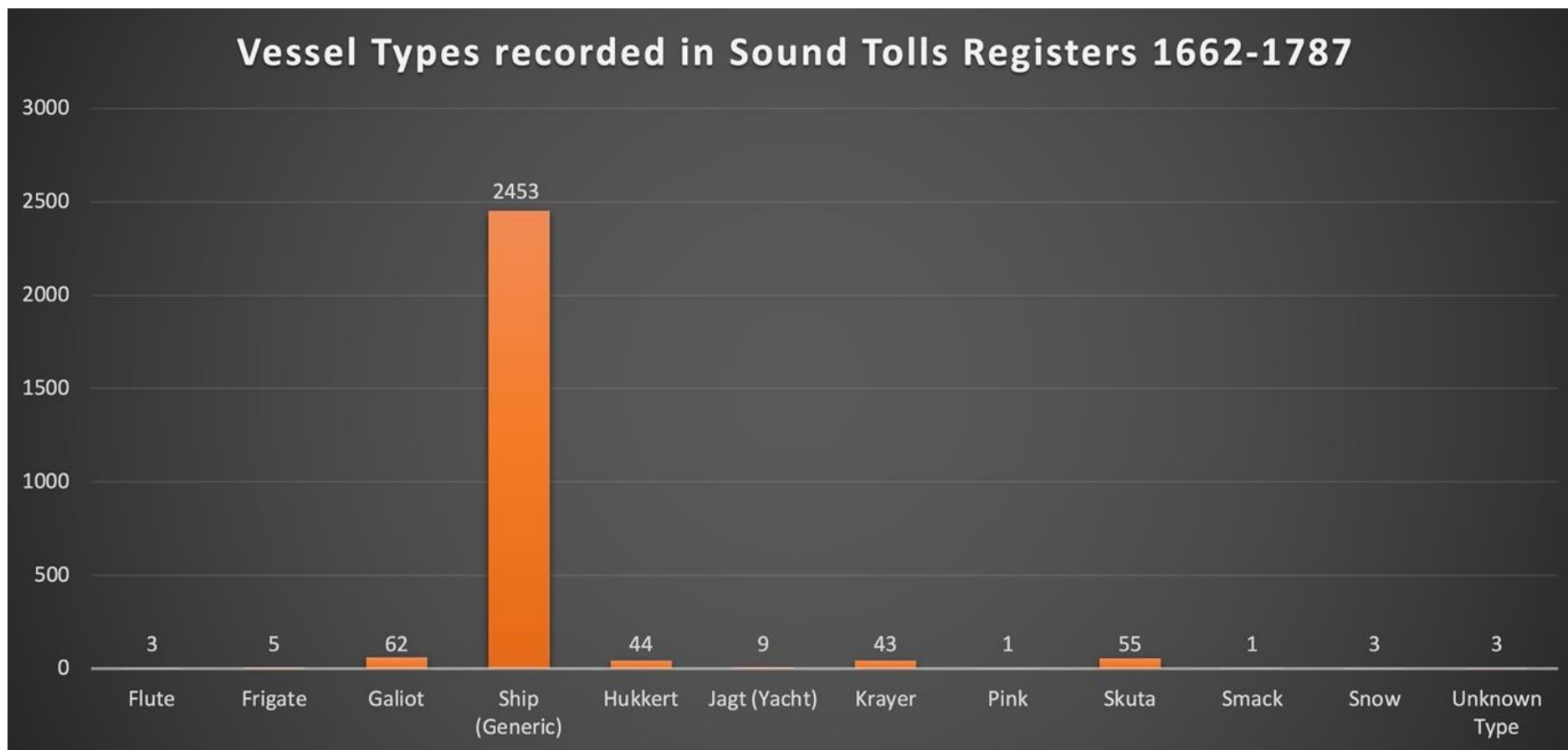


Figure 20. Vessel types and quantities recorded for ships destined for Iceland 1662-1787. Source: www.soundtoll.nl

Flute

Three *flutes* (dk. *fløtje*) were recorded passing through the Sound Toll destined for Iceland in 1711. Their recorded lastages ranged from 50-122 lasts with an average size of 80 lasts (Figure 19, 20). Unusually, all three had their ship's names (*Christina*, *Kiøbenhafns Slott* and *Emmanuel*) noted in the entries. The first mention of a flute in Danish service is from 1618, some 25 years after the vessel type was allegedly 'invented' in Hoorn (Nørlund Christensen, 2021, p. 131).

Frigate

Amongst the five individual *frigate* passage entries recorded in the STR, destined for Iceland during the monopoly period, four were listed at 85 lasts in size and one was recorded as 44 lasts. These journeys took place within a short period (1721-1728) and further investigation of the Sound Toll entries revealed that it was most likely that the same frigate (85 lasts) was used on four separate trading trips to Iceland in the years (1721, 1723, 1724, and 1728) and was skippered each time by the same captain, Oluf Christensen Modum from Copenhagen. This frigate was most likely part of Copenhagen's international traveling merchant fleet and at 160 tonnes (85 lasts) was substantially larger than the average tonnage of 105 tonnes recorded for the 25 'ships' in the city in 1727 (Nørlund Christensen, 2021, p. 107).¹⁹⁶ The term *frigate* (dk. *fregat*), though synonymous with warships and naval cruisers even into the present day was also for a period applied to a type of merchant vessel used often in the prestige trades (Indies & Mediterranean) by the Dutch, where faster passages were required. They ranged in size from 100-400 tonnes, were narrow-built with a low profiled hull, squared stern, one row of guns on the lower deck, quarter galleries and a full head (Gardiner & Bosscher, 1995, p. 74; Unger, 1978, p. 47), (Figure 21). Their carrying capacity was considered small for their size but speed, manoeuvrability and firepower made up for this shortcoming and they were quickly adopted into a number of European navies as warships (Unger, 1978, p. 47).

In Denmark, the largest of these armed frigates were known as defence ships (dk. *defensions-skepp*). These were armed vessels built primarily as merchant ships, but which could be adopted into the Danish naval fleet during wartime (Gardiner & Bosscher, 1995, p. 67). Their construction was heavily subsidised by the Danish state who reduced customs duties for their owners and issued decrees promoting their usage which is viewed as one of the stimulating factors behind the rise of Danish trade and shipping in the 1680's (ibid.).¹⁹⁷

¹⁹⁶ The term 'ship' probably refers to vessels with a full-rig set up (three-masted) and capable of international sailing.

¹⁹⁷ A decree in 1671 required that all salt imports into Denmark had to be made in ships large enough to be used by the navy in wartime (Gardiner & Bosscher, 1995, p. 67).

This system of defence ships was revived in the late 18th century as the Danes once again required an adequate and strategic naval reserve, partially funded by the merchant class (ibid.). The largest recorded defence ship, which is also referred to as a frigate in the documents from 1705, is the *Staden Aalborg* which was used by a merchant in Aalborg in the salt trade from France, Spain and Portugal (Degn & Gøbel, 1997, p. 40). The ship was 182 lasts, carried 58 cannons on board and measured 39m long x 8.3m wide x 3.9m deep (ibid.). The Dutch influence on the construction and design of Danish frigates and small naval cruisers in the period 1660-1685 has been highlighted by Jens Auer (2004, 2008). One of those frigates described by Auer (2004, p. 278) as a “miniature frigate” was the *Mynden* which sailed to Iceland in 1680 most likely as part of a merchant vessel convoy protection detail.¹⁹⁸ The ship later wrecked in 1718 in northern Germany and was excavated by Auer in 2000. The *Mynden* measured 25.6m long, 6.9m wide and 3.45m depth in the hold and fully rigged (with three masts) was most likely representative of the typical frigate size which sailed to Iceland in this period (Auer, 2004, p. 278).

¹⁹⁸ This is perhaps the reason for the vessel not being listed specifically in the Sound Toll Registers for that year.

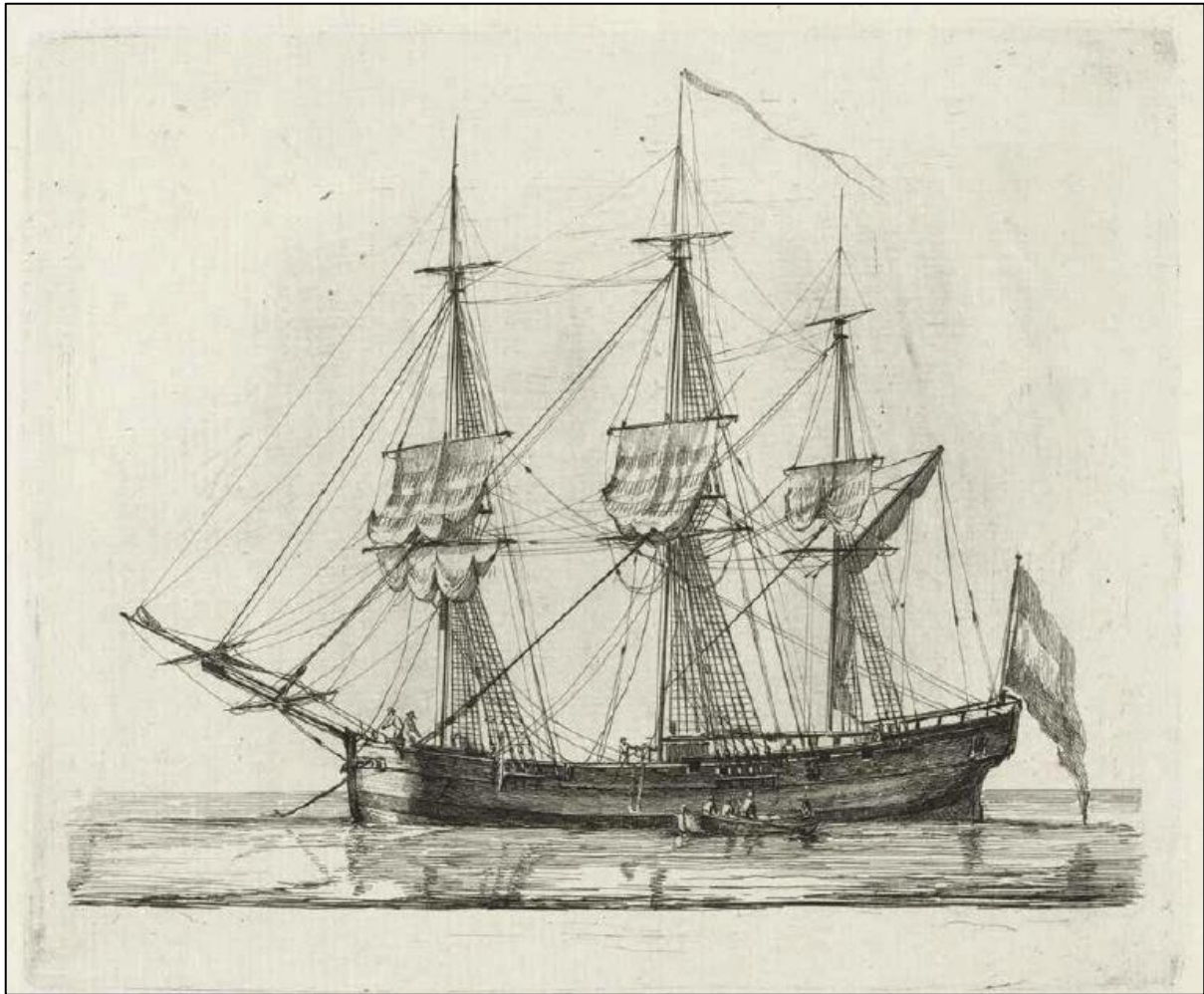


Figure 21. An etching of a Dutch full-rigged frigate (fregate) by Gerrit Groeneweger 1789. Source: Rijksmuseum, Amsterdam, Catalogue ref. RP-P-OB-55.955. Public Domain.

Galiot

The origin of the *galiot* (dk. *galiote*) is considered somewhat obscure but its hull design may show some relation to the flute ship (Unger, 1978, p. 49).¹⁹⁹ The Dutch version of the ship was known as (nl. *galjoot*). They were employed extensively in the Baltic coastal trade but were also capable of being used in long-distance voyages with records of the VOC sending them as merchant vessels to Asia from around 1650 (ibid., p. 48); (Parthesius, 2010, p. 99).²⁰⁰ In addition to the *Melckmeyt*, one of the seven ships the merchant Jonas Trelund sent from Amsterdam to Iceland in 1659 was a *galjoot* named *de Ruyter*, skippered by Claes Ijsbrantsz (Simon Thomas, 1935, p. 96). Moreover, the same year another Dutch merchant

¹⁹⁹ The term derives from the French (fr. *galiote*), Italian (it. *galeotta*) and Medieval Latin (*galea*) and they were a class of small square-rigged cargo vessels typically with two masts similar to a ketch. They were used for transporting cargo and troops and existed as part of the Russian naval fleet until the 1820's (Koivikko, 2017, p. 92).

²⁰⁰ These could often be quite small vessels as were the two galiots sent by the VOC (Dutch East India Company) from the Netherlands to Batavia in 1641 which had a recorded capacity of only 10 lasts each (Parthesius, 2010, p. 82).

named Symon Claesz. sent the *galjoot* called *de Dop* to Iceland skippered by Jan Cornelisz. (ibid., p. 97). The ships' sizes were not mentioned but given the period they were likely to have been two-masted galiots. Around 1700, galiots were the most common type of cargo ships operating in Danish waters accounting for a third of all domestic vessels in the Copenhagen and Aabenraa areas (Degn & Gøbel, 1997, p. 17; Nørlund Christensen, 2021, p. 98). Moreover, by this period, they were also being extended in length which required the addition of a third mast.²⁰¹ In shape, the galiot was rounded fore and aft with the widest point forward becoming narrower at the stern end (Unger, 1978, p. 48).

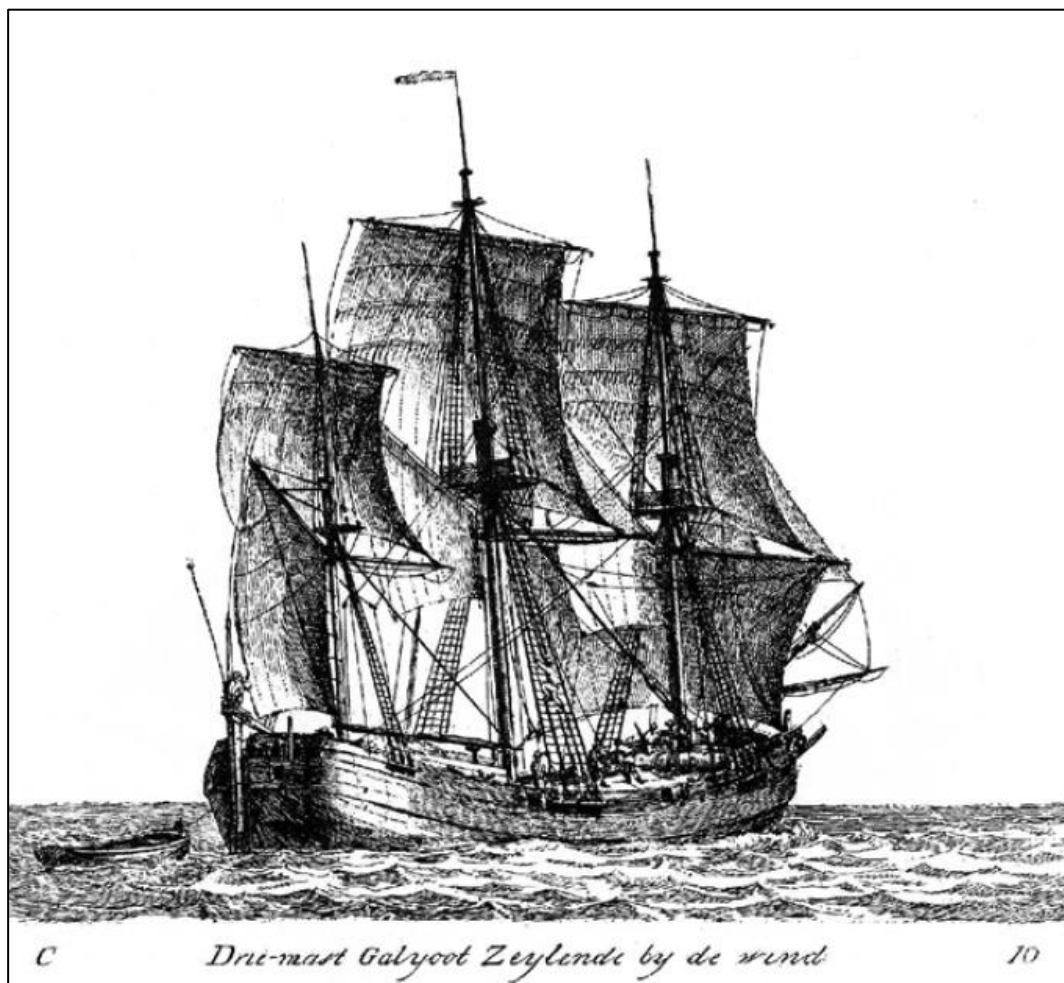


Figure 22. An etching of a three-masted 18th century galiot by Gerrit Groenwegen 1790. Source: Rijksmuseum, Amsterdam. Public Domain.

The galiots used in the Icelandic trade, at 40,5 lasts in size on average, were substantially larger than the regular domestic types used by the Danish at least during the mid-17th

²⁰¹ Within European waters the ship had featured two masts during the 17th century (Unger, 1978, p. 48), however, the Dutch had been adding a third mast to the ship's design since around 1650 for those galiots being sent to the Asian trade (Parthesius, 2010, p. 99).

century when they ranged in size from 8-14 lasts (Degn & Gøbel, 1997, p. 17).²⁰² The bow had a sprit (a spar extending forward from the vessel's prow) and at the stern, the tiller (the lever used to steer the vessel) was fully exposed as the rudder was carried above the sternpost (ibid.), (Figure 22). During the second half of the 18th century the Danish replaced the galiot for a type known as a galeas which was much more sharply built (Nørlund Christensen, 2021, p. 98), and by the 19th century the galiot had effectively disappeared (Gardiner & Bosscher, 1995, p. 53).

Hukkert

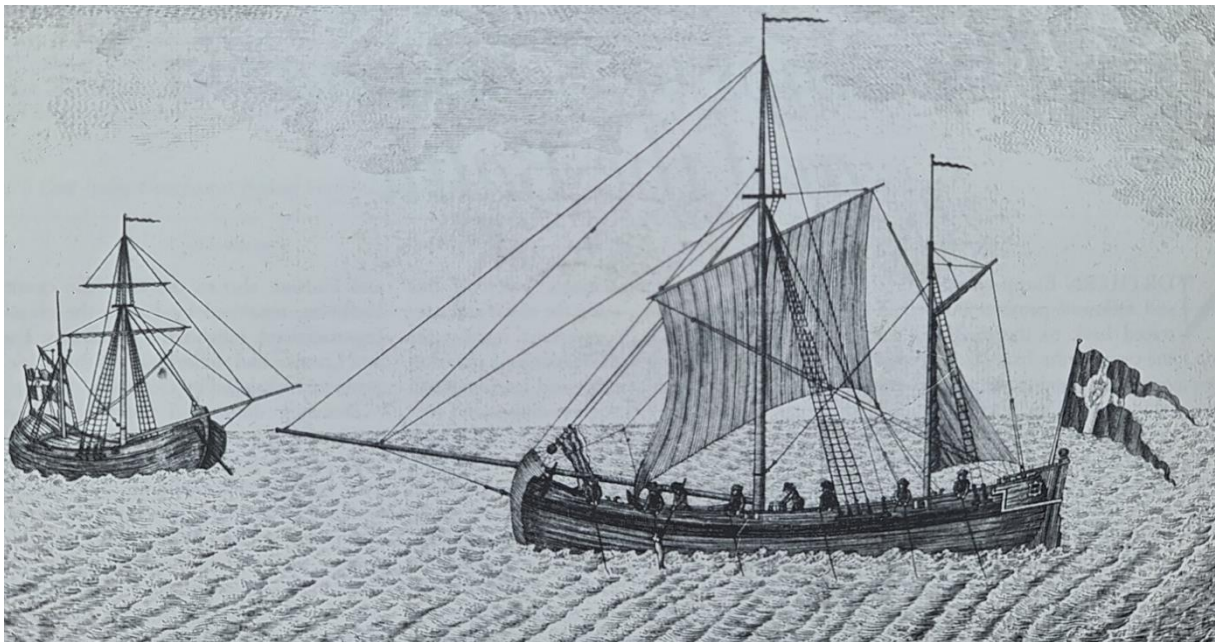


Figure 23. An engraving of a two-masted Danish ketch rigged hukkert cod fishing with long lines in Icelandic waters in 1785. Source: Danish Maritime Museum, Kronborg.

There were 44 listed references to a *hukkert* type vessel passing through the Sound Toll destined for Iceland in the period 1662-1778 (Figure 19). All of the entries were from the 18th century and, except for a gap in the 1730's and 1780's, at least one hukkert or several were logged for each decade of the 18th century until the 1780's. They ranged in size from 16-49 lasts with an average of 31 lasts for the vessels listed. The Iceland-bound hukkerts were approximately 30% larger on average than the hukkerts employed in the domestic Danish trade based on a figure of 24 lasts for an average sized hukkert departing Copenhagen in 1706 (Degn & Gøbel (1997, p. 25, Table 4). According to Jens Auer (2008, p. 245) Danish

²⁰² In terms of dimensions, Degn & Gøbel (1997, p. 16) referenced the example of a typical Danish galiot of 14 lasts which was 14.8m long, 4.5m wide and 2.2m deep. The types of galiots sailing to Iceland would have been classed during the period 1650-1700 as medium-sized vessels in terms of their load capacity and an example of a 38 last galiot within this classification is outlined which was 16m long x 4.2m wide and 2.3m deep (ibid., p. 24).

ketch rigged vessels were often termed (dk. *hukkert*) or (dk. *huggert*) and in the Sound Toll Registers they used the term (dk. *huckerten*).²⁰³ Known in Dutch as a *hoeker* and mentioned earlier in relation to Dutch 18th century fishing off the Icelandic coast, this vessel type evolved from being exclusively used as a fishing vessel in the North Atlantic and North Sea into a combined trader and fisherman during the 17th century, when two and three-masted forms were developed, the latter of which was mostly used in trading (Gardiner & Bosscher, 1995, p. 53; Unger, 1978, p. 51), (Figure 23, 24). The two-masted version had “the mainmast fitted out with a square sail and jibs, and a small, or mizzen mast with a lateen sail aft, being used to steady the ship when fishing with the mainmast lowered” (Collins, 2001, pp. 69-70). They were usually 80-90ft (24-27m) long, featured a flat bottom and double-ended hull, a large cargo capacity and a well-rounded hull, which allowed them to sail windward and they were known to have excellent sailing qualities, particularly in rough seas (Gardiner & Bosscher, 1995, pp. 53, 72). The Dutch East India Company replaced their flutes with hoekers as they were known to have a much better hull resistance to warping in tropical conditions than flutes (Collins, 2001, p. 70; Gardiner & Bosscher, 1995, p. 53).

²⁰³ A ketch rig is where the mainmast is taller than the mizzen mast or aft mast: <https://www.merriam-webster.com/dictionary/ketch>

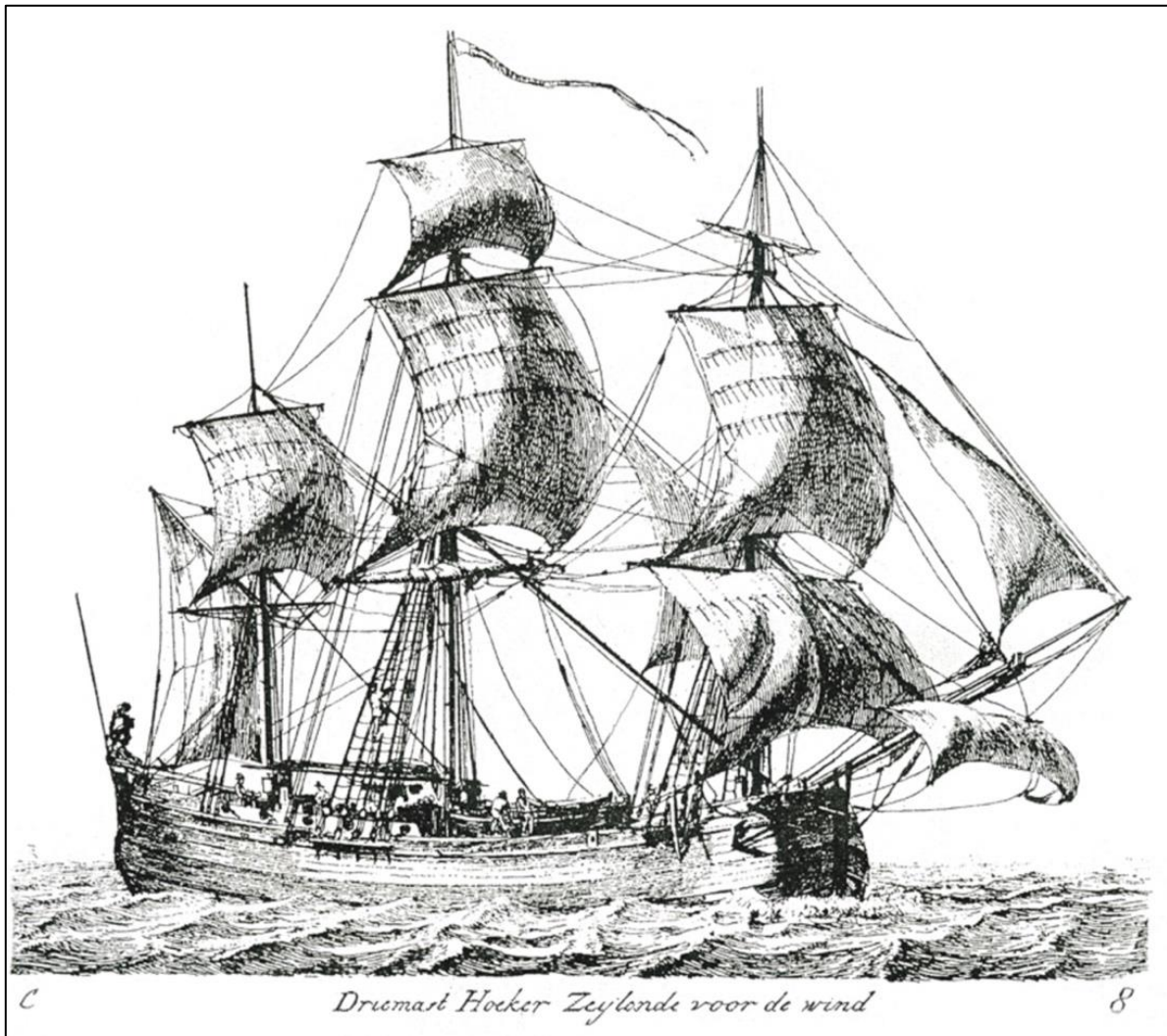


Figure 24. An etching of a three-masted hukkert / hoeker by Gerrit Groenewegen 1789. Source: Rijksmuseum, Amsterdam. Public Domain.

Krayer

The *krayer* or *crayer* was one of the few specific vessel types which the Icelandic annals and the STR both recorded for merchant vessels involved in the trade with Iceland. They were predominately used as Baltic coastal traders and were also known to have been used in the Swedish and Danish naval fleets where they were often employed as cargo transport ships (Bellamy, 1997, p. 186).²⁰⁴ Known in Danish as (dk. *kreyert*) there were 43 recordings of this vessel type passing through the Sound Toll with Iceland listed as a destination during the period 1662-1787. The earliest reference is from 1667 and the latest is from 1722. The majority of entries occur within the 30-year period 1685-1715. The *krayers* listed ranged in size from 14-44 lasts with an average size of 31,5 lasts, making them about 50% smaller overall than the average sized merchant vessel of 61 lasts employed in the Icelandic trade.

²⁰⁴ Bellamy (1997, p. 186) described them as carvel-built, three-masted and featuring a carrying capacity up to 60 tonnes.

Degn & Gøbel (1997, p. 25, Table 3 & 4) recorded an average size of 26 lasts for Danish krayers in 1677 and 23 lasts for those involved in domestic merchant shipping in 1706, meaning that the Iceland bound krayers were typically larger on average than within their own vessel category. There are other known Danish records from this period where krayers were listed together along with flutes under the common term 'ship' (Nørlund Christensen, 2021, p. 108), so it is possible that the 'ship' category in the Sound Toll Registers features a number of unspecified krayers also passing through. It's evident that from the 1730's onwards krayers along with galiots were in decline and were being phased out of the Danish merchant fleet with records showing a decline of 80% in terms of overall kramer numbers between the period 1730-1769 (Feldbæk, 1997, p. 135, Table 3).²⁰⁵ In form, the kramer "was a sharply built and fast medium mid-ship of 35-55 tonnes with two, or less often three pole masts, and several square sails on each" (Nørlund Christensen, 2021, p. 104), (Figure 25).

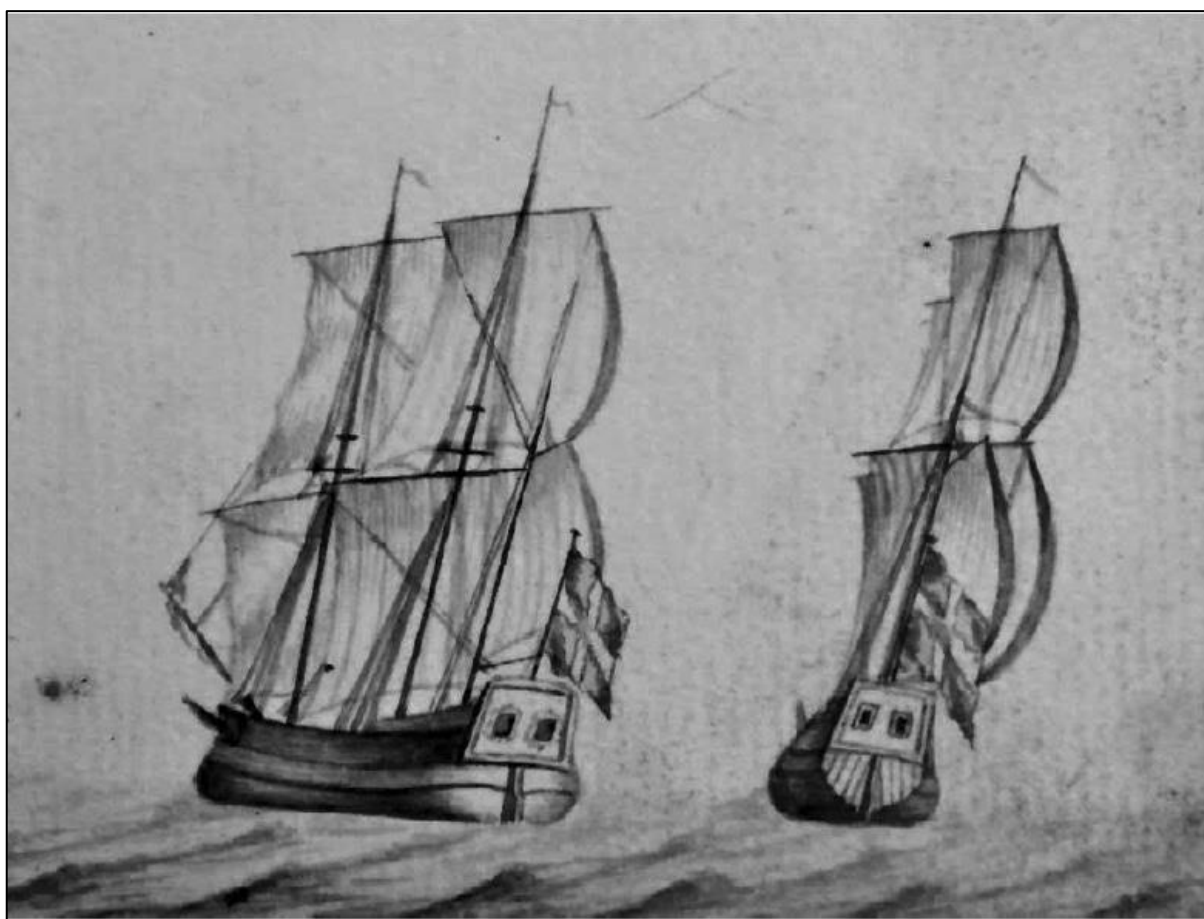


Figure 25. A sketch of two Danish krayers / kreyerts by The Stibolt Brothers 1763. Source: The Danish Maritime Museum.

²⁰⁵ 50 krayers were listed in the Danish merchant fleet in 1733 and 10 in 1769. (Feldbæk, 1997, p. 135, Table 3). Within the period 1733-1798 krayers declined from representing 13% of the province's merchant fleet to 1 % (Nørlund Christensen, 2021, p. 108).

Skuta

Some confusion still exists about whether the *skuta* (dk. *skude*) actually represented a vessel type in its own right or rather a category of vessel size into which many vessel types were put (Mortensøn, 2017).²⁰⁶ Skutas, rather than being a vessel size category as outlined by (Degn & Gøbel, 1997), were according to Ole Mortensøn (2017, p. 31) one of the most dominant cargo vessel types active in Danish waters in the Early Modern Period and were frequently listed in record books for harbours in the western Baltic, the Great Belt, the Danish Sound, Kattegat and the North Sea. They ranged in size from 2-25 lasts and their recorded cargo included timber, bricks, livestock, hides, grain, salted meat, fish, beer and wine. They were also known to have been used as transport vessels for the King's soldiers and cavalry (ibid.). There were 55 references to skuta vessels recorded from the STR for vessels destined for Iceland within the period 1662-1787. These were listed in the Registers as (dk. *schud, schuden, schuede, shuden, sku*). The lastage range recorded was 11-115 lasts which produced an average of 40 lasts for the Iceland-bound skutas, which again is perhaps due to them being used internationally rather than solely within domestic shipping. By the 17th century the skuta had evolved from a non-decked, keel and clinker-built vessel into a carvel-built decked craft featuring one to three-masts, with square-rigged sails and a crew of five to eight men (ibid.); (Gardiner & Bosscher, 1995, p. 72), (Figure 26).

The earliest specific reference to a skuta type vessel bound for Iceland was logged in 1668 and the latest reference is from 1710. The majority of the entries for this vessel type occurred during the last few decades of the 17th century, with recorded numbers dropping off dramatically after this. This echoes the relative decline around the same period of skuta vessel numbers within the Copenhagen merchant fleet, where customs registers for the city recorded 60 skutas in 1678, which by 1717 had dropped to 17 and by 1727 there was only one skuta registered in the Danish capital (Nørlund Christensen, 2021, p. 107).

²⁰⁶ See footnote 186.



Figure 26. A two-masted skuta from a painting of the Danish Sound near Kronborg Castle by Hendrik Cornelisz Vrooms (1562-1640). Source: Municipal Museums of Elsinore.

Jagt

The Danish *jagt* developed from the Dutch version (nl. *jacht*) of the ship which were known to be fast, shallow-draughted, usually armed, rigged with one or two masts and highly manoeuvrable (Nørlund Christensen, 2021, p. 98). In size, they were usually 60-80ft (18-24m) and 25-40 lasts (Gardiner & Bosscher, 1995, p. 46). The Danish version was a smaller version than the Dutch, and predominantly used as a cargo vessel “about 10 tonnes with a

chubby bow and heart-shaped transom stern. It carried a pole mast with a gaffsail as a mainsail and staysail on the bow” (Nørlund Christensen, 2021, p. 99). During the first half of the 18th century, one-third of all provincial vessels in the Danish merchant fleet were jagts, which, along with the galiots, replaced the previously popular skuta type (ibid.). Figures recorded for domestic Danish shipping show that jagt numbers within the Danish merchant fleet grew dramatically towards the end of the 17th century with 71 recorded in 1677 and 481 jagts working in the domestic trade and recorded departing Copenhagen in 1706 (Degn & Gøbel, 1997, p. 25, Table 3 & 4).

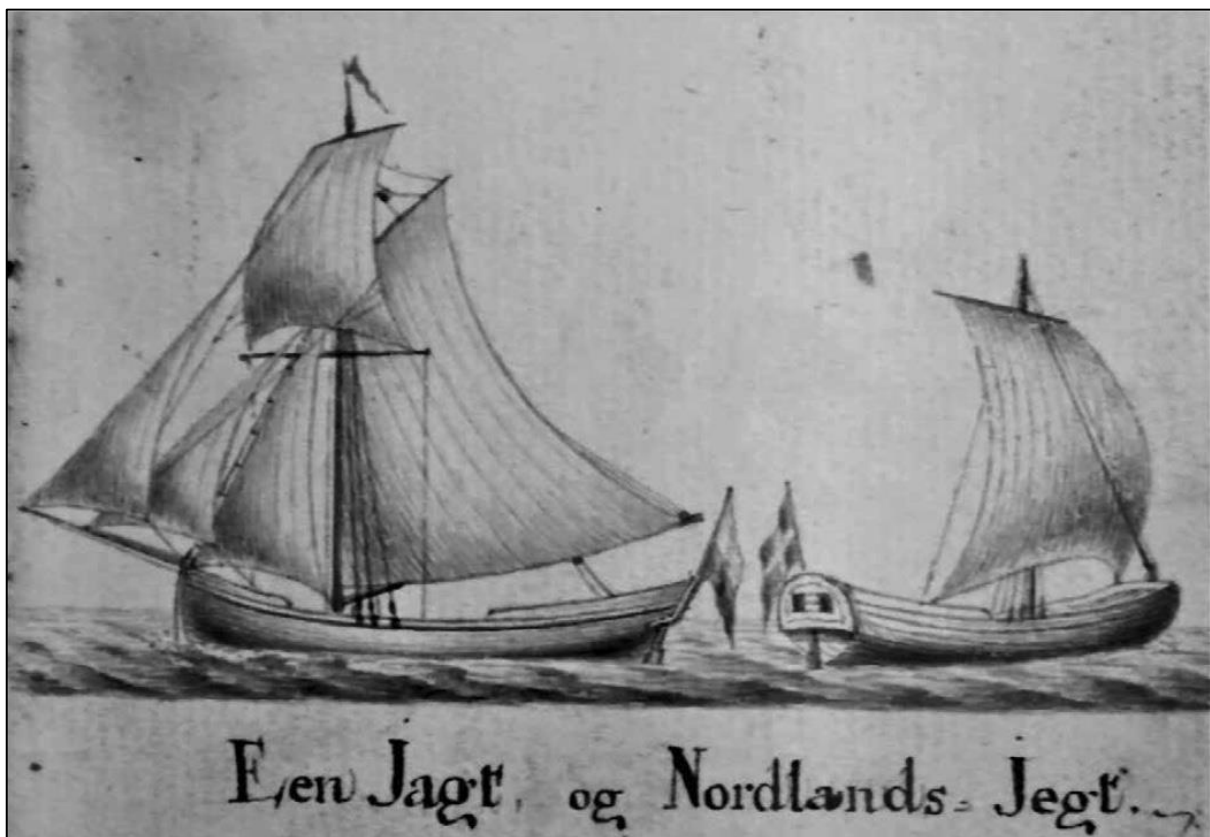


Figure 27. A sketch by The Stibolt Brothers 1763, of a Danish carvel-built jagt and a Norwegian jegt which was clinker-built. Source: The Danish Maritime Museum.

There were nine entries for a jagt type vessel from the STR for the period 1662-1787 (Figure 19). All of the entries were from the second half of the 18th century with the earliest from 1760 and the latest in 1786. The lastage size recorded ranged from 7-45 lasts with an average size of 16,6 lasts (Figure 20).

Smack

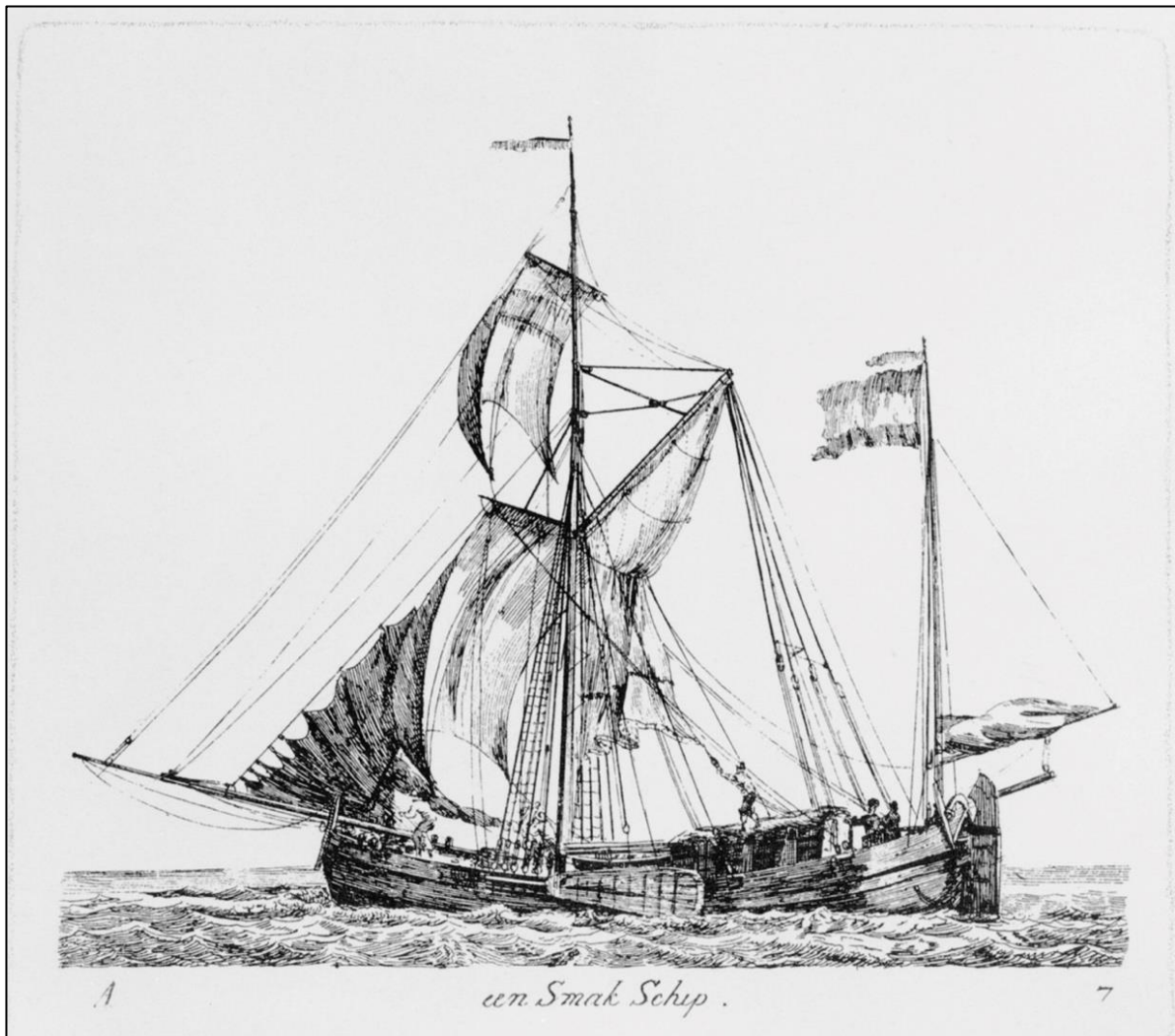


Figure 28. An etching of an 18th century Dutch smack (*Smak Schip*) by Gerrit Groeneweger 1789. Source: Rijksmuseum, Amsterdam.

The *smack* known in Danish as (dk. *smakke*) was another Dutch-developed vessel (nl. *smak schip*). Carvel-built and similar to the *jagt* it was shallow-draughted, which made it very suitable to function as a coastal trader particularly in the Wadden Sea (Nørlund Christensen, 2021, p. 97), (Figure 28). One of the characteristic features of the smack was the stern cabin and the leeboards which could be lowered into the lee side of the ship to avoid too much sideways drift (ibid.).²⁰⁷ During the 17th century the smack was enlarged and a mizzen mast was added with both main and mizzen rigged with a gaffsail.²⁰⁸ One smack vessel is

²⁰⁷ In relation to the Iceland bound smacks the “leeboard shape tended to be short and wide for smooth-water craft, and narrower and deeper for vessels intended for more open waters” (Gardiner & Bosscher, 1995, p. 169).

²⁰⁸ A gaff was a “short spar to extend the head of a fore and aft sail; usually hoisted with the sail, for which purpose it was equipped with jaws that fitted around the mast” (Gardiner & Bosscher, 1995, p. 168).

referenced in the STR in a passage entry from 1712, recorded as 26 lasts in size. Records from the Danish merchant fleet suggest that smack vessels were in decline from the later 17th century period, where in 1677, 58 smacks ranging in size from 4-22 lasts were recorded and by 1706, 26 smacks, 19 lasts on average, were registered leaving Copenhagen for the domestic trade (Degn & Gøbel, 1997, p. 25, Table 3 & 4). These figures suggest, as was seen with a number of the other vessel types outlined above, that those Iceland bound vessel types were larger on average than their domestic trading counterparts.

Snow



Figure 29. An engraving of a Dutch snow (nl. *snaauwschip*) by Gerrit Groenewegen from 1789. Source: Fries Scheepvaartmuseum, Ref. FSM-1978-190. Public Domain.

Three Iceland bound *snows* known in Danish as (dk. *snau*) were recorded in the STR in 1764, 1772 and 1773. They were one of the larger vessel types recorded with a range in size of 50-69 lasts and an average size of 53 lasts. The type are believed to originally have had a Flemish origin and were described by Witsen as a “Flemish long, flat bottomed vessel

which, although originally built for use on inland waterways and in the tidal basins, is also used on the open North Sea” (Auer, 2008, p. 44). Moreover, they had a variety of different rigging setups, were lightly armed and used by navies as well as for privateering and were large and seaworthy enough to carry crews up to 50 sailors (ibid., p. 45), (Figure 29). Between 1650-1750 (dk. *fregat*) and (dk. *snau*) were the most common terms used by the Danes for smaller warships and they often used both terms interchangeably to describe the same ships (Auer, 2008, p. 281). This was most likely due to the similarities of both types in rigging set up and appearance, usually equipped with three masts, a single battery of guns on the upper decks and they could be rowed if required (ibid.).

Pink

Finally, one entry was made for a type of vessel known as a *pink* (dk. *pinke*) was recorded in 1707, for a vessel 33.5 lasts in size. According to Gardiner & Bosscher (1995, p. 169) this term was usually applied to vessels with “a narrow ‘pinched’ stern” coming from the Dutch word (nl. *pinke*) meaning pinched (Figure 30). They (ibid.) also highlighted that the pink was previously known during the 17th century as the (nl. *hekboot*) which bore many similarities to the flute ship with a wide topside but featured a transom which had the effect of strengthening and reinforcing the stern (ibid.). Pinks were mentioned by Degn & Gøbel (1997, p. 15) as being a vessel type within the Danish merchant fleet and the records of merchant ships leaving Copenhagen in 1706 recorded four pinks with an average size of 33 lasts (ibid., p. 25, Table 4). This indicates that the one registered for the passage to Iceland was potentially also used within the domestic shipping fleet. Pinks were also recorded as part of the Copenhagen merchant fleet in 1740 (Feldbæk, 1997, p. 136).

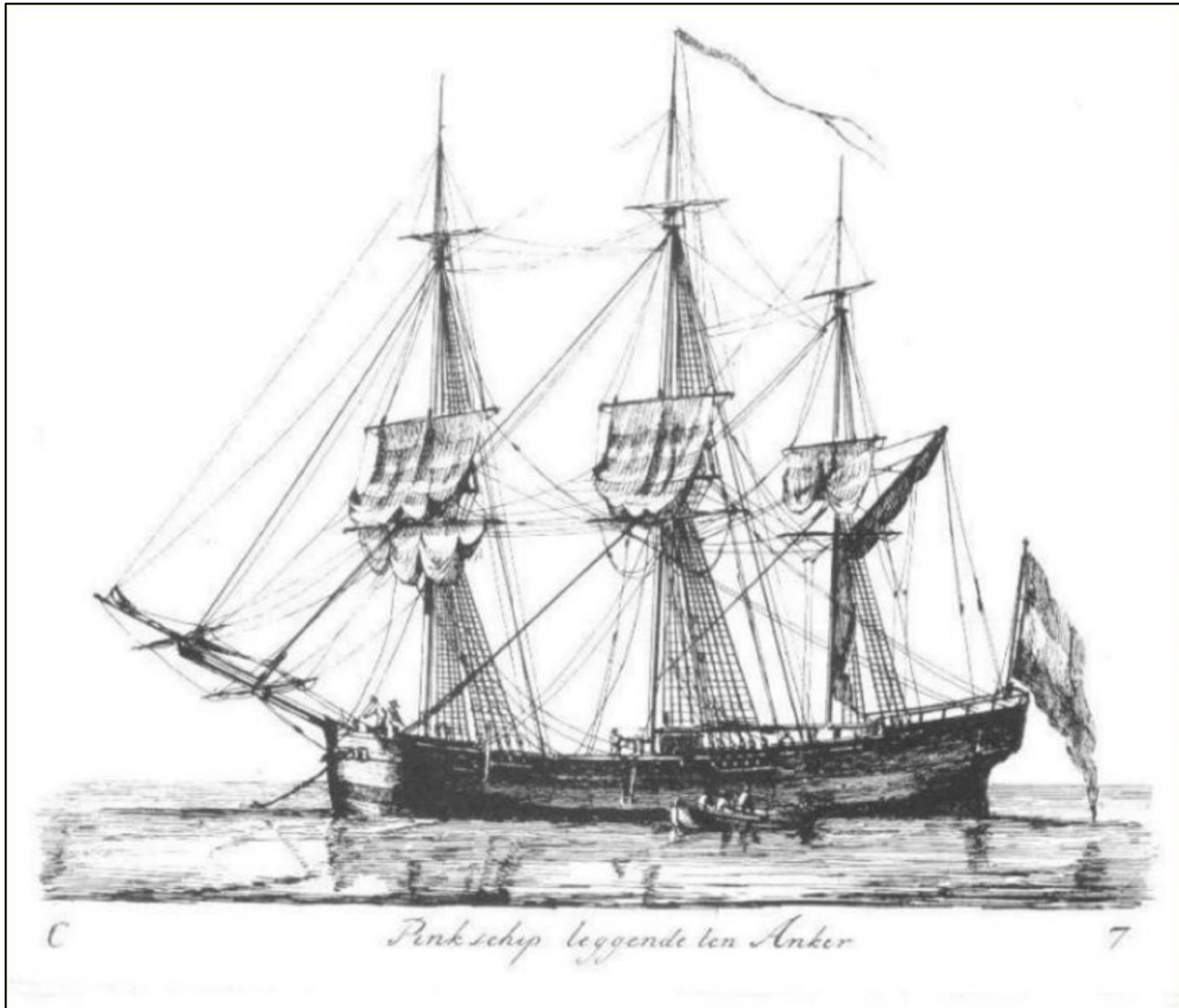


Figure 30. An etching of a Dutch 'pinkschip' at anchor by Gerrit Groenewegen 1786-1789. Source: Zuiderzee Museum Enhuizen, Object nr. 004630. Public Domain.

Vessel names

For the vast majority of the passage entries regarding the Iceland bound ships, vessel names were not included. However, amongst the 3,623 entries, there were 21 that contained a vessel name.²⁰⁹ Apart from two entries in 1672 and 1674, which both record a ship named *St. Johanness*²¹⁰, the 19 remaining entries with vessel names were all made on the same date, 09 December 1711, and by the same customs officers, Joakim Henrici and J. C. Ziege.²¹¹ The names included *Wunberget*, *Emmanuel*, *Justitia*, *Huide Svanen* (White Swan), *Flyende Mercurius*, *Horte Ulf*, *Printz Wilhelm* (Prince William), *Den Unge Tobias* (The Young

²⁰⁹ This represents half of 1% of the total number of passage entries.

²¹⁰ In 1672 the ship was recorded as 48 lasts in size while in 1674 it was recorded as 78 lasts. The same skipper Børge Anderssen is named for both voyages so this is likely to be the same ship with a typo entered into the original register entry.

²¹¹ The ship passage entries were all consecutively entered into the Sound Toll Registers from nr. 61-79, indicating that they were part of the same merchant vessel convoy which passed through. The departure date in December is particularly unusual as the merchant ships normally left Denmark in the Spring to avoid bad weather, rough seas and pack ice around the Icelandic coast.

Tobias), *Fortuna*, *Christina*, *Hoffnung*, and *Ringende Jacob*. According to Degn & Gøbel (1997, pp. 18, 19) records of Danish merchant vessels from around the end of the 17th century included 600 vessels which were named and this list includes a number of the same names as those identified for the Iceland-bound vessels listed above. Moreover, warships and company merchant ships could often feature elaborate carvings and sculptures on the transom and galleries with the carvings reflecting the ship's name (ibid.). Of the 600 named merchant ships 30% were religiously derived with the word Saint included along with a Christian name (Johannes or Peter being the most common), 17% were personal or business names – usually biblically inspired male names such as *Tobias* or *Emanuel*, while *Catherine*, *Elisabeth* and *Dorothea* were the most common female names; others could simply be called *Fiskeren* (*Fisherman*). Nature, and particularly bird species provided the inspiration for 18% of the vessels with names such as *Svanen* (*Swan*), *Falkene* (*Falcon*) and *Duen* (*Dove*). Symbols and concepts such as *Fortuna* (*Fortune*), *Habbet* (*Hope*), *Justitia* (*Justice*), and *Mercurius* (*Mercury*) made up 30% of the vessel names. The last 5% of vessels were named after places such as *Nyborg* or *Staden København* (*City of Copenhagen*). Alternatively, Danish Naval vessels were usually named after royal persons or heraldic elements (ibid., p. 19).

Conclusions

This section has outlined the variety of ship types recorded in the STR for vessels involved in the Iceland monopoly trade from the period 1662-1787. It is, however important to note that it's not a definitive list of all merchant ship types involved in this trade, as for the vast majority of entries no vessel type was noted. Moreover, the list does not include vessels that did not pass through the Øresund strait (Danish Sound) and for the first 60 years (or approximately one third of the entire Trade Monopoly Period) there are no vessel types recorded at all, even for those that did pass through. One of the main characteristics of the Iceland-bound merchant vessels confirmed from the register entries was that they were predominantly larger-capacity ships than their domestic shipping counterparts. This is perhaps not too surprising given the longer distances involved and the extended periods at sea required in the Iceland trade as well as undoubtedly rougher and more challenging sailing conditions than those encountered by a typical Baltic coastal trader. But what about those vessels that did not get recorded in the STR that also traded in Iceland, be it legally, illegally, or quasi-legally? What do we know about them, particularly those from the 17th century for which documentary sources are usually scant? How do they fit into the above narrative in terms of vessel types and cargo capacities? And beyond that, what else can we learn about these ships, can we explore deeper into their biographies? The passage entries record just one moment of a ship's working life, which may have been several decades-long,

and for the majority of these vessels these entries represent the only remaining evidence still surviving that they even existed, the physical remains of the ships having long since vanished. Similarly, a shipwreck event represents a singular moment in a vessel's timeline and if we are fortunate, some of those wrecks remain preserved enough to investigate archaeologically. The following chapter will explore the previous maritime archaeological research in the North Atlantic for merchant shipwrecks from the Trade Monopoly Period and provide a lead into the *Melckmeyt* case study which represents the only archaeologically investigation of a merchant vessel that was active in the Icelandic trade during the monopoly period.

Chapter 4: Existing maritime archaeological research on shipwrecks in the North Atlantic

“The bed of the Atlantic is littered with the unmarked graves of the unlucky, with the rotting hulks of many wooden ships that were swallowed up, often without a trace” (Rediker, 1987, p. 3).

Previous archaeological research on shipwrecks in the North Atlantic

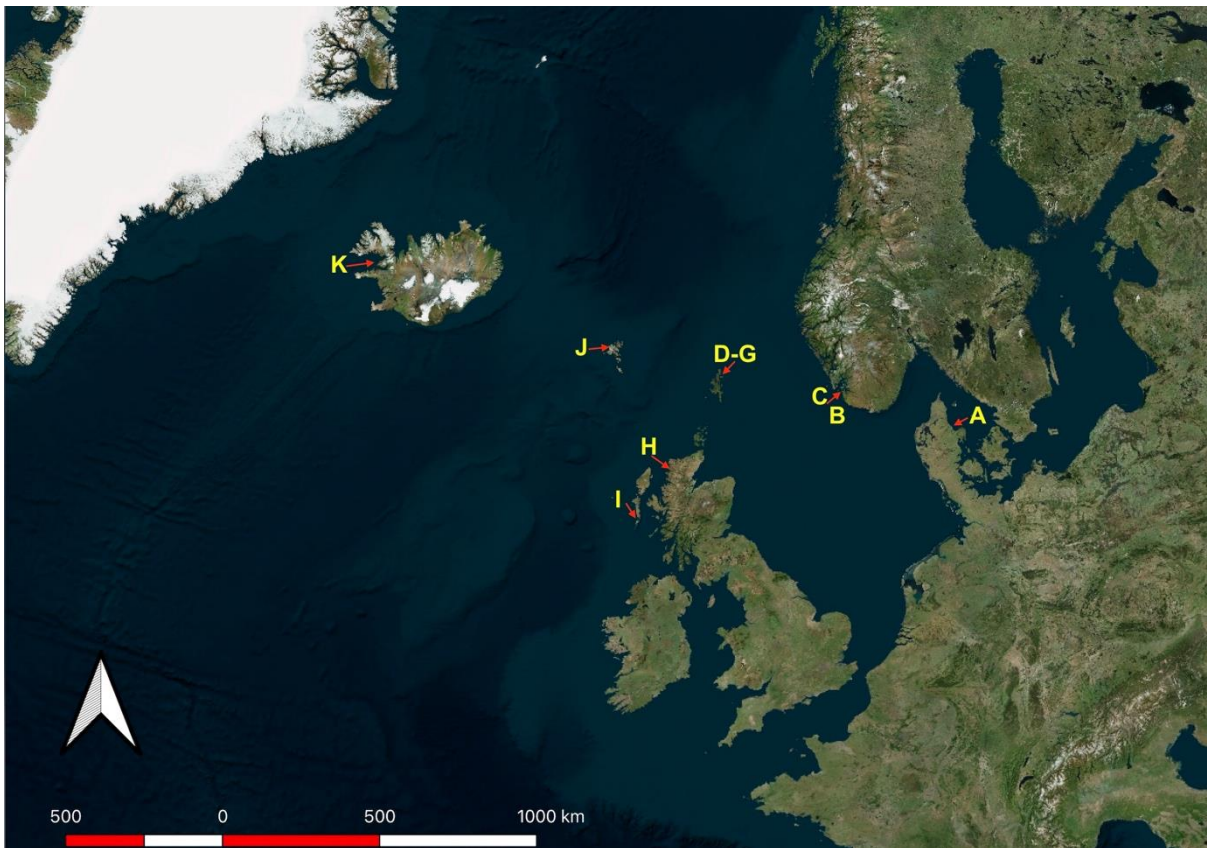


Figure 31. Location map of the relevant shipwrecks mentioned in this chapter which have been previously archaeologically investigated within the North Atlantic area*. *A: *B&W 5* is included for its relevance as a comparative wreck even though it is technically not within the North Atlantic zone, B: *Stat Harlem*, C: *Tau wreck*, D: *Wrangles Palais*, E: *Kennermerland*, F: *De Leifde*, G: *Lastdrager*, H: *Drumbeg wreck*, I: *Adelaar*, J: *Eyðanstovuskipið* and K: *Melckmeyt*.

Over the last fifty years, several important maritime archaeological investigations of shipwrecks from the Early Modern Period have taken place within the North Atlantic area (Figure 31). However, the list is certainly not exhaustive and it's fair to say that within this time period, maritime archaeological research has lagged well behind terrestrial archaeology in terms of new site registrations, investigations and targeted research. A recently completed research project which perhaps begins to address this imbalance was the doctoral study of Philipp Grassel (2017) which explored the further potential for identifying maritime archaeological remains (specifically shipwrecks) connected to the Hanseatic trade in the North Atlantic, focussing on Shetland, The Faroe Islands and Iceland. The incidents of shipwrecks in these areas, as recorded in the historical sources are significant as Grassel (2017) has shown, though very few have been archaeologically identified. Between the period 1600-1900, it's estimated, based on the written sources that as many as 56 vessels per century wrecked around the coast of Iceland (Grassel, 2017, p. 165; Grassel & Edvardsson, forthcoming).²¹² As has been discussed previously it's evident from the STR as well as other sources that the number of official merchant vessels active annually in the Icelandic trade during the Trade Monopoly Period ranged from an average of 20 over the whole period to as many as 57 in a single year.²¹³ Since the case study wreck of the *Melckmeyt* dates to the mid-17th century and was a Dutch merchant ship, the focus of the following section will be on the investigations of merchant vessels from approximately that period, many of which were also identified as Dutch. Comparing the results of these investigations with that of the *Melckmeyt* offers a way for the reader to contextualise the maritime archaeological findings from this project's study beyond the confines of their setting within Icelandic waters where there are currently no other comparative wrecks and to place them within the broader regional archaeological context of the North Atlantic area.²¹⁴

²¹² For the period 1499-1705, approximately 111 vessel losses are noted in the historical sources around the Shetlands and for the Faroe Islands, eight ship losses are recorded from 1523-1687 (Grassel, 2017, p. 223).

²¹³ This figure excludes vessels not recorded in the STR so the actual figure is likely to be significantly higher and in addition to merchant vessels would have included fishing vessels, whalers, vessels of pirates and privateers and naval ships. As mentioned previously Simon Thomas (1935) has suggested an average of 89 Dutch fishing vessels active in Icelandic waters between 1751-1786. Grassel & Edvardsson (forthcoming) suggested that the overall figure for vessels active in Icelandic waters in the Early Modern Period may have been as high as 150-300 vessels per year.

²¹⁴ Two of the more well-known historical references to Dutch ships wrecked in Iceland in the 17th and 18th centuries include the wrecking of the VOC ship *Wapen Van Amsterdam* - known in Iceland as (is. *Gullskipið*) or 'The Goldship' - along the south coast in 1667 (Grassel, 2017, 223). There is also a detailed account of a wreck by the survivors of a Dutch fishing vessel named *De Jonge Alida* which was wrecked in the Westfjords in 1782 (Vermeyden, 1998).

Wreck A, Copenhagen



Figure 32. The B&W 5 shipwreck during excavation. Source: (Lemée, 2006, p. 149, Figure. 4.2.2).

The spectacularly preserved remains of the 17th century B&W 5 wreck were excavated along with seven other wrecks ranging in date from the late 16th to the mid-18th century, from the Christianshavn quarter of Copenhagen in 1996/97 (Figure 32).²¹⁵ The ship was preserved to a length of 28m, a width of 8m, and a depth of 3m (Lemée, 2006, p. 148). Analysis of the surrounding wharf timbers evidenced that the ship had been purposely sunk before 1748 and dendro-analysis of the ship timbers provided a building date of around 1630 with some evidence for substantial rebuilding in 1644 (ibid., pp. 24, 319). The ship was interpreted to represent a carvel-built Dutch-influenced cargo vessel, either a flute or a pinas type, which was later rebuilt as a warship for service in the Danish navy (ibid., p. 166). Unfortunately, there is no further information about the ship such as its name or the type of trade it operated, since only the physical remains of the wreck survive to tell its story. Due to the presence of numerous repairs on the ship timbers, it was apparent that it was likely to have still been in use as a hulk or lighter (transport barge) before it was scuttled more than 100

²¹⁵ Coincidentally, in relation to the name of the case study wreck *Melckmeyt* one of the other excavated shipwrecks B&W 2 (27m x 7.5m), built around 1606 and thought to have been a Dutch-built Danish East Indiaman, based on an analysis of the historical records was potentially a ship originally named the *Hollands Mjölpigian* (Dutch Milkmaid). This shows the various forms of the same names which existed for these ships.

years after it was built (ibid., p. 150). Lemée (ibid., p. 319) estimated the ship's original length to have been around 32m and 8m wide, which indicates that it was originally probably a very similar-sized ship to the *Melckmeyt* although slightly wider.

Wrecks B & C, Norway

In 1969, partial remains of what was believed to be a Dutch merchant galiot named *Stat Harlem* that sank in the year 1677 were archaeologically excavated from a depth of 20m next to the island of Kvitsøy near Stavanger, Norway (Andersen, 1974a).²¹⁶ Though most of the ship's timber remains were missing (presumably eroded by currents and marine organisms), some small parts of the keel (0.25 x 0.5m), ribs (0.2m x 0.17m) and ceiling planking survived, indicating to the excavators that they were most likely from the stern of the ship (ibid., pp. 92, 99). Bricks interpreted to be from the ship's galley hearth were also identified (ibid., p. 92). A large ceramic assemblage was recovered from the wreck and likely represented the cargo onboard (ibid., p. 92). The ceramic assemblage included stoneware, bellarmine flagons, coarse kitchen and table earthenwares (skillets and tripod types), delftware and a collection of more than a thousand clay tobacco pipes. Special finds of note included a solid bronze frying pan thought to have been part of the crew's own inventory, a small iron cannonball (from a two-pounder gun) and a pair of brass compasses (ibid., pp. 92-98). Not all the ceramics were likely contemporaneous with each other, as some of the material, particularly the delftware, may have represented older items that were also being traded (Gavin Lucas, pers. comm. 2016). For a more detailed overview of the ceramic assemblage recovered see (Buchinger, 2013). Owing to the poor timber survival it was not possible to identify anything further about the ship's type or its construction and to the author's knowledge no dendrochronological analyses were carried out on the surviving timbers.²¹⁷ The project stands out as being one of the earliest underwater archaeological projects carried out in Norway and within Scandinavia, occurring less than a decade after the Skuldelev ships' excavations in Denmark in 1962 and Vasa project in 1961 in Stockholm.

Staying in southwestern Norway approximately 30km east of the *Stat Harlem*, a brief investigation of the remains of a late 16th to early 17th century Dutch merchant shipwreck in the harbour of Tau was carried out in 1972 by the Stavanger Maritime Museum (Andersen, 1974b). Only the stern part of the ship survived, with a 5.5m section of the sternpost, keel,

²¹⁶ The identification of the ship as a Dutch galiot is based primarily on a historical reference from the Stavanger town court records which mentioned a galiot named *Stat Harlem* from Schelling (thought to be Terschelling) wrecked around Kvitsøy in 1677 (Andersen, 1974a, pp. 100, 101).

²¹⁷ In 2017, the author inspected the area of the wreck site but nothing of the wreck was visible on the sea bed apart from a few potentially related ceramic sherds which were left in-situ. The excavators noted that they covered the wreck site with "plastic sheets, sand and mud" so there is potentially more of this wreck still left to be investigated (Andersen, 1974a, p. 99).

framing and inner planking examined (Figure 33). Based on a calculation of 1:3 for width to length by the excavators, the ship was estimated to have been 18m long and 6m wide (ibid., p. 42).²¹⁸ Artefacts recovered from the wreck included ceramic tiles, coarse earthenware, tripod pots and stoneware flagons. Some of the ceramics showed clear signs of use and likely formed part of the crew's own tableware while others were clearly unused and were interpreted as being part of the ship's cargo destined for trade in Norway. As was the case with the *Stat Harlem*, no dendrochronological sampling of the ship's timbers were carried out on the Tau wreck, so its dating is based primarily on a stoneware flagon from the second half of the 16th century (ibid.). However, it may potentially be a 17th vessel which, like *Stat Harlem*, carried older ceramics onboard.

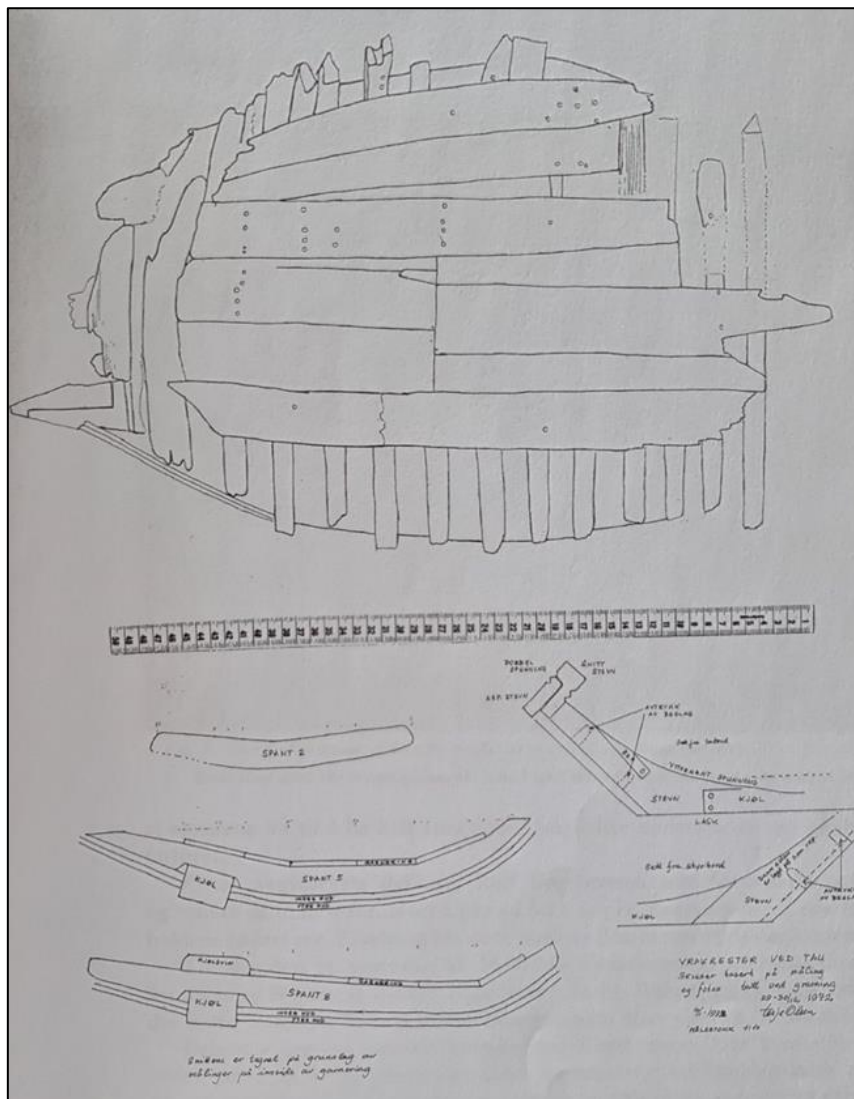


Figure 33. Plan and drawings of the remains of the shipwreck at Tau. Source: (Andersen, 1974b, p. 27).

²¹⁸ As has been shown previously in relation to flute ships this ratio could have been 1:6 in some instances so the ratio used by the original investigators may not be correct and the ship may be larger than previously estimated.

Turning attention to wrecks in Scottish waters, a number of northern European wrecks – mostly Dutch but also including English vessels from the 16th to 18th centuries - have been identified and archaeologically investigated over the last few decades.²¹⁹ Rather than being specifically wrecks of North Atlantic merchant vessels, many of these vessels sank to their final resting places as a result of taking the ‘*North About*’ route via the North Sea around Scotland to connect with the Atlantic Ocean, due to the prevailing winds or to avoid potential conflicts in the English Channel (Martin, 2005, p. 180; McCarthy *et al.* 2015, p. 206). The wrecks include the *Wrangels Palais* (Bound & Sharpe, 1995), *Lastdrager* (Sténuít, 1974), *Kennermerland* (Forster & Higgs, 1973; Price & Muckelroy, 1974), *Adelaar* (Martin, 1992, 1998, 2005), *De Liefde* (Bax & Martin, 1974), Funday wreck (Prescott, Atkinson, & Liscoe, 2008) and the Drumbeg wreck (McCarthy *et al.*, 2015)” (McCarthy *et al.*, 2015, p. 206).²²⁰ A number of these will be further described below.

Wrecks D-G, Shetland²²¹

Wrangels Palais was a merchantman originally built in Holland in 1662, bought by the Swedish Navy in 1669, subsequently captured by the Danish Navy in 1677 and converted into a heavily armed frigate. Its intended function under the Danish flag was to patrol the waters between Iceland and the Faroe Islands protecting merchant shipping and acting as a deterrent to Algerian/Turkish corsairs who were actively operating in the North Atlantic

²¹⁹ Wrecks from the 17th-18th centuries have remained more elusive to identify in Irish Atlantic waters than in their Scottish counterpart. Much work and underwater archaeological investigations in Ireland has focussed on Spanish Armada wrecks from the later part of the 16th century including the wrecks of the three Armada transport galleons - *La Lavía* (728 tonnes), *La Juliana* (860 tonnes) and the *Santa Maria de Vision* (666 tonnes) which sank off Streedagh Strand, Co. Sligo in 1588, with over 1000 crew on board lost through drowning or being murdered by locals once they came ashore (Birch & McElvogue, 1999) (Breen & Forsythe, 2004, p. 97). The wreck sites were first identified in 1985 by a group of amateur sports divers but have since undergone archaeological survey, with four canons lifted from the *La Juliana* as recently as 2015 due to being exposed by storms.²¹⁹ The 17th century saw great changes in the arrangements of trade in Ireland with most of its economic interests dominated and restricted by England, but despite this, new trade markets with the Americas and East Indies began to emerge (Breen & Forsythe, 2004, p. 109). Records of shipwrecks around the Irish coast from vessels associated with this trade are numerous but few so far have been archaeologically identified and investigated. While the Dutch East and West India companies were the most dominant players in the market, Ireland became mostly associated with the trade organised by the English East India Company (EIC) (*ibid.*, p. 111). One of these (EIC) ships on a return trip from the East Indies called the *Pearl* ran aground near Dursey Island, Co. Cork in 1613 (*ibid.*, p. 112). Since the early 1950's wreckage comprising of oak timbers with treenails and a number of cannonballs have occasionally washed up on the foreshore in the vicinity and have been typologically dated to the early 17th century and associated with the wrecked *Pearl*. However, the remainder of the shipwreck, if any survives, has not yet been identified.

²²⁰ Though not specifically merchant vessels, the archaeological investigations of two warships from the early modern period which sank in the waters around Shetland should be also mentioned. Firstly, the wreck of the Dutch warship *Curacao* which was archaeologically recorded by Robert Sténuít (1977). Secondly, the *El Gran Grifon* a Spanish Armada ship which sank in 1588 off Fair Isle, Shetland was archaeologically surveyed in the 1970's by Colin Martin - <https://canmore.org.uk/site/3857/el-gran-grifon-stroms-heelor-fair-isle-north-sea>

²²¹ See (Grassel, 2017, pp. 170-180) for an overview of the Shetland shipwrecks mentioned.

during this time (Helgason, 2018; Kelleher, 2020). The ship's recorded dimensions were 32.6m x 7.8m x 3.5m. It wrecked in 1687 during thick fog at Lamba Stack which is part of the Out Skerries archipelago in Shetland with a loss of 87 crew of the 240 onboard.²²² In 1990, the wreck was re-discovered and subsequent underwater surveys, conducted until as recently as 2014, identified 33 of the original 46 guns believed to have been onboard, along with a dense spread of iron cannonballs, but it was evident that almost nothing of the ship's timber remains had survived since the wrecking (James, 2004), (Figure 34). One potential reason for this and for a lack of other commonly found material from shipwrecks, such as ballast and anchors, is that the ship may have split into several sections during the wrecking process and those parts could have fallen to a deeper depth or been eroded away. *Wrangels Palais* was about the same size as the *Melckmeyt* but accommodated a much larger crew (more than 16 times the number) within essentially the same ship footprint. The redeployment of the ship as a naval frigate attests to the adaptability of these ships and the ingenuity of the contemporary shipbuilders.



Figure 34. A cannon recovered during the investigation of the *Wrangels Palais* in 1990. Source Historic Scotland Archive Project, Ref. 1313325, Public Domain.

²²² <https://canmore.org.uk/site/71037/wrangels-palais-bound-skerry-out-skerries>

Wreck E

Kennermerland's sinking in 1664 off the Out Skerries in Shetland follows a very similar story to that of the *Lastdrager* mentioned below. It was a Dutch East-Indiaman bound for Batavia taking the 'North About' route when it wrecked. No wooden hull remains of the ship survived and it's evident that the underwater environmental conditions around the Out Skerries are not favourable to good timber preservation. However, some organic material was preserved and excavated during the 1984 season and this included plum stones which were recovered from concretions (Dobbs & Price, 1991, p. 117). A range of other artefacts which likely belonged to the crew was also recovered including clay pipes, earthenware sherds, lead shot, and navigational dividers. Unusually, a set of five unused golf club heads (likely part of the cargo) were recovered during the 1978 field season in an area approximately 50m north of the main wreck site (Figure 35).²²³

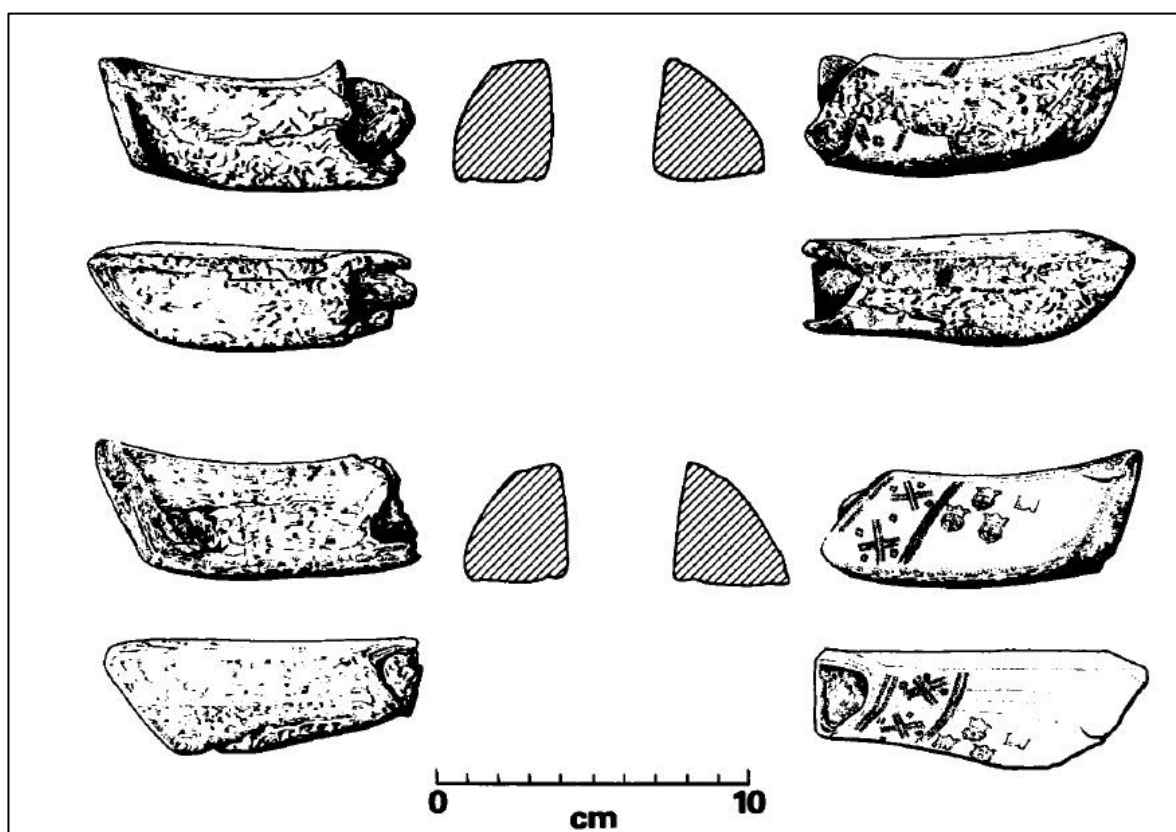


Figure 35. Four of the golf club heads recovered from the *Kennermerland*. Source: (Dobbs & Price, 1991, p. 118, Figure 7).

²²³ This bears an interesting parallel with the *Melckmeyt* excavations where both contemporary and later dated artefacts (ceramics) were recovered almost 40m away from the main wreck site and likely indicate one of two things: 1) a post wrecking disturbance of the site by tidal currents transporting the artefacts from the main wreck area or 2) the actual point of deposition during the wrecking process.

Wreck F

De Liefde was the first VOC wreck to be discovered within the British Isles when it was located by divers in 1964.²²⁴ Records showed that it was built in Amsterdam in 1698 and sank in 1711 in the Out Skerries, Shetland nearby to the *Kennemerland* wreck. The ship would have been substantially larger than the *Melckmeyt* at 50m x 13m, with a cargo capacity of 250 lasts or 500 tonnes and was built specifically for long-distance return voyages to the East Indies. The ship was heavily armed with up to 40 guns on board of varying calibres, though only one iron gun was recovered during its excavation (Bax & Martin, 1974, p. 82). As with the other wrecks outlined above, the hull remains did not survive so the main goal of the excavation project was artefact recovery and the interpretation of their distribution. A sizeable collection of artefacts was recovered and included officially issued VOC equipment for use onboard (musket stock and buckle) as well as personal objects from the crew (clay pipes, thimbles, sword hilt) and part of the specie cargo carried on board found within a chest (Figure 36). A range of other types of cargo were also identified onboard and included quantities of cherry stones which were being carried as seed, clay pipes, padlocks, nails, furniture fittings, knife handles of wood, horn and pressed bone, salt-glazed stoneware and fine white and blue Delft ceramics (ibid., pp. 88-90). The shipwreck was never fully excavated after the last major campaign during the mid-1970's. A recent dive inspection on the site by Wessex Archaeology in 2003 resulted in no visible archaeological material relating to the wreck being observed and the archaeologists concluded that the remains were likely being subjected to heavy tidal flows and may now be buried under deeper silt.²²⁵

²²⁴ VOC – Dutch East India Company.

²²⁵ <https://canmore.org.uk/site/102891/de-liefde-mio-ness-housay-out-skerries-north-sea>

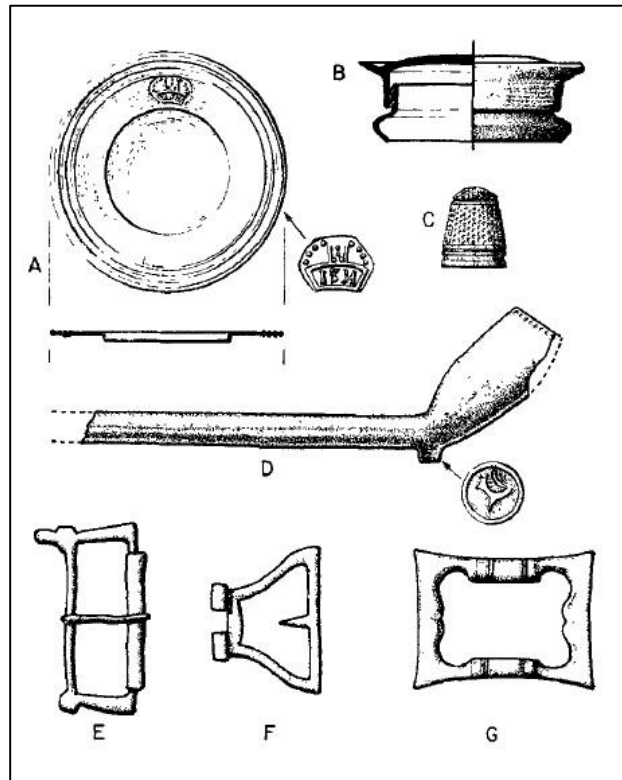


Figure 36. Some of the smaller personal objects recovered from the wreck of the *De Liefde*. A: small pewter dish; B: pewter screw cap; C: brass thimble; D: Clay pipe with maker's stamp (enlarged); E: brass buckle from a cartridge-case belt; F: brass buckle; G: brass shoe buckle. Scale 1:2. Source: (Bax & Martin, 1974, p. 85, Figure 6).

Wreck G

The *Lastdrager* (*Load-bearer*) sank in 1653 off the isle of Yell in Shetland and was discovered and archaeologically investigated in 1971 by Robert Sténuit (1974). Built around the year 1648, as a VOC flute ship, it was recorded as being of 320 lasts (640 tonnes) capacity with estimated dimensions of 44.19m x 8.52m x 4.27m and was therefore substantially larger than the *Melckmeyt*. The wreck lay at a depth of 3-9m on an uneven, rocky bottom and initial observations indicated it had broken in half during sinking with only the bow part of the ship being identified. No part of the hull structure of the ship survived apart from a number of lead strips interpreted as part of hull sheeting (ibid., p. 213). The archaeological investigation recovered 2,746 artefacts including, most notably, a collection of navigational instruments featuring part of a Dutch mariner's astrolabe, navigational dividers, and pocket sundials, as well as cooking utensils and cutlery likely used by the crew in addition to personal objects from the crew including rings, buttons, and belt buckles (ibid.), (Figure 37). An interpreted cargo of brass and copper kettles and cauldrons was determined from the concentrated fragments of both on the wreck site. Environmental conditions at the wreck site did not provide for good preservation of the organic components of the wreck. However, conditions do seem to have been quite suitable for the preservation of ferrous

objects. As we found on the *Melckmeyt* site, some unrelated artefacts which did not relate to the ship were deposited at the *Lastdrager* wreck site, due to either natural processes such as sea currents or as objects that fell on top of the wreck at a later period. This illustrates a salient point about these underwater archaeological sites. Although they can often be sealed environments this is not always the case and some of these wrecks are subject to change and contamination over time based on the continued use of the same sailing routes and harbours by other vessels.

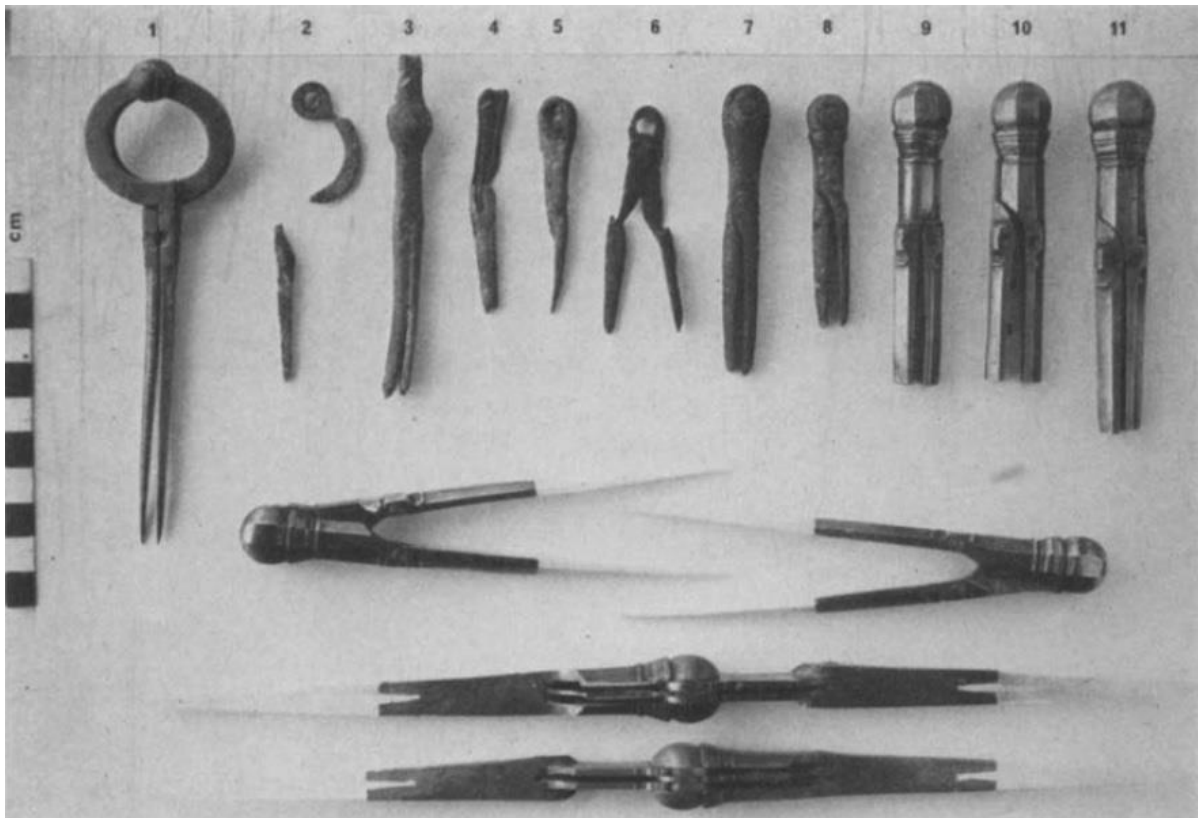


Figure 37. Brass navigational dividers recovered from the *Lastdrager*. 1-8 were interpreted to have been used by the crew on board. 9-11 were part of 72 similar pairs which were thought to be part of the cargo. The four pairs lying horizontally have modern plastic tips to illustrate the original form. Source: (Sténuit, 1974, p. 333, Figure 14).

Wreck H, NW Scotland

One of the more recent archaeological investigations of a 17th-18th century wreck was carried out by Wessex Archaeology on behalf of Historic Scotland at Drumbeg in northwest Scotland in 2012 (McCarthy *et al.*, 2015). The site comprised two anchors, three cannons and an underlying section of hull lying at a depth of 9-12m (*ibid.*, p. 202), (Figure 38). It was archaeologically surveyed traditionally (hand-measured) and also photogrammetrically which at the time was still something considered somewhat experimental in its practical application

to maritime archaeology (ibid.).²²⁶ The hull remains were recorded to a length of 10.65m and consisted of an irregular shaped section of ceiling planking and eight framing timbers (futtocks) interpreted to be from the lower part of the ship's hull, which was also interpreted to be of triple-layered design (ibid., p. 205). The exposed timbers visibly showed heavy surface degradation from shipworm and sea-gribble damage (ibid.).²²⁷ Amongst the small group of artefacts recovered was a Dutch delft tile dated to 1650-1750 and this, along with the hull design, suggested to the investigators a "tentative origin in northern Europe and a date in the late 17th-18th century" for the ship. In terms of comparisons with the *Melckmeyt* the Drumbeg wreck stands out amongst the other Scottish situated wrecks mentioned in this section in that like *Melckmeyt* it was probably a smaller trading vessel and not a company ship based on the number of cannons at the site. Some historical research carried out suggested it may be the remains of the *Crowned Raven* from Amsterdam, which was recorded as wrecked in the area in 1691 (ibid., p. 206). A future research project at the site exposing more of the wreck timbers could certainly allow a chance to refine the dating even further and potentially establish a vessel type and a better opportunity for comparing its findings with those from the *Melckmeyt*.

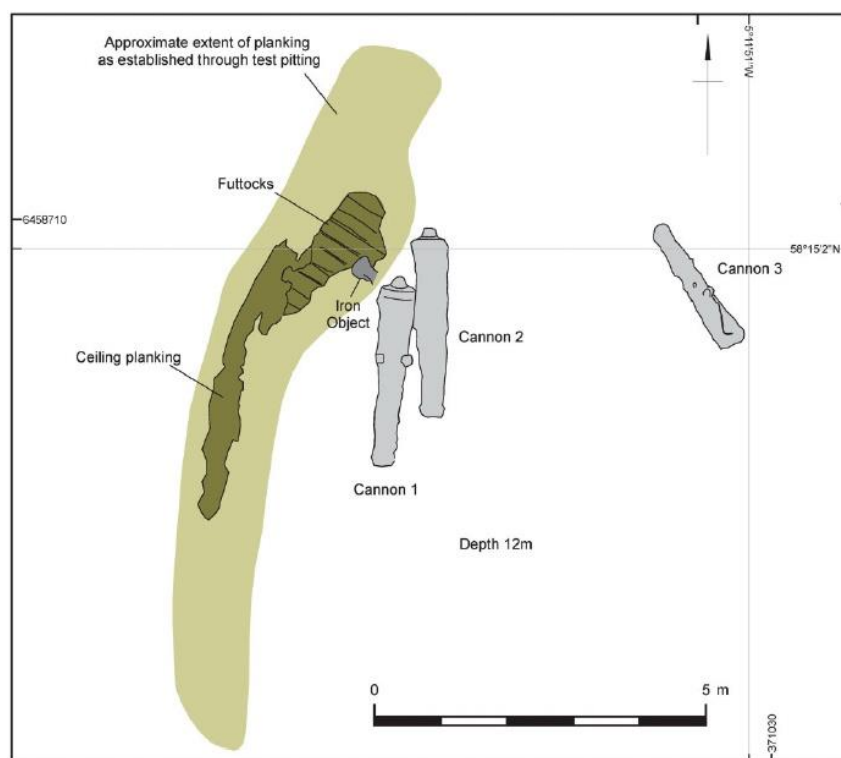


Figure 38. The main features identified at the Drumbeg wreck-site. Source: Historic Scotland 2012, (McCarthy *et al.*, 2015, p. 204, Figure 3).

²²⁶ The *Melckmeyt* was also surveyed using these two methodologies.

²²⁷ The sea-gribble is a wood-boring organism, whose burrow holes are smaller than those from the shipworm (*teredo navalis*) but which are equally as destructive to wooden wrecks.

Wreck I, Outer Hebrides

The *Adelaar*, a Dutch East-Indiaman wrecked in 1728 off Barra, Outer Hebrides en-route from Middleburg to Batavia. The ship was about a third bigger than *Melckmeyt*, about the same size as the *Lastdrager*, and is considered a medium-sized vessel for the long-distance Indies trade. Onboard were 44 guns of various calibres and a cargo consisting of cloth destined for Japan, a general cargo of domestic hardware, tools, nails, and grindstones, and a large consignment of yellow bricks and lead-ingots and, most importantly a consignment of silver and gold bars as well as specie (in the form of 32,000 silver *ducatons* and 450,000 copper *2-stuyver* coins) to purchase her return cargo (Martin, 2005, p. 179), (Figure 39). Incredibly, most of the specie cargo and several guns from the wreck were salvaged down to a depth of 18m using an early diving apparatus employed on the site during the summer of 1728, led by an enterprising lawyer Alexander Mackenzie (ibid., p. 183). The ensuing litigation over the ownership of the salvaged treasure have made the ship “one of the most fully-documented of VOC shipwrecks, particularly in terms of her cargo, the make-up of her consignment of specie and the contemporary salvage operation” (ibid., p. 184). As with most of the wrecks listed in this section, no wooden hull remains of *Adelaar* survived to the present day so the archaeologists investigating relied on the pattern of distribution of the ships guns and other artefacts to determine the main concentration of the wreck site and the original orientation of the ship.



Figure 39. A marine archaeologist alongside exposed lead-ingots from the *Adelaar*. Source: (Martin, 2005, p. 189, Figure 13).

Wreck J, Faroe Islands

In 2018, the author and a colleague Philipp Grassel (German Maritime Museum) in collaboration with the National Museum of the Faroe Islands, undertook a small research project to examine the partial remains of a shipwreck known as the *Eðanstovuskipið* which had been excavated by locals in 1947 from a beach in Sandavágur on the island of Vágur (Grassel & Martin, 2018), (Figure 40). The ship's timbers had been held in the museum storage for more than 70 years before being examined and the local interpretation had been that the remains represented a Viking-Age vessel. The identifiable timbers were determined to represent futtocks, floor timbers and a piece of inner planking all made of oak from a vessel potentially 20-25m in length (ibid.). Unfortunately it was not possible to identify or speculate further on the specific ship type or which country the ship originated from, but hopefully this identification can be part of a future analysis. Five timber samples for dendro-chronological analysis were selected, of which four produced dates and timber provenances dating the ship to the early 17th century with timbers felled in the Lower Saxony region of Germany (Daly, 2018). This may suggest that the ship was a German merchant ship which we know from historical sources were still active in the North Atlantic trade during the first decades of the 17th century (Holterman, 2020). Alternatively, the Dutch were sourcing large amounts of timber for shipbuilding from Germany during this period (van Duivenvoorde, 2015) so this may also potentially indicate a Dutch origin for the ship. A historical reference from 1780, which referred to the wrecking of a ship called *The Rat Ship* along the same stretch of coastline 150 years earlier in 1630, may actually be a reference to the *Eyðanstovuskipið* (Helgi Michelsen, pers. comm. 2018). The reference does not however suggest an origin for the ship. This project though only carried out on a limited scale has set an important precedent for maritime archaeological research in the Faroe Islands and it is hoped that future projects can be arranged, including a return to the actual wreck site in Sandavágur where in-situ remains of the ship still lie in the foreshore.



Figure 40. The excavation of the *Eðanstovuskipið* at Sandavágur beach in 1947. Image credit: Sverri Dahl.

This overview of previously investigated shipwrecks within the North Atlantic area indicates an obvious disparity between the number of historically recorded incidents of shipwrecks in the region and those that were later identified and archaeologically investigated (Table 9). What's also apparent is the poor survival or total absence of ship timbers from many of those wrecks, particularly those in Shetland and Norway. The environmental conditions where a ship has been wrecked clearly exert a direct influence on the subsequent preservation or destruction of the vessel's organic components. It's also likely that salvaging ships' timbers by local communities may have played a large part in many of these wrecks 'vanishing', particularly in places like Iceland and the Faroe Islands where timber was (and still is) a scarce resource and a valuable imported raw material at the time. Focussing on Iceland now, the next section will discuss Wreck K – *Melckmeyt*, shown on Figure 31, which was one of two case study sites archaeologically investigated for this project by the author.

Vessel name	Year Built / Sank	Size	Location	Origin	Other information
B&W5	1630 / 1750	32m x 8m	Copenhagen	Dutch/Danish?	Flute / pinas converted into naval warship
Tau wreck	Sank in late 16 th century	18m x 3m	Tau, Norway	Dutch	Merchant ship?
<i>Stat Harlem</i>	Sank in 1677	?	Kvitsøy, Norway	Dutch	Galiot, merchant ship
<i>Wrangles Palais</i>	1662 / 1687	32m x 7.8m x 3.5m	Out Skerries, Shetland	Dutch	Merchant man converted into frigate
<i>Kennermerland</i>	Sank in 1664	?	Out Skerries, Shetland	Dutch	East Indiaman
<i>De Leifde</i>	1698 / 1711	50m x 13m	Out Skerries, Shetland	Dutch	East Indiaman
<i>Lastdrager</i>	1648/ 1653	44m x 8.5m x 4.2m	Yell, Shetland	Dutch	VOC flute
Drumbeg wreck	1650-1750	?	Drumbeg, Scotland	Dutch?	Merchant ship?
<i>Adelaar</i>	Sank in 1728	?	Barra, Outer Hebrides	Dutch	East Indiaman
<i>Eðanstovuskipið</i>	Sank in 1630?	20-25m?	Sandavágur, Faroe Islands	Dutch/German?	Merchant ship?
<i>Melckmeyt</i>	1640's?/1659	32m x 6m x 3.5m	Flatey, Iceland	Dutch	Flute, merchant ship originally used as a whaling ship

Table 9. A summary of the shipwrecks discussed in Chapter 4. The ? indicates where the information is not available or is an estimate.

Chapter 4.1: Case study *Melckmeyt*

Allen die willen naar Island gaan, Om kabeljauw te vangen en te vissen met verlangen, Naar Iseland, naar Island toe, Tot drieëndertig reizen, zij zijn nog niet moe	All who want to go to Iceland, To catch cod and fish with desire, To Iceland, to Iceland, Up to thirty-three travels, they are not tired yet
---	---

Figure 41. Opening verse from “*Allen die willen naar Island gaan*” a Dutch folk song about fishing trips to Iceland recorded by Florimond Duyse in 1903.²²⁸

Paula Vermeyden (1988, p. 102) noted the upbeat and optimistic tone in the lyrics quoted above from this popular Dutch folk song which was sung from the departing crew’s perspective in their last hours ashore, before leaving for the annual fishing trip north to Iceland, and she remarked how it conveys “the hope of a good catch, of fortune”. One might imagine the crew of the *Melckmeyt* singing a similar tune during their departure from Amsterdam in the early days of summer in 1659. However, instead of the expected-four-to-five-month round trip to Iceland, it would be at least another year before some of the crew would set foot once again on Dutch soil, minus their ship and at least one of their shipmates. Perhaps mis-timing or ignoring their scheduled departure window, they continued trading late into the season and the *Melckmeyt* wrecked during a violent storm in October of 1659 off the west coast of Iceland. Contrary to the popular proverb, it would seem that misfortune may also occasionally favour the bold. However, in a maritime archaeological context, the misfortunes of the past become the fortunes of the present. The case study which follows will explore the biography of the *Melckmeyt*, the only wreck of a merchant ship from the monopole period to be identified in Icelandic waters.

A note about the nomenclature of the *Melckmeyt*

The name *Melckmeyt* is spelt in this form throughout this thesis and translates into English as Milkmaid. There are a number of variations of this spelling which have been used previously in other publications, primary sources and reports in reference to the same ship.²²⁹ These include: (nl. *de Melckmeijt*, *Melkmeid*, *Malkepigen*) and (is. *Mjaltastúlkan*).

Historical references to the *Melckmeyt*

In the context of the other wrecks outlined in the previous Chapter and in general for non-company chartered merchant ships from the 17th century, the *Melckmeyt* is usual in terms of both its surviving archaeological remains and the number of extant historical references from

²²⁸ Source: https://www.dbnl.org/tekst/duys001oude01_01/duys001oude01_01_0237.php

²²⁹ Spelling in the 17th century was not standardized so names were often spelt differently (Heijink, 2017)

several separate jurisdictions including – Iceland, the Netherlands and Denmark – relating to the ship.²³⁰ The following section will discuss those historical references which were already established and referenced prior to this study and which Marie Simon Thomas (1935) and Bjarni F. Einarsson (1994) cited.²³¹ Some additional historical references and insights were uncovered by Martijn Heijink (2017) in more recent times as part of a collaboration with this study and will also be discussed.²³² One of the few references to the *Melckmeyt* in the notarial archives from 1659 is reported by Simon Thomas (1935, p. 95), who mentioned the account of the captain of the ship *De Laggende Hond (The Laughing Dog)* who stated that on the 9th of July 1659 they had heard that the *Melckmeyt* was sighted at Papey on the southeast coast of Iceland.²³³ This would indicate that the ship was late in terms of its departure from Amsterdam and may explain why it was still in Iceland in October when it sank.²³⁴ The Icelandic Annals (*Vatnsfjarðarannál* and *Ballarárannáll*) both contain references to the arrival of a fleet of Dutch merchant ships to Iceland in 1659 and specifically a detailed account of the wrecking of the *Melckmeyt* at Flatey later in that year (Figure 42).²³⁵ It was recorded that the *Melckmeyt* sank in Flatey harbour (Hafnarey) during a violent storm in the Autumn, just prior to its departure from Iceland fully laden with an export cargo including 60,000 pieces of salted wet-fish and meat. *Ballarárannáll* records that one of the 15 crew members died during the wrecking and the rest overwintered on Flatey and were looked after by the locals. The entry further stated that the survivors salvaged 14 cannons (is. *fjallstykku*) from the *Melckmeyt* and also enough wood, sails and supplies to build another

²³⁰ Moreover, the *Melckmeyt* was not chartered to an official Dutch trading company such as the VOC or GWC which tended to produce a lot of documentary records as a result. It was instead chartered by an Amsterdam based Danish merchant Jonas Trellund for private trade in Iceland.

²³¹ The doctoral thesis of Marie Simon Thomas (1935) 'Onze Ijslandvaarders in de 17^{de} en 18^{de} eeuw: bijdrage tot de Geschiedenis van De Nederlandsche Handel en Visscherij' which examined the history of Dutch trade with Iceland in the 17th and 18th century should be acknowledged here specifically for its investigation and transcription of many of the primary source documents including those from the Dutch notary archives which related to the *Melckmeyt* and the activities of Jonas Trellund in Iceland as well as other Dutch merchants. According to Heijink (2017) the main primary source for the *Melckmeyt* is the archive of public notaries in Amsterdam of which only 5-8% has been digitized and indexed.

²³² This work was funded by The Cultural Heritage Agency of the Netherlands (Rijksdienst voor het Cultureel Erfgoed).

²³³ SA, NA, notary Jan Volkertsz. Oli, 1515, 6 August 1659.

²³⁴ Simon Thomas (1935, p. 93) cited a notary reference that Trellund's 1659 ventures had a total value of 117,000 guilders of which 38,500 was invested into his Icelandic enterprise.

²³⁵ We know from the Dutch notary archive references that Trellund sent seven ships to Iceland that year and other Dutch merchants also sent ships over to Iceland to trade (Simon Thomas, 1935, pp. 96-97). See footnote 184. One of these ships *de St. Anna* skippered by Barent IJsbrantz. Roest from Texel was hijacked by pirates on its return journey from Iceland to France and the ship, crew and cargo were taken to Algiers (ibid., p. 99). The account of the *Melckmeyt* sinking in *Ballarárannáll* was written by Pétur Einarsson (1597-1665) who lived on a farm in the region called Ballará. Pétur was a member of parliament (is. *lögréttumaður*) and was a cousin of Einar Þórðarson a ship's captain in Holland so his account is considered credible (Annálar 1400-1800, Vol. 3, 1933-1938, pp. 179-187). It is possible that he may have spoken in person with some of the surviving *Melckmeyt* crew members or had been informed of the sinking by his cousin Einar.

sea-going vessel which they used to sail back home the following year in 1660 (Figure 42). Whether the surviving crew of the *Melckmeyt* got back to Amsterdam in 1660 on their newly built ship or through other means (which is more likely) we know that at least five of them made it back.²³⁶ This is confirmed through a statement recorded by the notary Pieter van Buijtene on the 20th of July 1660, made by five of the surviving 14 crew members: Hans Davidsz. (*captain/skipper*), Pieter Box (*navigator*), Mathijs Martensz. (*high boatswain*), Barent Barentsz. (*carpenter*) and Jakob Roelofsz. (*constable*) (Figures 43 - 45).²³⁷ In their statement which is transcribed below in Figure 45 by Martijn Heijink (2017), they mention an “extraordinary storm” which sank the ship while at anchor in Flatey harbour (Hafnarey). They also noted the loss in its entirety of the ship’s cargo which included “70,000 pieces of salted fish, 28 barrels of salted meat, a 1,000lbs of dried fish, a 100 sheep-skins, an ox-head of train-oil and 1.5 tonnes of talcum as well as some unsold cargo” (Heijink, 2017).²³⁸ Intriguingly, a difference of 10,000 salted fish is evident between the Icelandic and Dutch accounts. While this may be a historical typo by van Buijtene or a case of misinformation reported to Pétur Einarsson, it could perhaps also be interpreted as evidence of the crew inflating their cargo losses to the notary in order for the merchant Jonas Trellund to lodge a larger insurance claim for the vessel’s losses.²³⁹

²³⁶ Trellund had another merchant ship back in Flatey in May of the following year (1660) so it seems logical that the crew may have travelled home with this ship but unfortunately this is not recorded.

²³⁷ The use of z at the end of the surname was an abbreviation of the Dutch word for son (nl. *zoen, zoon*). So the full name of the captain would have been Hans Davidszoon.

²³⁸ See Chapter 2 for additional discussion about this cargo. An alternative suggestion for the 1.5 tonnes of talcum is 1.5 barrels of tallow (See footnote 88).

²³⁹ This is just a speculative suggestion by the author to explain the discrepancy in cargo records. Unfortunately no subsequent insurance claim for the *Melckmeyt* was identified in the notary records examined.

<p>Vatnsfjarðarannál 1659</p> <p>Komu Hollenzkir viðá með vöru af álflu Jóhanns Trelundt, en dönsk sigling ei.</p>	<p>Vatnsfjarðarannál 1659</p> <p>The Dutch came with goods on behalf of Jonas Trelund, but under a Danish flag.</p>
<p>Ballarárannáll 1659</p> <p>Þá kom ekkert danskt skip til Íslands, en Hollenzkir komu þá mjög margir alstaðar, nema í Norðlendingafjórðung kom ei nema eitt skip fraktað frá Hamborg. Þá brotnaði eitt skip hollenzkt á Stapa um Þingtíma. Þá komu 6 eður 7 skip hingað til landsins, útreidd af Jonas Trelund af Amsterdam. Lágu lengi 3 skip í Stykkishólmi, eitt hans skip jafnlega í Flatey, þó þar lægi og við og við 2, stundum 3 í einu. Nokkuð af góssinu var selt í Bjarneyjum. Urðu þau skip öll frögtuð. Hann kom sjálfur á litlu skipi og var hér til þess hin sigldu. Eitt varð eptir á Flateyjarhöfn, og var fraktað með blautan fisk, 60.000 fiska, og nokkuð kjöt. En um haustið, þá það var búið til siglingar, kom geysilegur norðanstormur, svo það brotnaði á Flateyjarhöfn og í kaf, nema sást á það aptan. Þar sátu upp á mennirnir í sjórótinu og frostinu nær því um 2 dægur; urðu ei fyrir sóttir fyrir verðrinu; andaðist einn af þeim, en allir hinir lítt færir, en urðu þó með heilbrigði. Rak upp á [Flatey] nokkuð eður mestallt af því, þeir áttu, en skipsfaktin heil fordjardaðist öll. Fimmtán voru mennirnir, því skipið var stórt með 14 fjallstykki, og þau náðust öll, með seglum og köðlum; náðust nokkur grjón og brauð. Höfðu þeir það sér til matar um veturinn, með því öðru, sem þeir til fengu, og góðgjarnir menn gáfu þeim. Þeir héldu stórustofuna í Flatey um verturinn eptir skipbrotið.</p>	<p>Ballarárannáll 1659</p> <p>No Danish ship came to Iceland. But the Dutch came, very many and were all over except for the northern Quarter where only one cargo ship from Hamburg arrived. Then one Dutch ship wrecked at Stapi (Arnarstapi) around the time of the Þing (July). Then six or seven ships came here to Iceland (organised) by Jonas Trelund of Amsterdam - three ships anchored for a long time in Stykkisholmur. One of his ships was often in Flatey, even though sometimes there were two or three there at one time. Quite a lot of the goods were sold in Bjarney and those ships were all filled with Icelandic goods. He (Trelund) came himself on a little ship and stayed here until the others had left. One was left behind in Flatey harbour and was laden with cargo of 60,000 pieces of wet-fish and some meat. In the Autumn when it was ready to sail, a bad northern storm came, so it wrecked in Flatey Harbour (Hafnarey) and went under except you could see the back of it above water. There on top, the men sat in the sea swell and the frost for almost two days and they could not be helped because the weather was so bad. One died and all the others were in bad shape but became healthy again. A lot of their goods washed up on shore, but the cargo was all lost. The men were 15 in number and the ship was big with 14 cannons which were all saved along with sails and ropes. Grain and bread were also saved and that's what they ate for the winter along with other food from the islanders. They were living in the big hall in Flatey the winter after the shipwreck.</p>
<p>Ballarárannáll 1660</p> <p>Og smíðuðu (þeir) hér í Flatey þann vetur hafskip úr greinivið af stóru skipsmöstrumum og greiniborðum. Kjölurinn á því var mér sagt, að verið hefði 29 álnir. Var hátt skip og breitt, og á því sigldu þeir allir skipbrotsmennirnir um sumarið. Fengu þeir menn góðan vitnisburð af fólkinu í Flatey.</p>	<p>Ballarárannáll 1660</p> <p>That winter they built an ocean-going ship from pinewood from the ship's masts and pine boards. The keel I am told was twenty-nine álnir / 16.53m.²⁴⁰ It was a high and wide ship. On it the survivors sailed that summer. They were highly regarded by the locals on Flatey.</p>

Figure 42. References to the arrival and sinking of the *Melckmeyt* from the Icelandic Annals Vatnsfjarðarannál and Ballarárannáll. Source: (Annálar 1400-1800, Vol. 3, 1933-1938, pp. 86, 215-217).

²⁴⁰ One Icelandic álnir converts to the metric measurement of 57cm. Source: (Ólsen, 1910, p. 5)

Figure 44. Signature page of the notary statement by the crew of the *Melckmeyt*. Interestingly, two of the crew members Barent Barentsz. and Mathijs Martensz. signed with their initials BB & MM, indicating that they may not have been able to write. The notary Pieter van Buijtene included a note to confirm who had initialled the document. Transcriptions from Heijink (2017). Source: SA, NA, notary Pieter van Buijtene, 2754, 20 July 1660, folio 72. Amsterdam City Archives. Public Domain.

Today, the 20th of July 1660 appeared before me Pieter van Buijtene, notary, in presence of the following witnesses Hans Davidsz., age about 30 years, captain, Pieter Bos, age about 50 years, navigator, Mathijs Martensz., age 27 years, high boatswain, Barent Barentsz., age 42 years, carpenter, and Jacob Roelofsz., age 32 years, constable. Having sailed on the ship named Melckmeijt, and having on request of mister Jonas Trelont, a merchant here, witnessed, declared and testified to be true and veritable; that between the 15 and 16 October 1659 last they witnessed with the named ship moored in Flatey in Iceland the same by an extraordinary storm remained and was wrecked there. So that of the load nothing was recovered or could be recovered. The witnesses had enough to do to save their lives. When their named ship was lost its load consisted of about seventy thousand pieces of salted fish, and twenty-eight barrels of salted meat, and about a thousand pounds of dried fish, and about a hundred sheepskins, and an oxhead of train-oil, and one and a half tonnes of talc, and some cargo that was not sold. The witnesses present when requested to be willing to reaffirm this by solemn oath. All done truthfully in Amsterdam in presence of De Blocq, G. Sweers, Geeral, witnesses.

Hans Davitsz.
 Pieter Bos
 these letters were written by Barent Barantsz.: BB
 Jacob Roelofsz.
 these letters were written by Mathijs Martensz.: MM
 Steven Gelre

Figure 45. Transcribed statement of the *Melckmeyt* crew by Martijn Heijink (2017) made to the notary Pieter van Buijtene on 20th July 1660.

Biography of the *Melckmeyt*

In terms of a biographic timeline, the starting and finishing point for the *Melckmeyt's* story in previous publications (Einarsson, 1994; Simon Thomas, 1935) has essentially been its fateful journey to Iceland in 1659. The lifespan of a merchant ship like the *Melckmeyt* was generally up to 15 years, though, so there is potentially 90% or more of the ship's working life-history that has gone unaccounted for (Asaert, 1976, p. 182). Adding to the complexity, according to Heijink (2017), is the fact that *Melckmeyt* was quite a common name for Dutch ships in the 1650's and his research in the notarial archives of Amsterdam identified at least six ships with that name between 1657-1659. While a specific charter document for the 1659 journey of the *Melckmeyt* was not uncovered, a charter made in 1658 for the merchant Jonas Trelund for a vessel bearing the name *Melckmeyt*, under captain Pieter Pietersz. van Hobre, was identified.²⁴¹ Trelund had sold salted cod that had been shipped on this vessel in the autumn of 1658, suggesting that its destination had been Iceland (Simon Thomas, 1935, pp. 93-94). This vessel was either a different one to the 1659 *Melckmeyt*, with a different skipper at the helm, or it was the same *Melckmeyt* with a different skipper yet chartered by the same merchant. This author finds the latter scenario to be the most plausible rather than that the same merchant chartered two separate ships in Amsterdam, both named *Melckmeyt*, that sailed to Iceland one year apart.²⁴² The charter contract from 1658 was set for 12 months, or as long as the charterer desired, so it's entirely possible that the 1659 journey of the *Melckmeyt* was made under this same contract (Heijink, 2017). Importantly, the 1658 charter contained measurements for the *Melckmeyt* which were listed as 116 feet (32.82m) in length, 24 feet (6.79m) in width, 12 ½ feet (3.54m) height in the hold and 4 ½ feet (1.27m) below water (ibid.), (Figure 46).²⁴³

²⁴¹ SA, NA, notary Pieter van Buijtene, 2747, 23 February 1658, folio 265-266. The skipper's name was Pieter Pietersz. and the van Hobre element indicated he was from the town of Hobrede in north of Amsterdam. Skipper's names at the time would often include the hometown with the prefix of van.

²⁴² Heijink (2017) also recognised this scenario as being the most probable noting that "the available index for the records does not list the *Melckmeyt* of Pieter Pietersz. van Hobre after 1658, and it does not list captain Hans Davidsz. at all, it is possible that this is the same ship. An explanation for the different captains is that van Hobre might have retired or died after the 1658 journey and was succeeded by Hans Davidsz."

²⁴³ 1 Amsterdam foot = 28.3cm (De Gelder & Ramakers, 1824, p. 167)

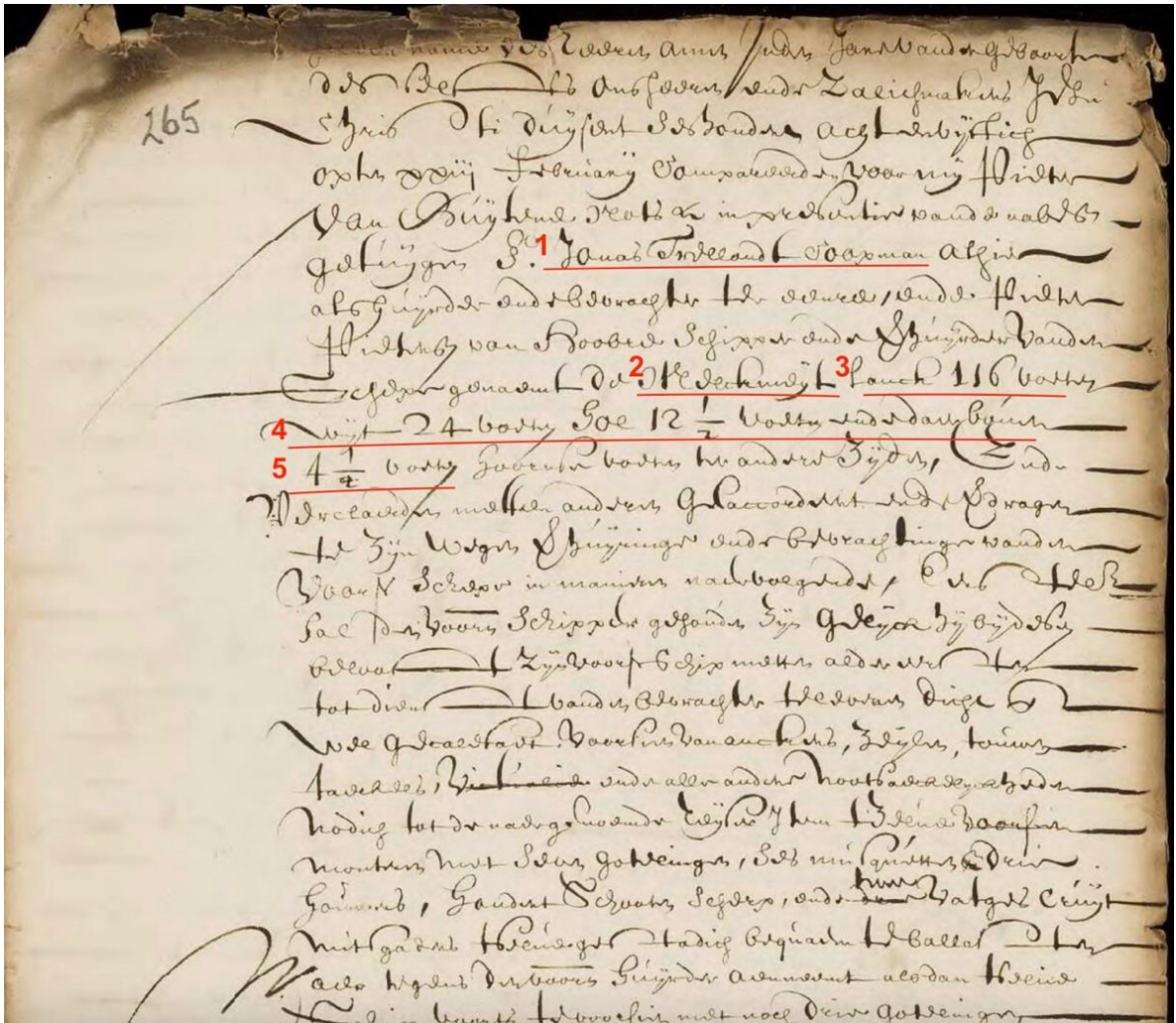


Figure 46. Annotated charter contract of the *Melckmeyt* from 23rd February, 1658. 1. Jonas Trellandt Coopman (Jonas Trellund Merchant), 2. Melckmeijt (*Melckmeyt*), 3. Length 116 voeten (feet), 4. Width 24 voeten (feet) hol 12 ½ voeten ende daer beu (12 ½ feet high cargo hold), 5. 4 ½ voeten below water. Transcriptions from Heijink (2017). SA, NA, notary Pieter van Buijtene, 2747, 23 February 1658, folio 265-266. Amsterdam City Archives. Public Domain.

The 1658 charter further stipulated that the captain would provide seven small cannons (nl. *gotelingen*), six muskets (nl. *musquetten*), three swords (nl. *houwers*), 100 shots (nl. *schooten scherp*) and two barrels of gunpowder (nl. *vatge cruijt*). Additionally, the charterer (Trellund) would provide an additional three small cannons and victuals (provisions), and hire a crew (Heijink, 2017). The rent was set at 510 Dutch guilders a month, but frustratingly for this study the charter does not mention either the ship type or its specific size, although Heijink (ibid.) noted the same ship was mentioned in other contracts at roughly 140-150 lasts. Further archival research by Heijink (2017), which followed the trail of the *Melckmeyt* under the skipper Pieter Pietersz. van Hobre before 1658, has filled in many of the blanks that had existed for the ship's biography until now. His research documented five journeys of *Melckmeyt* which comprised: 1649, a whaling expedition to Greenland; 1650, a return journey from Amsterdam to Setubal in Portugal; 1652, a return journey from Amsterdam to Setubal via Tallinn; 1654, a journey from presumably Amsterdam to Norway and then to Lisbon; and 1655, a return journey from Amsterdam to Setubal in Portugal to procure salt for the markets in Amsterdam (Heijink, 2017).²⁴⁴ Heijink additionally noted that “such a variety of journeys was not uncommon: Dutch captains often alternated whaling expeditions with trade journeys to the Baltic and Archangel in northern Russia” (ibid.).

The journeys registered in the charters that Heijink (2017) uncovered in the notarial archives for the *Melckmeyt*, 1649-1659, are plotted in Figure 48. Why the *Melckmeyt's* role was changed from whaling to being a cargo transporter is not known but vessels at the time were often built to be versatile or refitted to operate in different services during their working lives.²⁴⁵ However, no references to any journeys in the years 1651, 1653 and 1657 were noted for the *Melckmeyt*. The ship may likely have gone back into the whaling trade in 1651.²⁴⁶ This author has identified two journeys that were likely made by the same skipper, Pieter Pieterz. van Hobre, in two of those specific years (1653 & 1657), which were registered in the Danish Sound Toll Registers (Table 10). While the vessel's name is not specifically mentioned in the passage entries, it's possible that these voyages may also have involved the *Melckmeyt* as two of the previous departure/destination ports the ship had used (Tallinn and Setubal) were recorded as well as a salt transport in 1657, which we know from the notary archives the *Melckmeyt* had been transporting in 1652 and 1655.

²⁴⁴ SA, NA, notary Pieter Capoen, 1589, 15 April 1649, folio 330. Notary J. van Loosdrecht, 1989, 2 August 1650, folio 369; 6 December 1652, folio 583. Notary Jan Volkaertsz. Oli, 1537, 10 October 1654, folio 152. Notary J. van Loosdrecht, 1989, 5 June 1655, folio 680.

²⁴⁵ As an example the B&W 5 wreck found in Copenhagen had been originally built as a merchant ship and later refitted to serve as a naval ship (Lemée, 2006).

²⁴⁶ McCarthy (2020, p. 255) noted that all Dutch whaling was suspended in 1652 and 1653 so this is presumably the reason why the *Melckmeyt* was hired into the merchant trade from that point onwards.

Before 1649, there is no record of the *Melckmeyt* in the historical sources, so from this point backwards in the ship's timeline the results of the archaeological investigations will need to take over the narrative. In terms of the financial loss that the wrecking of the *Melckmeyt* would have represented for Jonas Trellund and his investors, this was likely to have been quite substantial (Figure 47). Added to this impact was the loss of another of the 1659 fleet, *de St. Anna*, to pirates in the same year.²⁴⁷

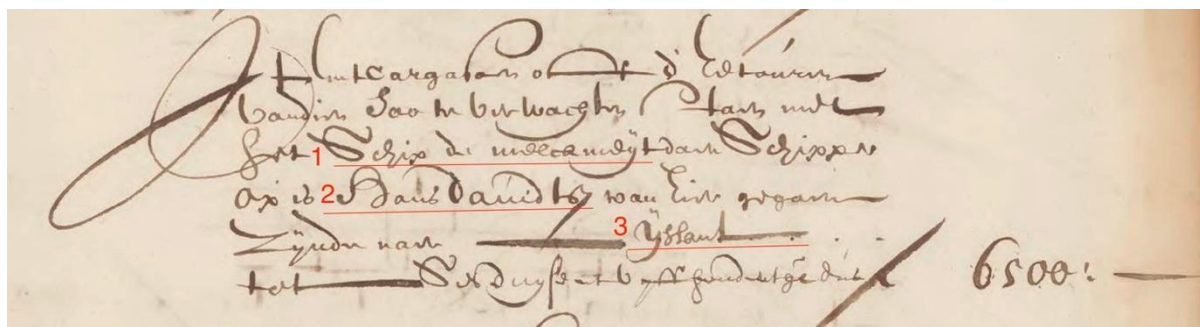


Figure 47. Annotated sales contract from 21st April 1659 by the notary Pieter van Buijtene for Jonas Trellund. 1. Ship *de Melckmeyt*, 2. Hans Davidtsz. 3. IJsland (Iceland). SA, NA, notary Pieter van Buijtene, 2749, film 2842, 21 April 1658, folio 1029-1033. Amsterdam City Archives. Public Domain.

Financing the trade

Trellund offset his personal financial exposure from any losses in the Iceland trade by selling the cargo's value or a portion of it from several of his chartered ships in 1659, one of them being the *Melckmeyt*. A contract made on the 21st of April 1659 (Figure 47) listed a figure of 6,500 guilders in respect to the cargo of the *Melckmeyt*, skippered by Hans Davidtsz.²⁴⁸ From this, it should be possible to accurately estimate the total value of the loss of the ship and its cargo. Heijink (2017) outlined that a ship built in Zaandam in the 17th century, which was the primary shipbuilding area of the Netherlands, would have cost about 90 guilders per last so factoring in the size of the *Melckmeyt* at 140-150 lasts, the ship would have cost something in the region of 12,600-13,500 guilders when it was built.²⁴⁹ However, the ship was already at least a decade old when it sank in 1659, so it had essentially paid off its original investment throughout its working life. The cargo, therefore, probably held the most value in terms of losses. Just considering the value of the wet-fish and stockfish cargo (60-70,000 wet-fish) the following valuation can be suggested. Einarsson (1994, p. 144)

²⁴⁷ See footnote 234.

²⁴⁸ This was the agreed price the buyers paid for the cargo or the return goods that are traded for it. It suggests that the buyers estimated the cargo would be worth more than they paid. The contract later stipulated that the buyers accept all the "risks of the sea" (loss of cargo, damage, pirates, war etc.) but that they will get any insurance compensation that might be paid for the cargoes. (Martijn Heijink, pers. comm. 2021).

²⁴⁹ The actual figure for the *Melckmeyt* is likely to have been more than 90 guilders per last as the ship was built around the mid-17th century.

previously estimated the total weight of the *Melckmeyt's* wet-fish cargo of 60,000 fish at 90,000kg with each fish weighing 1.5kg. This gives a range of 90,000-105,000kg of wet-fish on board. The year before, in 1658, Trelund had sold a barrel of salted-fish for 14.75 guilders per barrel (160kg), (Heijink, 2017).²⁵⁰ On this basis, the value of the *Melckmeyt's* wet-fish cargo alone was approximately 8,300-9,700 guilders. The stockfish onboard (1000lbs) would have sold for 7-8.38 guilders per hundred pounds, suggesting a value of 70-83 guilders (ibid.), although this could have been provisions for the crew given the size of the load. Including the other items onboard (salted meat, sheep-skins and train oil), the overall cargo valuation was approximately 10,000-12,000 guilders.

Despite the wrecking of the *Melckmeyt*, which Trelund himself had described in 1661 as occurring “by God’s violence” (Simon Thomas, 1935, p. 252), it seems that he had made enough profits from his 1659 trading ventures to weather any ensuing financial storm the wrecking may have caused and by May of 1660 he had sent at least one ship, *de Swarte Ruyter* under the command of skipper Claesz. IJsbrantsz., back to Flatey (ibid., 99).²⁵¹ Based on his previous assistance to the Danish King Frederick III, in hiring out some of his ships to aid the Danish war efforts against Sweden in early 1659, Trelund had secured favour with the Danish King and in July of 1660 he was granted a 20-year whaling and fishing licence for Iceland that stipulated he was forbidden from conducting trade without the permission of the sheriff (is. *sýslumaður*), (Lovsamling for Island, Vol. 1, p. 255).²⁵² This was, as Simon Thomas (1935, p. 89) described, the equivalent of letting the “trojan horse inside”. In 1661, it’s recorded that he built a whaling station at Hrisey in Eyjafjörður (Friðriksson & Þór, 2013, p. 234). He was also involved in the Faroese trade for some years after this, but due to complaints to the King from Danish merchants that their own monopoly trading rights in the Iceland trade were being violated by Trelund’s newly secured fishing privileges, he was stripped of them but somehow still managed to keep some trading rights to Iceland on condition that he would relocate to Denmark, which he did in 1662 (Vilhjálmsón, 2013, p. 24). Trelund subsequently received royal approval to build a shipyard on Strandgade in Copenhagen in 1663, recruiting two master shipbuilders and some shipwrights from Holland (Nørlund Chistensen, 2021, p. 64). He supplied ships to the Asian and Caribbean trades, which benefited from special tax privileges, and he also maintained involvement in the

²⁵⁰ SA, NA, notary Pieter van Buijtene, 2748, 9 November 1658, folio 495.

²⁵¹ The same ship and skipper are mentioned in the records as being part of the fleet sent by Trelund to Iceland in 1659 (Simon Thomas, 1935).

²⁵² Trelund leased his ship the *Jungfru Catharina* skippered by Hans Davidtsz. (who later skippered the *Melckmeyt* to Iceland) with a ten man crew and six guns on board (Vilhjálmsón, 2013).

Icelandic trade.²⁵³ He established a business partnership with the Norwegian-Dutch admiral Cort Adalaer with whom he ran up a sizeable debt of 5000 rdl. A subsequent threat of legal proceedings by Adalaer to recover the debt sent Trellund into hiding in 1669, abandoning his wife and three children (Vilhjálmsson, 2014, pp. 42, 45). Trellund resurfaced again in 1680 in the town of Husum in Schleswig, though by this stage he was using the name Jonas Thamsen and had become a faith healer. He died penniless in 1682 in the nearby town of Fredrikstad where documents uncovered after his death revealed his former identity (ibid.).

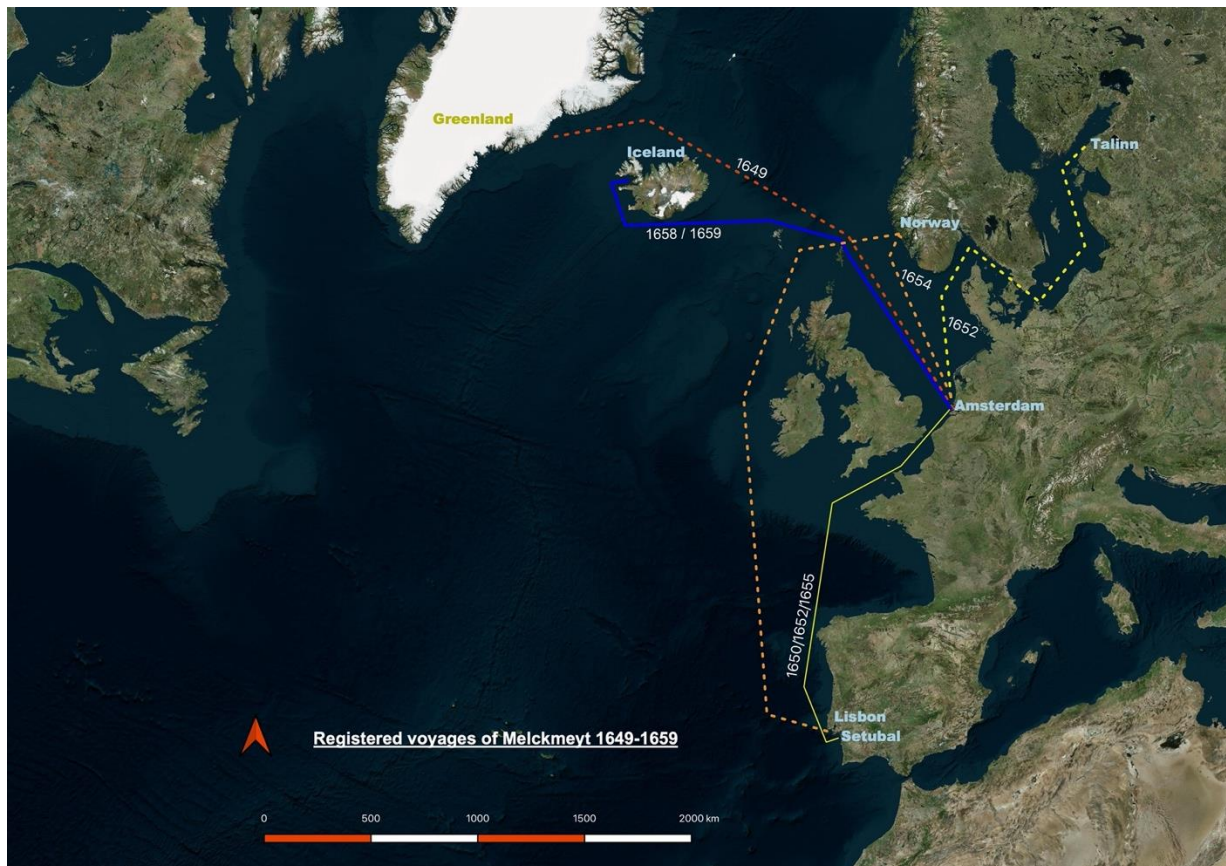


Figure 48. The plotted voyages of the *Melckmeyt* during the period 1649-1659, based on the results of archival research of the Amsterdam City notary archives by Martijn Heijink (2017).

²⁵³ In July of 1668, a ship passing through the Danish Sound bound for Iceland is noted to be carrying goods for the Iceland Company on behalf of the merchant Jonas Trellund. See Figure 14. STR, Record ID. 1703910. Source: www.soundtoll.nl

Date	Dept.	Dest.	Skipper	Cargo
07.09.1653	Tallinn	Amsterdam?	Peter Petersen from Hørbren ²⁵⁴	Rye, Flax, Potash,
14.06.1657	Setubal	Tallinn?	Peter Pifers from Horbr. ²⁵⁵	Salt

Table 10. References to vessel passages of the skipper Pieter Pietersz. van Hobre from the Danish Sound Toll Registers. The ? indicates a suggestion by the author for destination ports based on previous journeys recorded for the *Melckmeyt*. Source: www.soundtoll.nl

Geographical location of the *Melckmeyt* wreck site

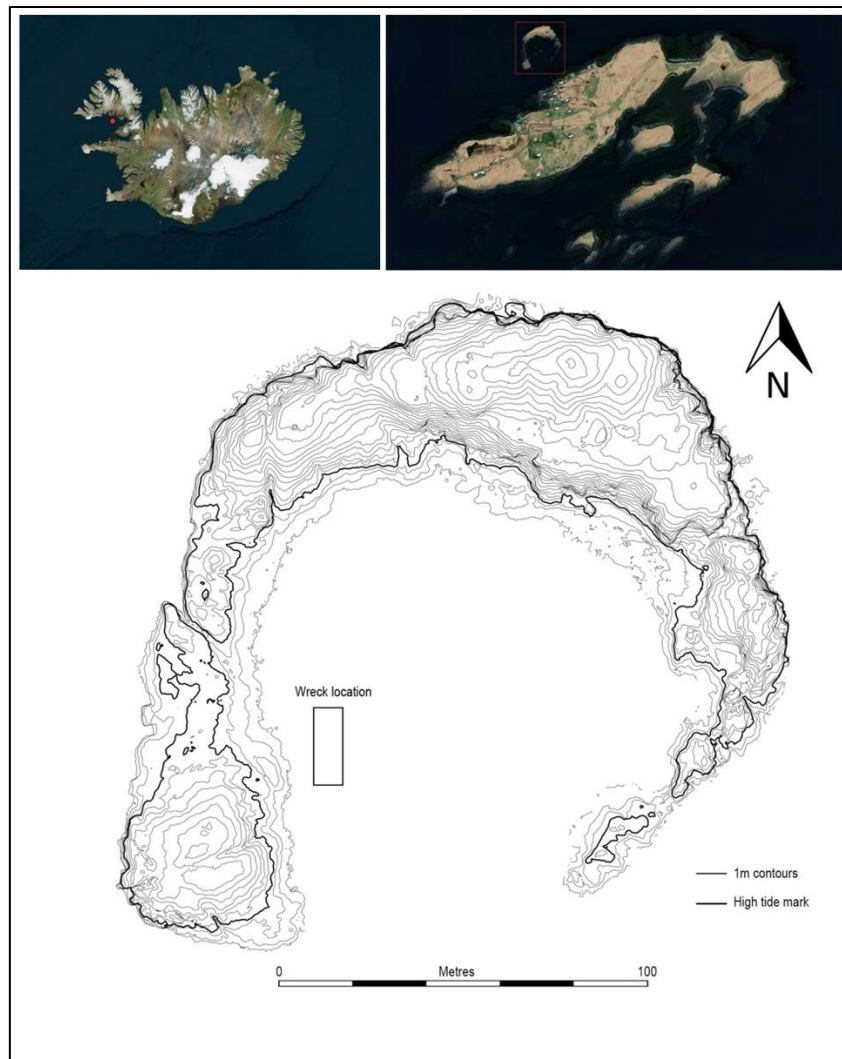


Figure 49. Location of the *Melckmeyt* shipwreck and contour map of Hafnarey. Source: (McCarthy, 2020, p. 255, Figure 151).

²⁵⁴ This is most likely the town of Hobrede.

²⁵⁵ Identified as the town of Hobrede in the database entry.

The wreck of the *Melckmeyt* is located within a horseshoe-shaped island called Hafnarey (en. *Harbour-island*), which is located approximately 115m north of Flatey (en. *Flat Island*) in Breiðafjörður, Vesturland, Iceland (Figure 49).²⁵⁶ Though adjacent to each other, owing to a tidal range of up to 7m in the area, a powerful sea current flows between the two islands making boat transport between the two a necessity. The south-facing opening to the harbour in Hafnarey is approximately 90m wide and the maximum width of the harbour is about 130m. The coordinates of the wreck site are Latitude: 65.3774 and Longitude: 22.920215. Today there is a modern-built pier (Figure 50) on Flatey for vessels to moor at, but in the past visiting ships would mostly have used the natural harbour of Hafnarey as their main anchorage owing to its depth (up to 10m), the protection its high cliffs offered from the surrounding sea currents and its direct proximity to the trading station on Flatey (Figure 51, 52).²⁵⁷ Occasionally though, as in the case of the sinking of *Melckmeyt*, that protection was not good enough. Flatey lies almost halfway across the wide fjord of Breiðafjörður and had frequently been used in the past by trading ships as a stop-off point between Snæfellsnes and the Westfjords. Rich fishing grounds lie south of the island along the north coast of the Snæfellsnes Peninsula and for this very reason Snæfellsnes had a greater concentration of trade stations during the monopoly period than anywhere else in Iceland, with a total of seven. However, Flatey itself did not become an official trade centre until 1777, only ten years before the monopoly trade officially finished (Gunnarsson, 1983, p. 59). The many boat landing sites (is. *vogur*) on Flatey are a testament to its previous mercantile heritage (Lárusdóttir & Hreiðarsdóttir, 2016). These include (is. *Þýskuvör*) *German-landing* (referencing the previous German trade activities), (is. *Dugguvogur*) perhaps referencing the visiting dogger-type fishing vessels and (is. *Grýluvogur*) (ibid., pp. 100, 108, 138). According to Lárusdóttir & Hreiðarsdóttir (ibid., p. 110) without the presence of Hafnarey as a safe anchorage its unlikely Flatey would have developed as a trading post in the past.

²⁵⁶ The island resembles a flooded volcanic crater and has been described as such previously (Einarsson, 1994, p. 135). According to geologist Kristján Jónasson of the Icelandic Institute of Natural History), based on the geological bedrock in the area which is 10-12 million years old, the crater shape is not volcanic and is more likely to have been formed due to glacial erosion (pers. comm. 2017).

²⁵⁷ Hafnarey is referred to as the harbour (is. *höfnin*) or Flatey harbour (is. *Flateyjarhöfn*) in the documentary sources (Lárusdóttir & Hreiðarsdóttir, 2016, p. 110). Locals today often refer to it as the old harbour (is. *Gömluhöfnina*) since a new pier on Flatey has been built. A number of iron boat mooring rings are still visible today on the rocks of Hafnarey. Flatey itself is tiny and measures 1km x 2km and has a permanent population of 6 people.



Figure 50. Aerial image of Flatey and Hafnarey looking east. The flatness of the island from which it is named is immediately evident. The modern pier is visible to the right of centre. Image credit: Kevin Martin.

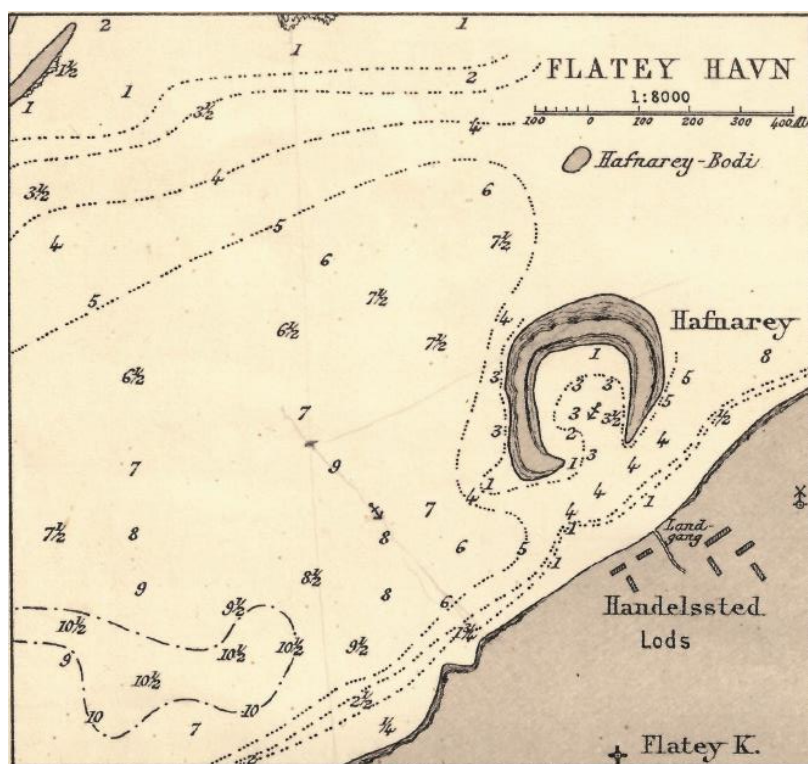


Figure 51. Danish sea-chart of Hafnarey and Flatey from 1896 showing the location of the trading station (dk. *Handelssted*) directly opposite the entrance to Hafnarey harbour. Source Det Kongelige Danske Søkort-Arkiv, ID. KBK 1115,258-1-1896/1, Public Domain.



Figure 52. Aerial view looking south from Hafnarey towards Flatey showing the close proximity of the two islands and the location of the former trading centre on Flatey. Image credit: Kevin Martin.

Previous archaeological investigation of the *Melckmeyt* wreck

The wreck was discovered by two Icelandic sports divers, Erlendur Guðmundsson and Sævar Árnason, during the summer of 1992. They subsequently notified the National Museum of Iceland (Þjóðminjasafn Íslands) who conducted an underwater archaeological survey led by Bjarni F. Einarsson on the wreck site over a two-week period in July 1993.²⁵⁸ The total area surveyed amounted to 32m² and involved the team establishing a baseline parallel to the wreck and offset measuring against that within a grid of 8m x 4m (Einarsson, 1993, 1994), (Figure 53).²⁵⁹ Moreover, during the survey, the team also discovered the badly preserved and corroded remains of a younger shipwreck partially overlying the *Melckmeyt* wreck, perpendicularly, on its northern end (Figure 53).²⁶⁰ It was suggested by Halldór

²⁵⁸ The underwater survey was directed by Bjarni F. Einarsson and included a team of four divers: Magnús A. Sigurðsson, Erlendur Guðmundsson, Sævar Árnason and Pétur Kristjánsson.

²⁵⁹ An airlift (dredging device which a diver holds) was employed at the site and a total dive time of 116hrs and 18 minutes (avg. 7hrs, 45mins per day) was achieved (Einarsson, 1994, p. 142).

²⁶⁰ These remains included parts of “a mast, chain housing, fragments of the hull, boxes, barrels, sinks (weights) and pipes probably from the ships bilge pump” (Einarsson, 1994, p. 137).

Baldursson to Einarsson at the time that this represented the remains of the Danish schooner *Charlotte* which sank in Hafnarey in 1882 (Einarsson, 1994, p. 137).²⁶¹ Within their survey area, Einarsson's team recorded various parts of the surviving construction features of the *Melckmeyt's* hull, including the frames, ceiling planking, a mast step, parts of the ship's outer-skin layer and wooden tree-nails. They noted colour differences in the wood (dark, burnt and light) which were interpreted as evidence that some of the ship had partially burned during the wrecking process and that a fire on board may have been an original cause for the wrecking (ibid., p. 145), (Figure 53). Over 350 artefacts were recovered. The majority of these were ceramics but also included pieces of leather and rope, glass fragments, lead pieces and nails. The ceramic finds were mostly concentrated in the sandy/silty seabed directly east of the wreck (ibid.). The majority of this was provisionally identified as being 17th century in date but no thorough assessment or analysis of the ceramic assemblage was carried out at the time. While in more recent times, publications by Sveinbjarnardóttir (1996) and Vilhjálmsón & Jaspers (2013) discussed several selected ceramic vessels from among those recovered in 1993, the assemblage as a whole had never been fully analysed until Lucas (2017) examined it along with ceramics recovered by the author from the wreck site in 2016 by the author as part of this study. His findings will be discussed later in this chapter.

²⁶¹ Einarsson doubted that the younger wreck was the *Charlotte* based on its estimated size of 25m x 6m x 3m, which he felt was too large for the remains his team observed at the site (Einarsson, 1994, p. 137). The ship was likely to have been heavily salvaged though after it sank as the wreck and cargo were auctioned off to a merchant called J. Gudmansen (ibid.). This may explain the lack of debris from the vessel at the site.

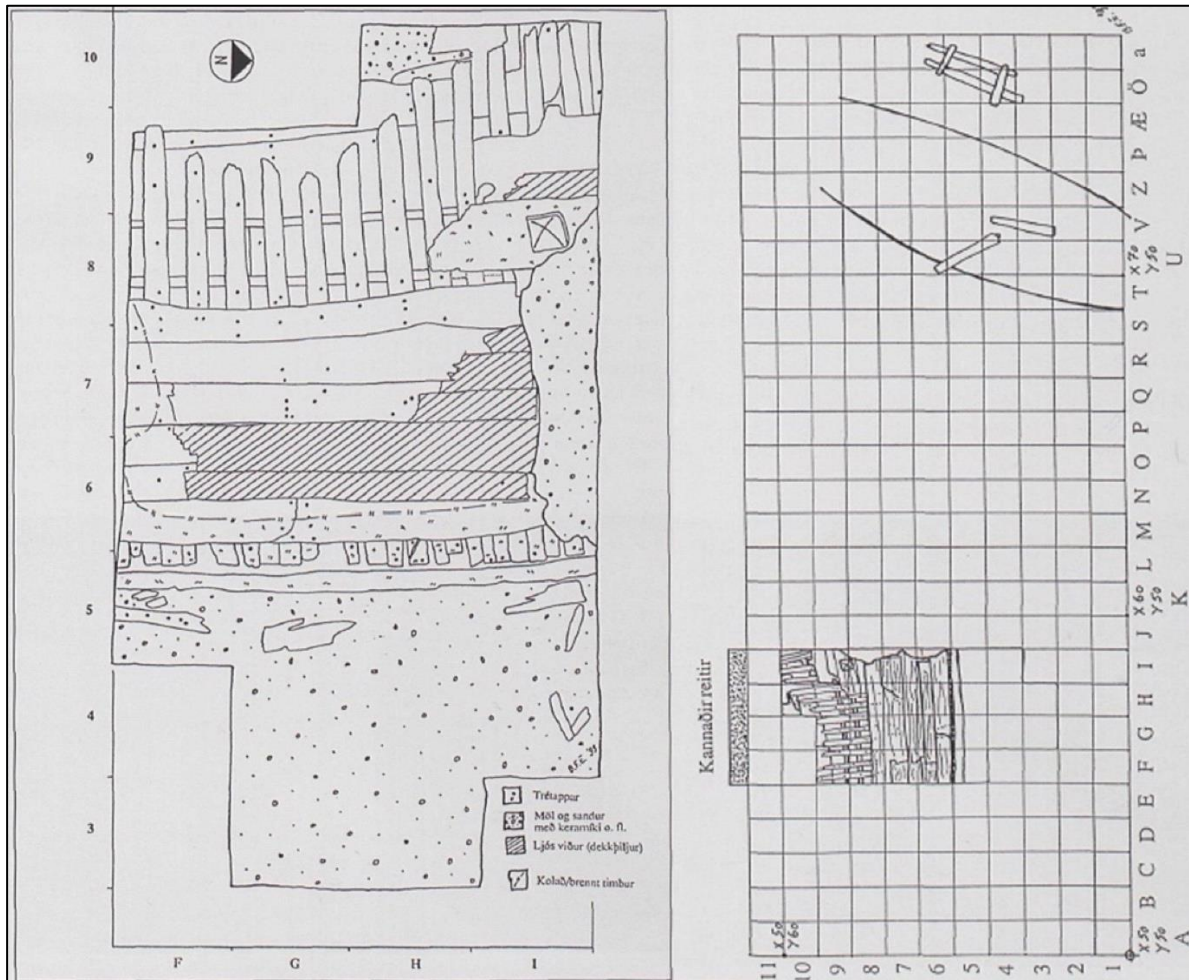


Figure 53. Plans of the *Melckmeyt* wreck from the 1993 survey project. (Left) A close-up plan of the wreck timbers. (right) Overview of the site showing the relative position of the older wreck *Melckmeyt* and younger wreck *Charlotte*. Scale:1 grid square = 1m. Source: (Einarsson, 1994, p. 143, Drawing 4, 5).

A heavily corroded iron cannon was also recovered during the 1993 investigation from the low tide shoreline of Hafnarey within 30m of the *Melckmeyt* wreck (Figure 54). The cannon was found to be approximately 50% complete and appeared to have exploded (likely on its first and last firing) prior to its deposition in Hafnarey. Based on a sketch by Einarsson (1994), the approximate measurements of the cannon were 1.30m long, 0.50m in diameter, with a bore diameter of 100mm. The sketch indicated that the barrel bore was not exactly centred on the cannon and may have been the reason it exploded when it was fired. A provisional assessment of the cannon suggested that it was an English gun made in the 1620's and was most likely carried on board the ship as ballast (Charles Trollope, pers. comm. 2017).²⁶²

²⁶² The possibility also exists that the cannon may be from another vessel.



Figure 54. (left) Archaeologist Magnus A. Sigurðsson inspecting the cannon recovered from Hafnarey in 1993 (Image credit: Bjarni F. Einarsson). (right) Sketch of the cannon by Bjarni F. Einarsson. (Einarsson, 1994, p. 148, Drawing 6).

Einarsson's 1993 project, though pioneering for its time in terms of maritime archaeological investigations in Iceland, still left many unanswered elemental questions about the *Melckmeyt* wreck itself. These included: what part of the *Melckmeyt*'s hull was recorded in 1993, what was the orientation of the wreck, how much of the vessel actually remained at the site beyond the surveyed area, as well as a definitive interpretation from the archaeological remains regarding the type of vessel the *Melckmeyt* was. A general assessment of the organic preservation of the ship's timbers at the site was also lacking. With regard to dating, the wreck itself was not conclusively determined beyond doubt as being the remains of a 17th century vessel, since this had been established mainly through a presumed association of the vessel with the recovered ceramics and with references from a number of historical sources of a Dutch merchant ship wrecking in Hafnarey in the mid-17th century. If no timbers had survived at the wreck site, like many of those Dutch wrecks in Shetland described previously, then this association would be the only evidence available to make a logical conclusion regarding the ship's date of sinking and it is unlikely that it would have been necessary to conduct additional fieldwork at the site for this study. However, Einarsson's survey evidenced that ship's timbers had survived relatively intact at the site, although they were neither sampled nor dendro-chronologically analysed. With these issues in mind, the author planned a fieldwork project to return to the wreck-site in 2016 (Martin, 2018). Additional funding was subsequently secured for a second season of fieldwork in

2018 (Martin, 2019).²⁶³ The archaeological results from both of these fieldwork projects will be combined in the following discussion.

Melckmeyt archaeological survey 2016 and 2018

The remoteness of the wreck site required a thorough health and safety assessment and also a well-coordinated logistical plan during both field seasons. Everything required for a four-man dive team for two one-week field seasons, including all food, dive equipment and a dive boat, was transported to and from the team's project house/base on Flatey.²⁶⁴ The two seasons of fieldwork represented the most extensive underwater archaeological survey on a shipwreck hitherto carried out in Iceland (Figure 55).²⁶⁵



Figure 55. *Melckmeyt* 2016 (left) & 2018 (right) project team. **2016 (l-r)** Fraser Cameron (Highland Basecamp) Thijs Coenen (RCE), Hafsteinn Gudmundsson (Flatey resident), Johan Opdebeeck (RCE), Kevin Martin (University of Iceland).²⁶⁶ **2018 (l-r)** John McCarthy (Flinders University), Kevin Martin (University of Iceland), Fraser Cameron (Highland Basecamp), Héðinn Þorkelsson (Diving Iceland). Image credit (left) Magnus A. Sigurðsson, (right) Héðinn Þorkelsson.

The team roles consisted of a boatman, a standby diver and two in-water divers working on the wreck site. The roles were rotated so everyone performed the role of boatman, standby

²⁶³ This additional funding was provided by the 2018 Archaeology Fund (is. *Fornminjasjóður*) from The Cultural Heritage Agency of Iceland (Minjastofnun Íslands).

²⁶⁴ A three day reconnaissance of the wreck took place in 2015 by the author and a diver colleague Fraser Cameron when the wreck was visually inspected and photographed but otherwise not disturbed.

²⁶⁵ The 2016 survey project was carried out under permit nr. (201606-0020) and the 2018 survey was under permit nr. (201604-0098). Both permits were issued to the author by The Cultural Heritage Agency of Iceland (Minjastofnun Íslands).

²⁶⁶ One additional team member from the 2016 season Gunnar Örn Richter (Björgunarsveit Akranes) is not pictured.

diver and in-water diver during the project.²⁶⁷ All dives were made using open-circuit scuba equipment using a regular air mixture. Besides air usage, the biggest limiting factor for bottom time diving on the wreck site was the water temperature. This ranged between 6-8°C on the ocean surface and 2-3°C on the wreck at a depth of 8-10m. Diving profiles were planned using US-Navy diving tables and dive computers were worn as backup. All diving was essentially carried out at depths above 10m where there are no decompression limitations. A total of 12 diving days and 84 hours underwater were logged. Visibility varied between 5-10m and was noticeably better in 2016 than in 2018.²⁶⁸

The 2016 survey was more generally focussed on a plan to expose and record as much of the *Melckmeyt's* remains as possible in order to gain an overall site overview and establish the main surviving features of the wreck.²⁶⁹ The unexpected return to the wreck for the 2018 fieldwork created an opportunity to build off those previous results and allowed a more targeted approach to be developed.²⁷⁰

In both seasons, the team were limited to cleaning the wreck-site of its sand and silt overburden solely by hand-fanning and manually shifting ballast stones off the ship timbers as there was no water/air-lift dredge on the project. Despite this limitation and mostly due to the protected nature of the wreck-site within Hafnarey, work progressed quickly. One disadvantage with having no strong currents at the site was with the issue of dispersal of silt deposits. It was quickly identified that cleaning the wreck on a falling tide was a more efficient technique for carrying silt and sand away than cleaning during a filling or slack tide. Silt cleaning was generally arranged in 1.0m wide rows, downslope across the wreckage from west to east. Seaweed and kelp which had attached over the years to the timbers were cut and dumped approximately 10-15m east of the wreck so as not to be washed back over it on the filling tide.²⁷¹

²⁶⁷ As not all the team were professional archaeologists the diving schedule was arranged so that at least one member of every in-water diving pair was an archaeologist.

²⁶⁸ This is likely due to the time of year both projects took place in. The 2016 fieldwork took place in May while the 2018 fieldwork took place in October.

²⁶⁹ The 2016 project had operated from the perspective that no further fieldwork was planned on the wreck by this study. The goals included: to identify the 1993 survey area and expand it, record the main construction elements, and identify how intact the wreckage was, establish the vessel's orientation, sample the ship's timbers for dendro-chronological analysis, record the exposed area of the wreck with photogrammetry.

²⁷⁰ The 2018 focus was the area north of the mast step, the intersection between the *Melckmeyt* and the *Charlotte* and the area north of the *Charlotte*. This area would also be recorded with photogrammetry.

²⁷¹ The 1993 project had been delayed severely when removing the seaweed from the wreck as it was disposed of much further away from the wreck site than in 2016&2018 (Magnus. A. Sigurdsson, pers. comm. 2015).

Recording and photogrammetric survey

The original area of the 1993 investigation was still easily identifiable as the string marking the outline of the survey area had remained in place. This area provided a useful orientation points for the team in 2016 from which the wreck's remains could be further exposed. Moreover, including the 1993 area within the 2016 survey also allowed an opportunity to examine any obvious changes in the preservation of features within that area over the intervening 23-year period (Figure 56) and it was found that the wreck had remained relatively unchanged since the previous survey. Given the limited time available it was decided to concentrate on exposing the wreck remains south of the 1993 area, as it was not feasible to uncover the entire extent of the shipwreck, which was estimated from historic records to have had a hull footprint of 32.80m x 6.79m.²⁷² By targeting the southern half of the wreck (13.50m x 7.0m) it was hoped to at least determine which way the ship was orientated and identify and expose the stern or stem end. The silt and sand deposits in this area varied in depth from 5-25cm. The area also included a large ballast mound 6.0m x 5.30m in extent and approximately 1.0m high at its maximum.

²⁷² This was the estimated size of the wreck with an intact hull. If the wreckage had broken up the archaeological footprint was likely to have been much larger.

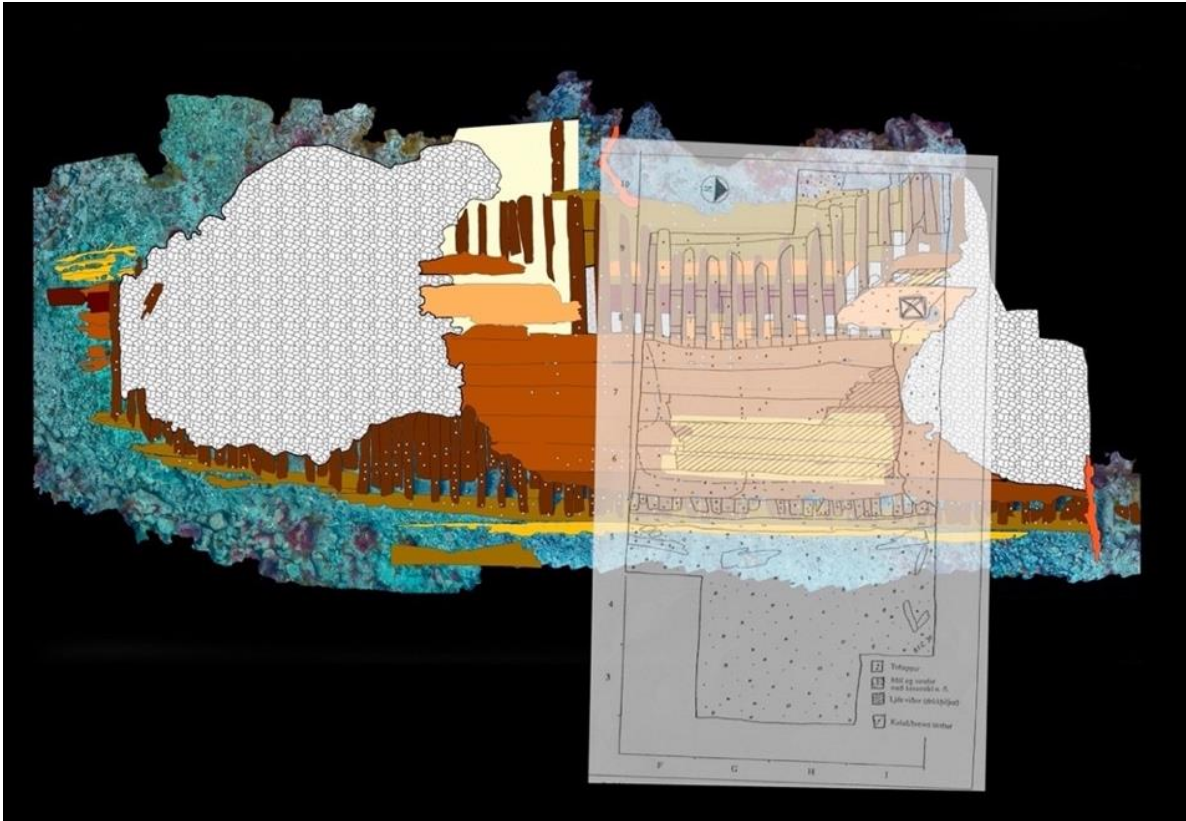


Figure 56. The 1993 survey plan overlaid onto the 2016 survey area plan.²⁷³

The area to the north of the 1993 survey also contained a large ballast mound 8.85m x 5.50m and was up to 1.20m in height. This area north of the 1993 survey measured approximately 17m x 8.50m and was probed in 2016 with metal rods up to the edge of the wreckage of the *Charlotte* with the silt deposits recorded noticeably deeper (0.5m) than those recorded on the southern side of the wreck (Figure 57). In 2018, this area was targeted for survey along with some test-pitting north of the *Charlotte* wreckage. The total combined area uncovered and recorded during the 2016 and 2018 surveys amounted to 31m x 7m or 220m².²⁷⁴ This represented nearly seven times the total area recorded in the 1993 project (32m²).

²⁷³ The overlay of the 1993 plan onto the 2016 survey plan did not align perfectly and this issue was likely due to a number of factors such as the accuracy and difference of the survey methodologies and change in preservation of the timbers. The 1993 plan was aligned using the position of the mainmast step (marked X) and the keelson (the timber below the X).

²⁷⁴ As the area uncovered was not perfectly rectangular this is an approximate figure.

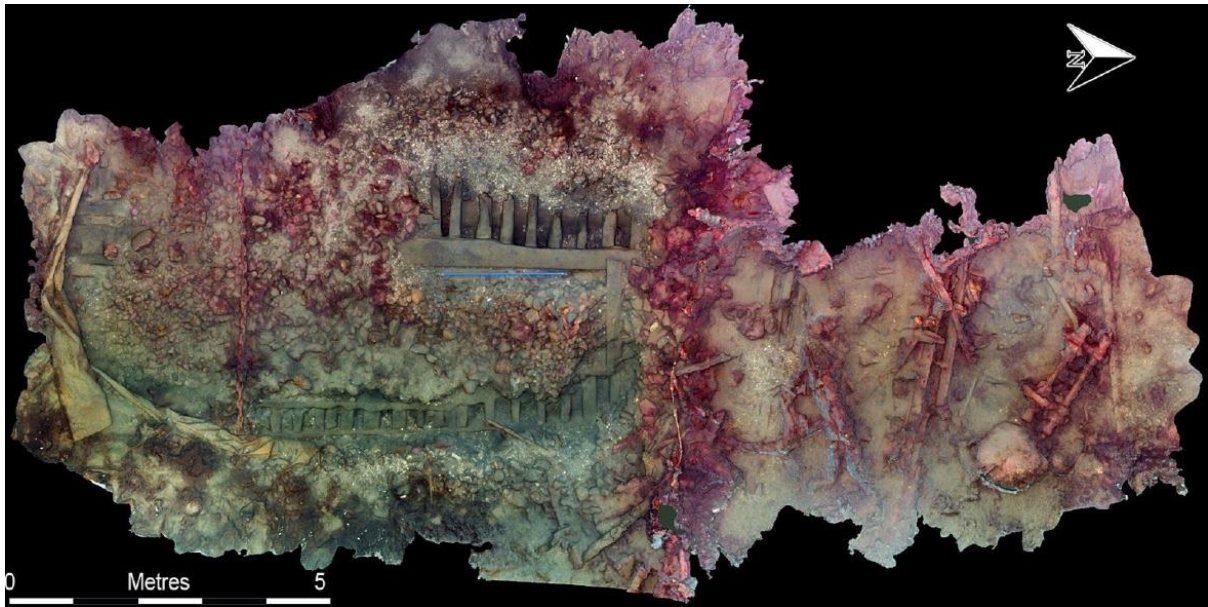


Figure 57. Orthophoto mosaic of the 2018 *Melckmeyt* survey area showing the wreckage of the *Charlotte* on the right.

To accurately record the position of features on the wreck a local reference point system was established and eight datum points were fixed onto the wreck timbers at various positions and elevations across the wreck surface to allow for 3D trilateration measurement (Tuttle, 2011, p. 127), (Figure 58). The datum points were fixed at depths ranging between 6.30m – 7.40m. In total 27 direct distance measurements were taken between each of these points and were further tabulated and processed in the GIS software programme Site Recorder. This program shifts the different points into their relative positions. The position of individual drawings and sketches can then be matched into this reference system. Individual construction features and notable timbers on the wreck including the keel, keelson, mast step, inner/outer planking, frames and ships-skin were also documented and measured manually. Two east to west profiles across the wreck were also manually drawn (Figure 59).

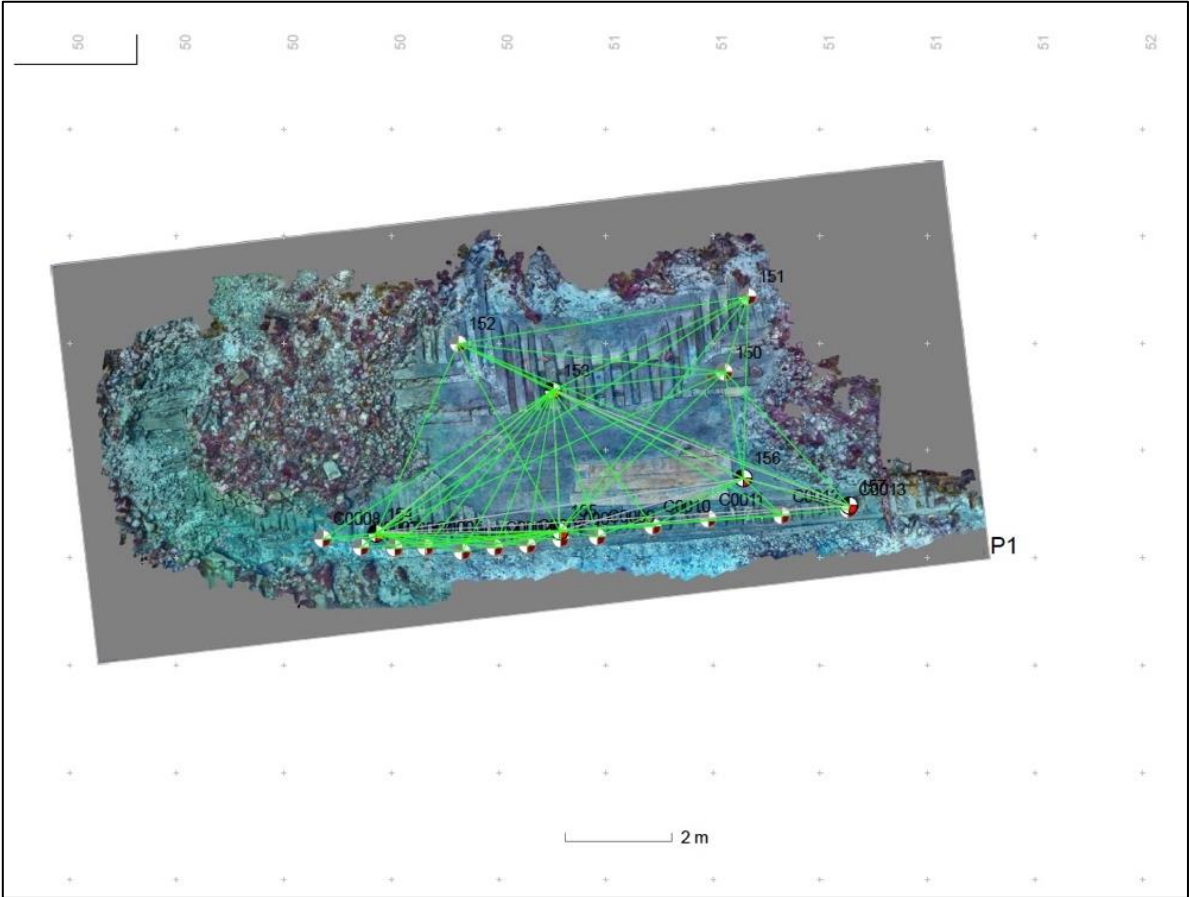


Figure 58. Site recorder datum points overlaid onto an orthophoto of the 2016 survey area.

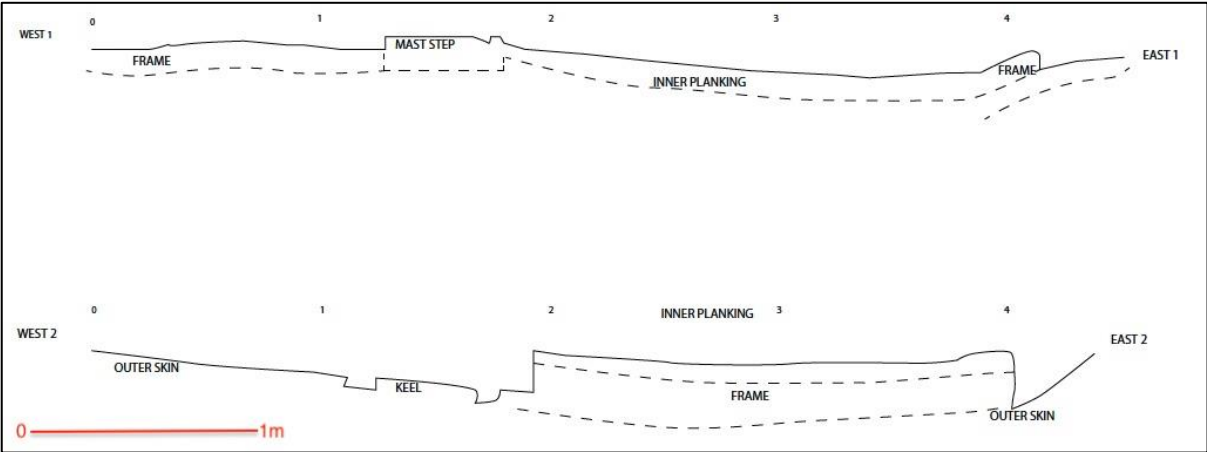


Figure 59. Cross-section profiles of the *Melckmeyt*. Drawings by Thijs Coenen, 2016.

Based on the limited time underwater, the size of the survey area, the approximately level horizontal nature of the archaeological remains along with the overall good visibility, it was determined that recording the wreck in 2016/2018 through photogrammetry would be the most practical survey methodology to use. Photogrammetry is the analysis of 2D images to create 3D measurements and good photogrammetry results come directly from the quality of the underlying data-sets (McCarthy & Benjamin, 2014). Both photo data-sets were each captured on one dive each during 2016 and 2018 (Figure 60, 61). In 2016, a GoPro was used and 1880 stills were extracted from video footage with the diver swimming overlapping transects of the wreck (known as a lawnmower pattern), while in 2018 a Sony RX100 digital camera in a Nauticam housing with a dome port was used and 1,129 stills were used to generate the survey model with the stand-off distance between the diver and the shipwreck at approximately 1.50m (McCarthy, 2020, p. 263).²⁷⁵

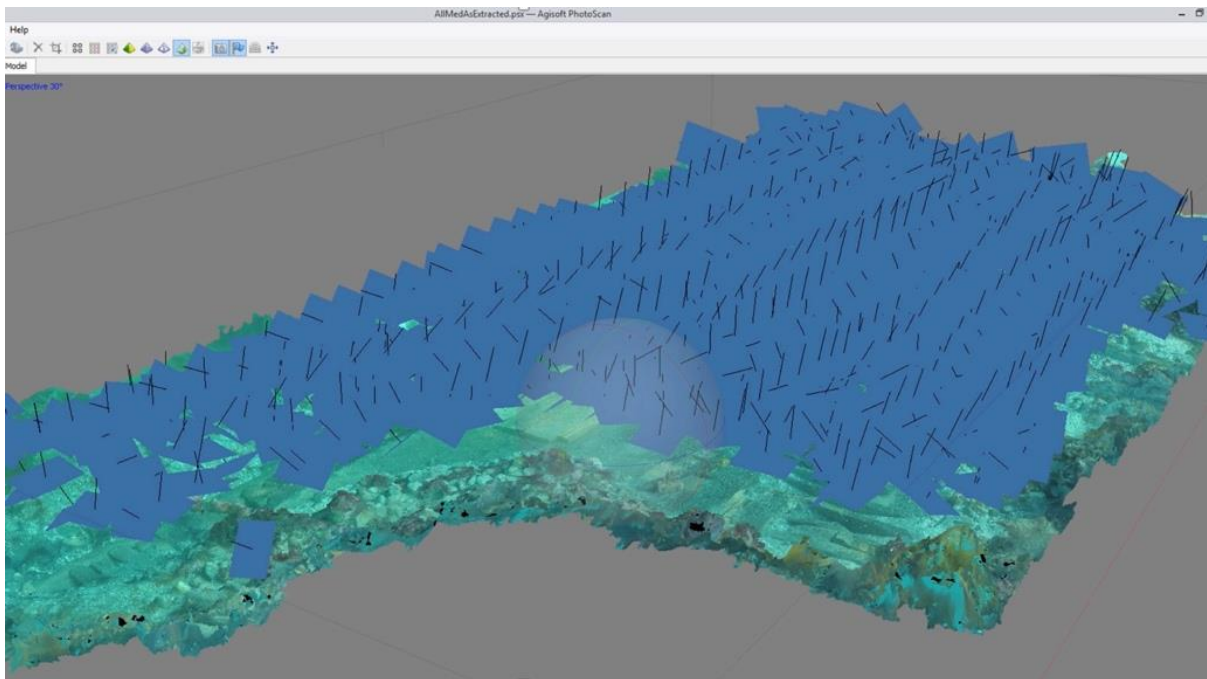


Figure 60. Perspective view of the 2016 *Melckmeyt* survey, showing the camera positions.

²⁷⁵ The larger amount of images required to generate a model in 2016 was due to the proximity of the diver to the wreck which required more stills in post-processing to gain full coverage and the necessary overlap.

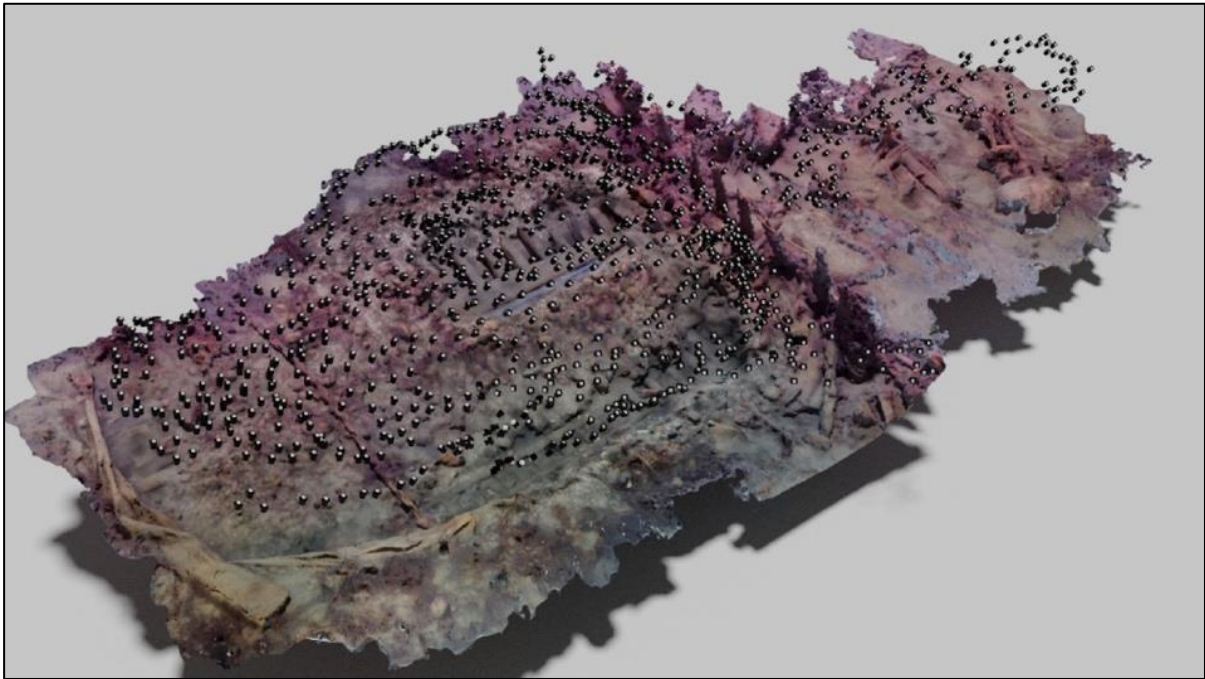


Figure 61. Perspective view of the 2018 *Melckmeyt* survey showing the camera positions. The upstanding ribs of the *Charlotte* can be seen to the right of centre. Image credit: John McCarthy.

Once post-processing and any necessary dehazing of images was completed they were uploaded into the photogrammetric software application Metashape where an automated workflow of the photogrammetry model building process is broken down into four main stages: 1) Aligning images, 2) Build dense-cloud, 3) Build-mesh and 4) Build-Texture (see van Damme (2015) for a more detailed stage by stage summary of this workflow process). Control measurements taken from features on the wreck were inputted into the digital model, which allowed it then to be scaled with an accuracy of within 5cm. The 3D models from 2016 and 2018 were subsequently stitched together to produce an ortho-photo mosaic based on 3,046 images of the entire area of the wreck site surveyed over both seasons (Figure 62). A line drawing recording each of the timbers and wreck components was drawn from this ortho-photo in 2017 (Figure 63).

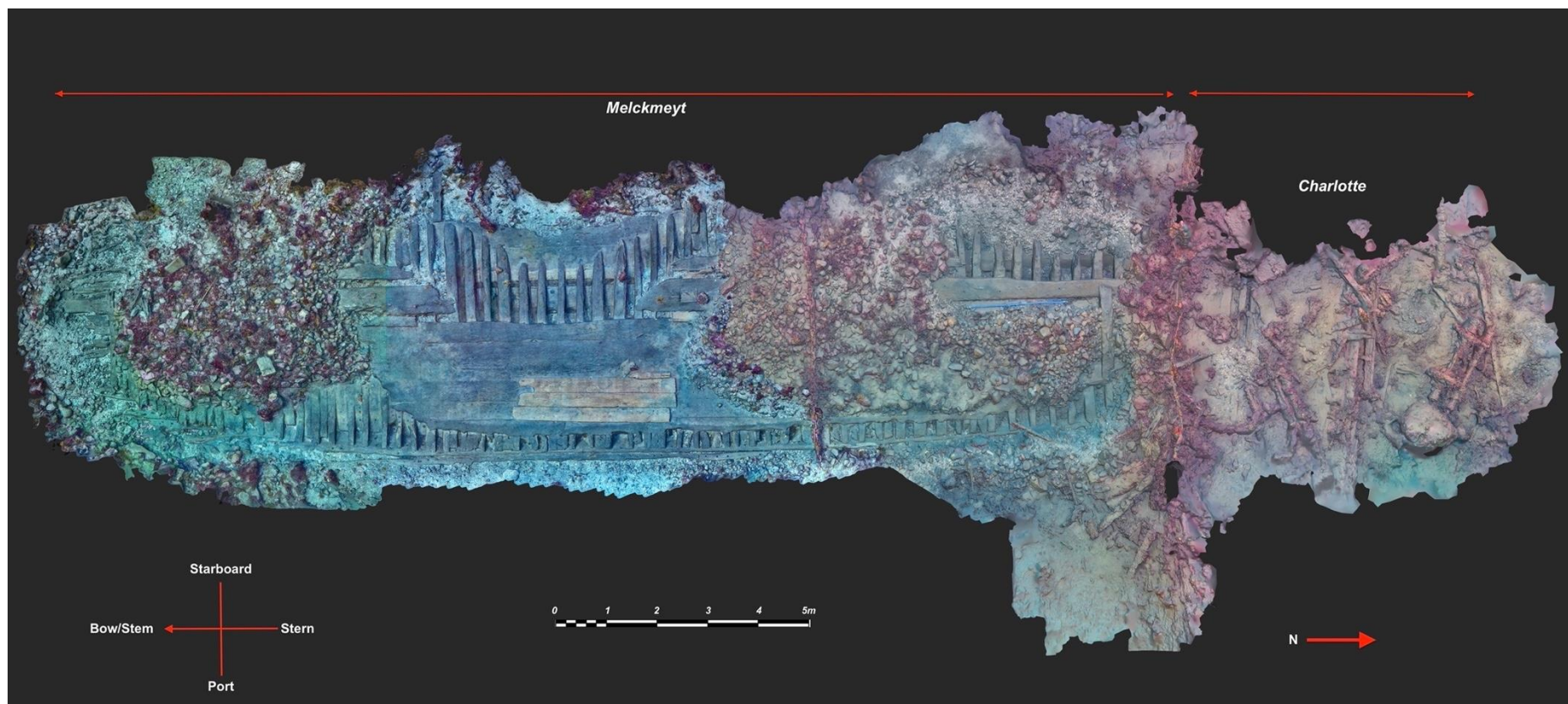


Figure 62. An ortho-photo mosaic of the *Melckmeyt* wreck based on the combined 2016 & 2018 archaeological surveys and 3,046 images. The texture and colour difference between the two models is clearly evident indicating the different recording techniques used. The wreckage of the *Charlotte* is visible on the right of the image.

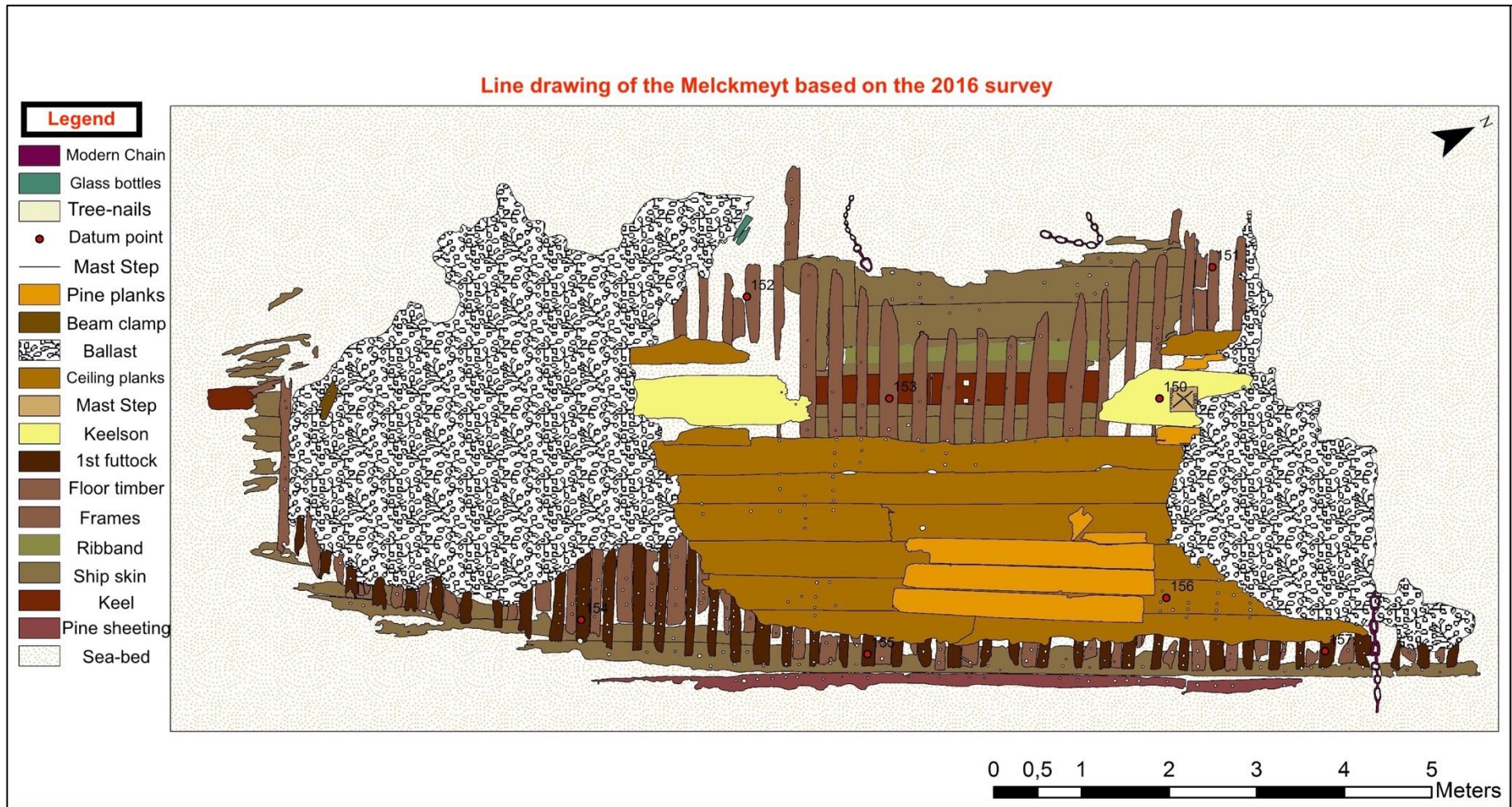


Figure 63. Line drawing of the *Melckmeyt* wreck based on the 2016 survey. Source (Martin, Coenen & Opdebeeck, 2017).

Archaeological results²⁷⁶

General description and orientation

This section will outline the main archaeological findings from the two surveys conducted by the author on the wreck of the *Melckmeyt* and the narrative follows a mostly top-to-bottom stratigraphic order.²⁷⁷ The wreckage of the *Melckmeyt* comprised the remains of a carvel-built ship made mostly from oak timbers with some pine elements also identified. It was not possible to determine whether the hull had been built according to the frame-first or shell-first method as access to the inside area of the outer planking was not available. The part of the vessel preserved comprises the floor level of the ship's hold and the various construction elements in differing states of preservation below this level (Figure 67, 68). The ship's hull was preserved up to the level of the turn of the bilge along its port (eastern) side (Figure 63, 64). The timber remains on this side were evidently the best preserved and those with an existing silt overburden were generally in excellent condition and much less affected by the impacts of marine organisms such as sea-gribble and general marine erosion than the starboard (western) portion of the hull. An estimated 1-2m of the ship's original width (to the turn of the bilge) was missing on the starboard (western) side of the hull, perhaps due to a combination of post-wrecking salvage, erosion and natural degradation. This starboard area was also the shallowest part of the wreck and the most accessible at low tide, so if the ship had been salvaged for its timbers in the past it's likely this area would have been targeted.²⁷⁸

The archaeological survey confirmed that the measurements recorded for the ship in the 1658 charter (32.80m long and 6.79m wide) were quite accurate and the remains uncovered were from a ship of this size. According to Witsen, the length of a ship in the 17th century was measured from the top of the stempost to the back of the sternpost and the width was measured across the main frame in the first third of the ship's length where it was widest (Hoving, 2012, pp. 37-38), (Figure 64, upper image). Though the entire length of the ship's hull was not fully exposed it was still possible to accurately deduce the length and width of the ship using known historical ratios and the position of the mainmast step as an approximate mid-point and then by measuring the length and width distances from this

²⁷⁶ This section includes interpretations and suggestions made by several of the project team archaeologists which have been combined into one narrative.

²⁷⁷ The reader should refer back to the plan of the wreck (Figure 63) for a visual orientation of the various construction components and features discussed in the following section

²⁷⁸ A reference from the Icelandic Annals from 1660 noted that the surviving crew of the *Melckmeyt* salvaged pinewood from the ship's masts and pine boards from the wreck and built another ship (See Figure 42).

point.²⁷⁹ Measuring from the middle of the mast step to the edge of the better-preserved port side of the wreck revealed a width of 3.20m, projected as 6.40m from the port to starboard edges.²⁸⁰ The distance recorded from the southern extent of the keel recorded to the mast step was 12.40m. It was interpreted that the keel would have extended further south for an additional 1m from its recorded extent and from this point the stempost would have extended upwards, adding an approximate distance of 2.5-3m onto this, suggesting a mid-point length of 16-16.40m for the ship, which equates a total length comparable to the 32.80m recorded in the charter.

The wreck was orientated north-to-south with the stem (bow) of the ship interpreted to be at the southern end and the stern (aft) positioned at the northern end. This interpretation was based on several features identified on the wreck during both surveys. The main indicator was a scarf joint (which connected two parts of the keel) which was observed along the keel approximately 2.50m south of the mainmast step feature.²⁸¹ The scarf joint was held in place with two massive square (8cm x 8cm) iron fastening bolts set 14cm apart and positioned 0.4m back from the edge of the scarf on the upper surface of the keel. The bolts had the appearance of two dark square concretions on the keel surface (Figure 65). According to the 17th century shipbuilding practices recorded by Nicolaes Witsen, the lower scarfs on the keel always pointed towards the rear of the ship (Hoving, 2012, p. 39), (Figure 66).²⁸² This was done to limit the stress on the keel at this joint and importantly to reduce the flow of water into the joint as the ship moved forward. The other indicator of the *Melckmeyt's* orientation was the curvature of its outer planking along its southeastern edge. From a mid-ships position at the mainmast step (which is the widest part of the hull), the line of the ship ran straight until the point at which the southern ballast mound began. Here there was a noticeable and deliberate turn towards west and a narrowing of the ship's width in order to create the lower supports for the bow and front stem (Figure 67, 69). In 2018, a narrowing of the hull width observed on the opposite northeastern (port) edge suggested that the position of the stern (aft) of the ship lay directly under the wreckage of the *Charlotte*.

²⁷⁹ Witsen noted that the mainmast step was positioned 6 feet / 1.70m aft (towards the stern) of the middle of the ship (Hoving, 2012, p. 82).

²⁸⁰ This was not the widest part of the ship so the extra 40cm recorded in the 1658 charter was possibly across the main frame.

²⁸¹ Depending on the length of the ship the keel could have been made of two-three pieces with each piece connected together with a scarf joint.

²⁸² According to van IJk, another contemporary 17th century recorder of Dutch shipbuilding, the scarfs in the keel had to be five inches (12.7cm) for every inch (2.54cm) the keel was wide (Hoving, 2012, p. 40). The *Melckmeyt's* keel was 41cm wide at the scarf so it would mean the scarf length was potentially 2.04m.

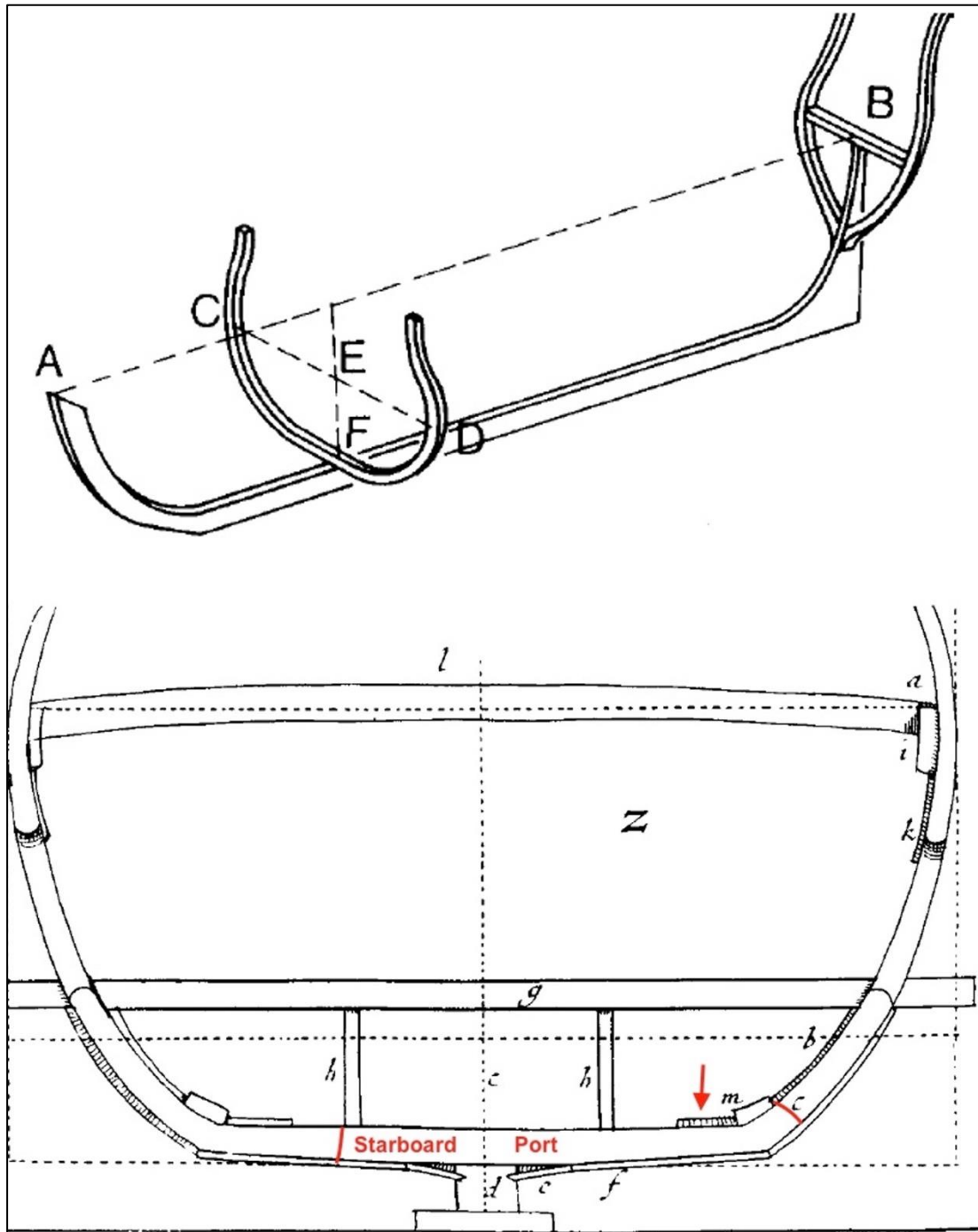


Figure 64. Upper image: Drawing by A. J. Hoving showing the measuring points of a ship. Length A-B, Width C-D: across the and E-F depth (Hoving, 2012, p. 27, Figure 2.1). Lower drawing: Annotated cross-section drawing of 17th century cargo vessel by Witsen. The bottom section up to the level of the horizontal level **g** is the hold area and on the *Melckmeyt* its historically recorded height was 3.54m. The red arrow (inner ceiling plank) and red lines indicate the level of the hull preserved in the *Melckmeyt* on its starboard and port sides. This level under the letter **c** on the port side is known as the start of the turn of the bilge. The thicker timber **m** is the bilge stringer, timber **c** is the garboard strake and **d** is the keel. (Hoving, 2012, p. 72, Figure 2.62).



Figure 65. Image of the scarf joint and iron bolts identified on the keel of the *Melckmeyt*.

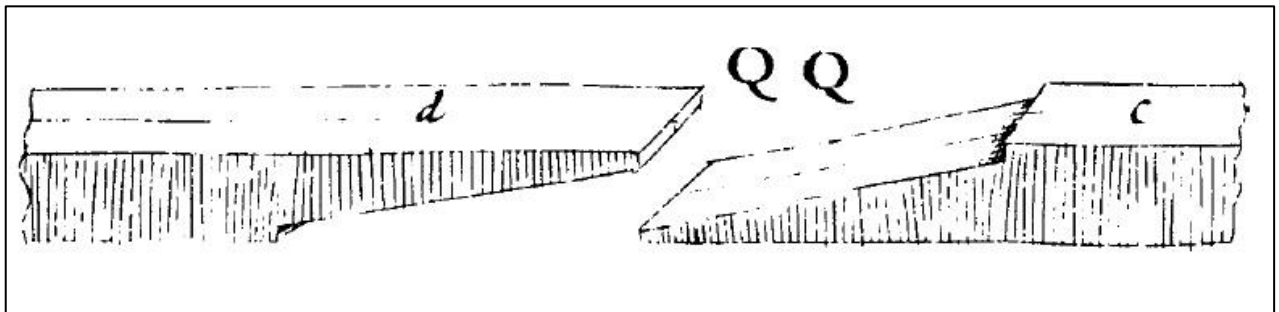


Figure 66. Sketch of a scarf jointed keel by Nicolaes Witsen. Source: (Hoving, 2012, p. 40, Figure 2.3)

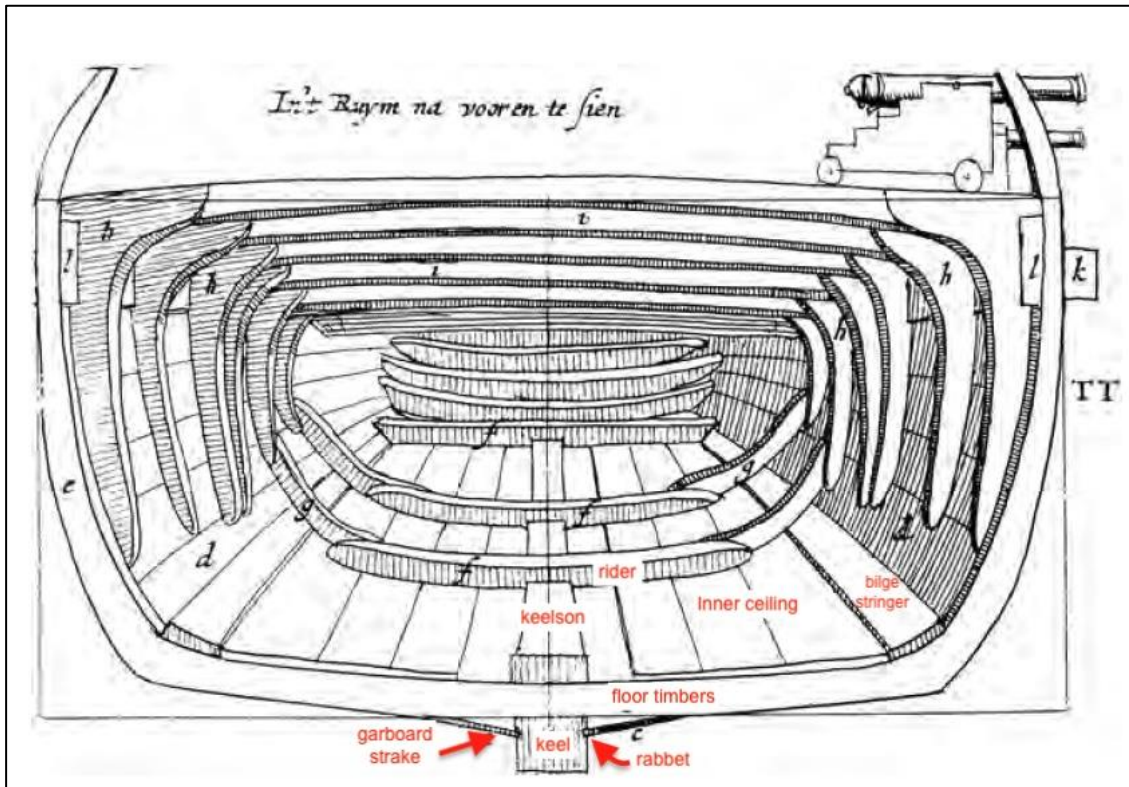


Figure 67. Annotated cross-section illustration by Witsen of the ships hold looking forward with the main hull components identified on the *Melckmeyt* labelled. Source: (Hoving, 2012, p. 101, Figure 2.115).

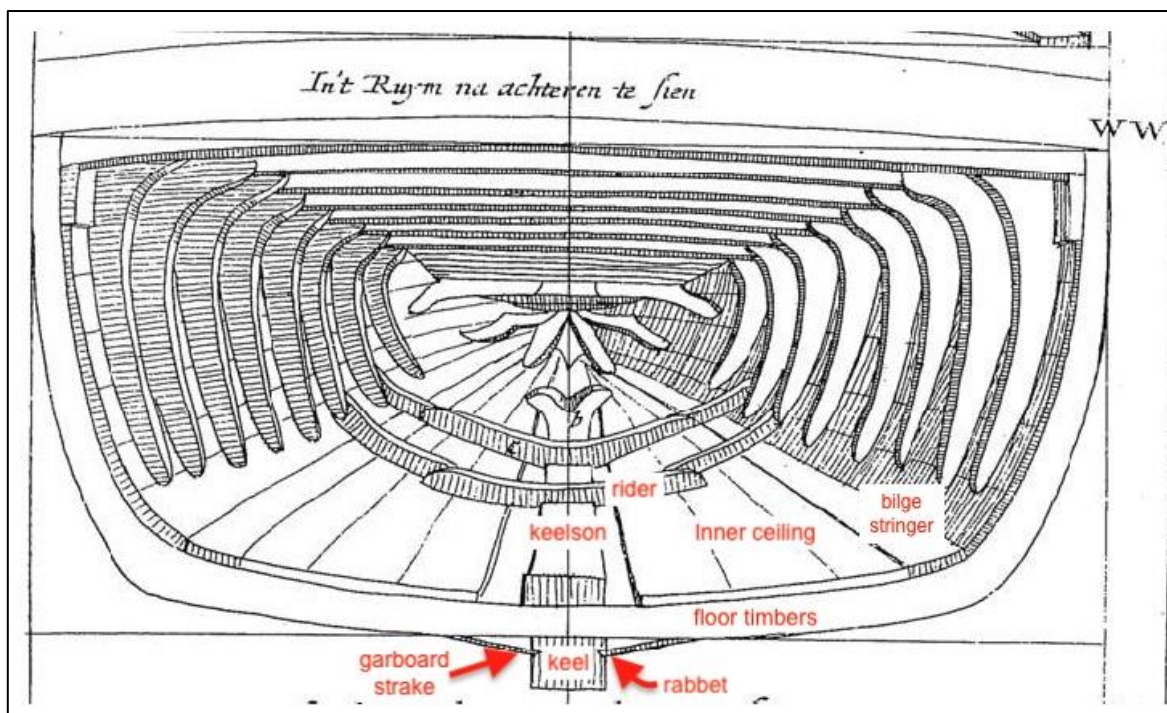


Figure 68. Annotated cross-section illustration by Witsen of the ships hold looking aft with the main hull components identified on the *Melckmeyt* labelled. Source: (Hoving, 2012, p. 102, Figure 2.117)

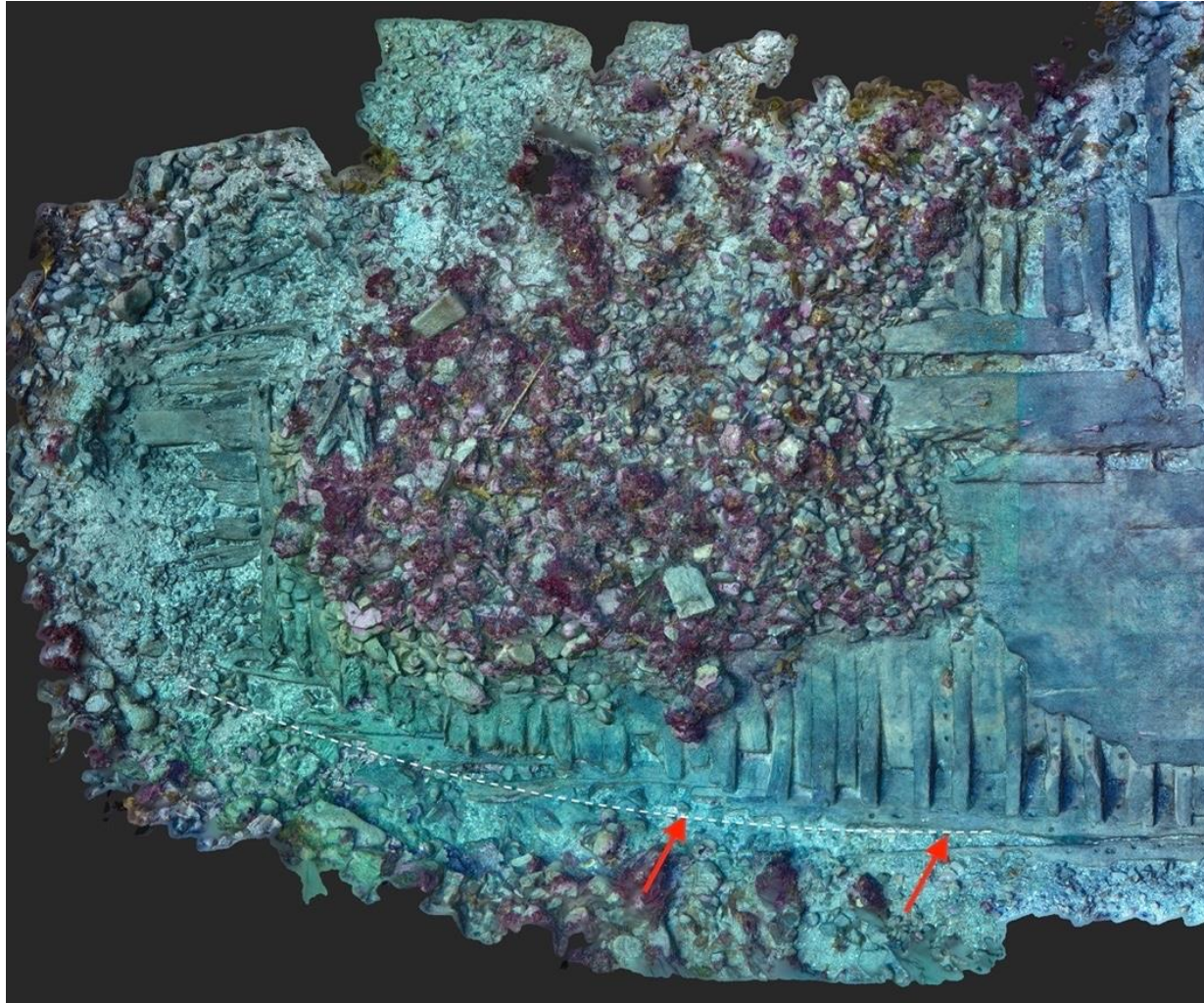


Figure 69. The red arrows and broken white line indicate the narrowing of the *Melckmeyt*'s hull on the southeastern (port) edge of the wreck.

Main construction components²⁸³

Mainmast step

The mainmast step was a squared cut-out into the keelson which, along with a number of support timbers including floor, bilge riders and chocks, secured the base of the mainmast of the *Melckmeyt*. It was located approximately in the middle of the ship, slightly towards the aft section (Figure 70). This was a feature that had been recorded on Einarsson's survey drawing from 1993, although it was not identified as a mast step at the time. It measured 34cm x 28cm and had a depth of 8cm, although its western and southern edges were mostly eroded away. It had an X-mark cut into its base and a series of six circular indentations on its northern and southern sides that seem to have been for solely decorative purposes and perhaps indicated a carpenter's mark made during the shipbuilding process. The mast step would have had two large rider support timbers and two support chocks on either side, but the remains of these were no longer present on the wreck and the only part left was the cut-out into the keelson.

²⁸³ This section will employ cross-section images of a 3D model of a 17th century pinas-type ship to illustrate the position of the hull components of the *Melckmeyt* being described. Being a flute the *Melckmeyt* would have differed from the pinas in its hull shape (more rounded) but the main component positions in the lower hull area would have essentially been the same. The web source for the model images is: <https://witsenscheepsbouw.nl/encyclo/>

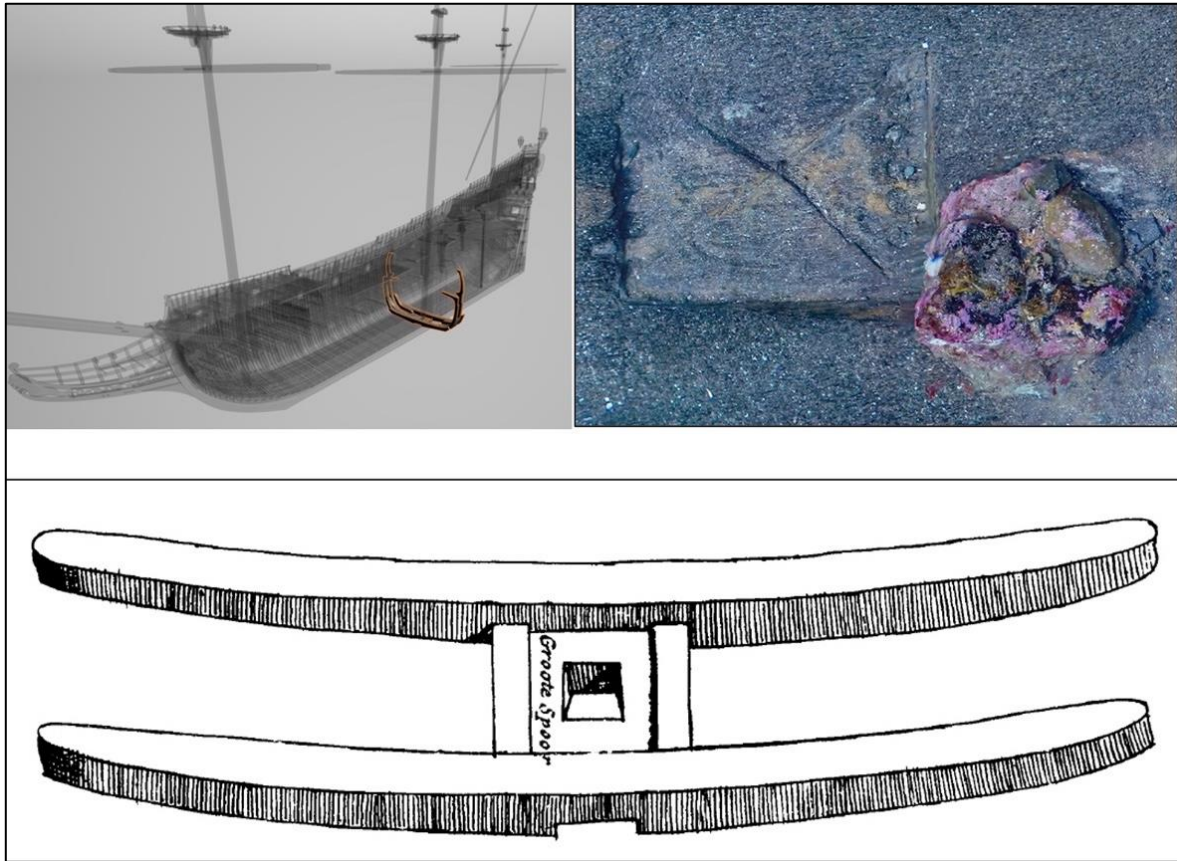


Figure 70. (**upper left**) 3D model of a 17th century pinas showing the position and construction of the mainmast step supports, (**upper right**) Mainmast step of the *Melckmeyt*. (**bottom**) mainmast step and supporting floor riders drawn by Witsen. Source: (Hoving, 2012, p. 84, Figure 2.82). See footnote 283, Web source - <https://witsenscheepsbouw.nl/encyclo/> . Image credit top right: Kevin Martin.

Keelson

One of the largest pieces of timber recorded on the wreck was the *keelson*. It functioned basically as an internal keel for the ship (Figure 71). According to Steffy (2011, p. 1129) the keelson was “an internal longitudinal timber or line of timbers, mounted atop the frames along the centreline of the keel that provided additional longitudinal strength to the bottom of the hull”. During the 2016 survey, two sections of the keelson, 3.60m apart, were identified with a maximum width recorded in the area around the mast step of 0.64m and a thickness of 25cm. The exposed section with the mast step cut out was 1.80m long and continued under the northern ballast mound. The exposed southern section was 2.20m long and extended further under the southern ballast mound (Figure 72). In 2018, an additional 4m section of the keelson was uncovered towards the stern end of the vessel and this was found to be noticeably narrower (37-43cm) than previous sections recorded in 2016. Part of an east-west running floor rider (1.92m long, 25cm wide and 20cm thick) was recorded here, lap-jointed over the eastern half of the keelson (Figure 72). Given the ship’s length of over

30m, the keelson was likely to have been made of several pieces, although no joints were uncovered during the surveys. A dendro-sample was sawn from the southern section of the keelson in 2016 and was subsequently analysed by the RING institute in the Netherlands. The timber was identified as oak and contained 109 tree rings which produced a felling date range of 1624+/- 7 (Jansma, 2016). The results of this dendro-analysis will be discussed in a specific section later in the chapter.

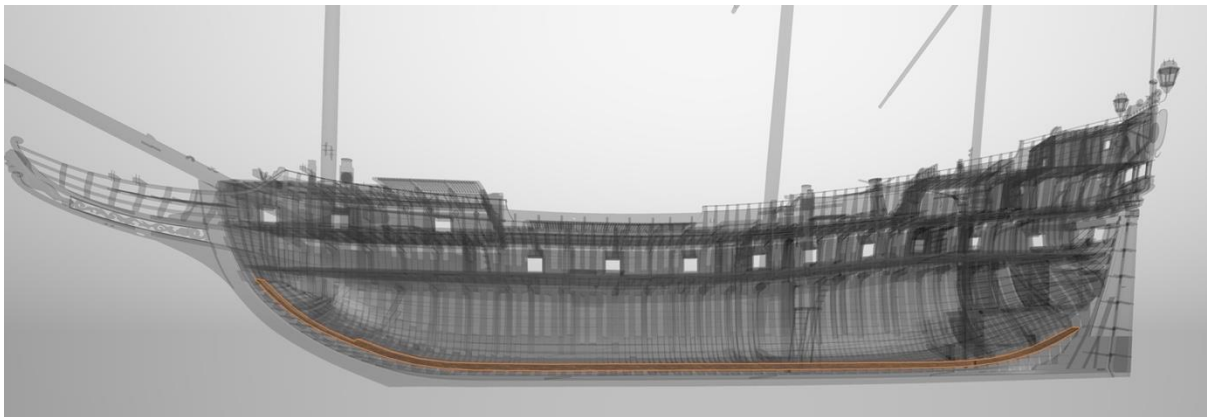


Figure 71. The position of the keelson highlighted on a 17th century Dutch pinas. Source: See footnote 283, Web source - <https://witsenscheepsbouw.nl/encyclo/>

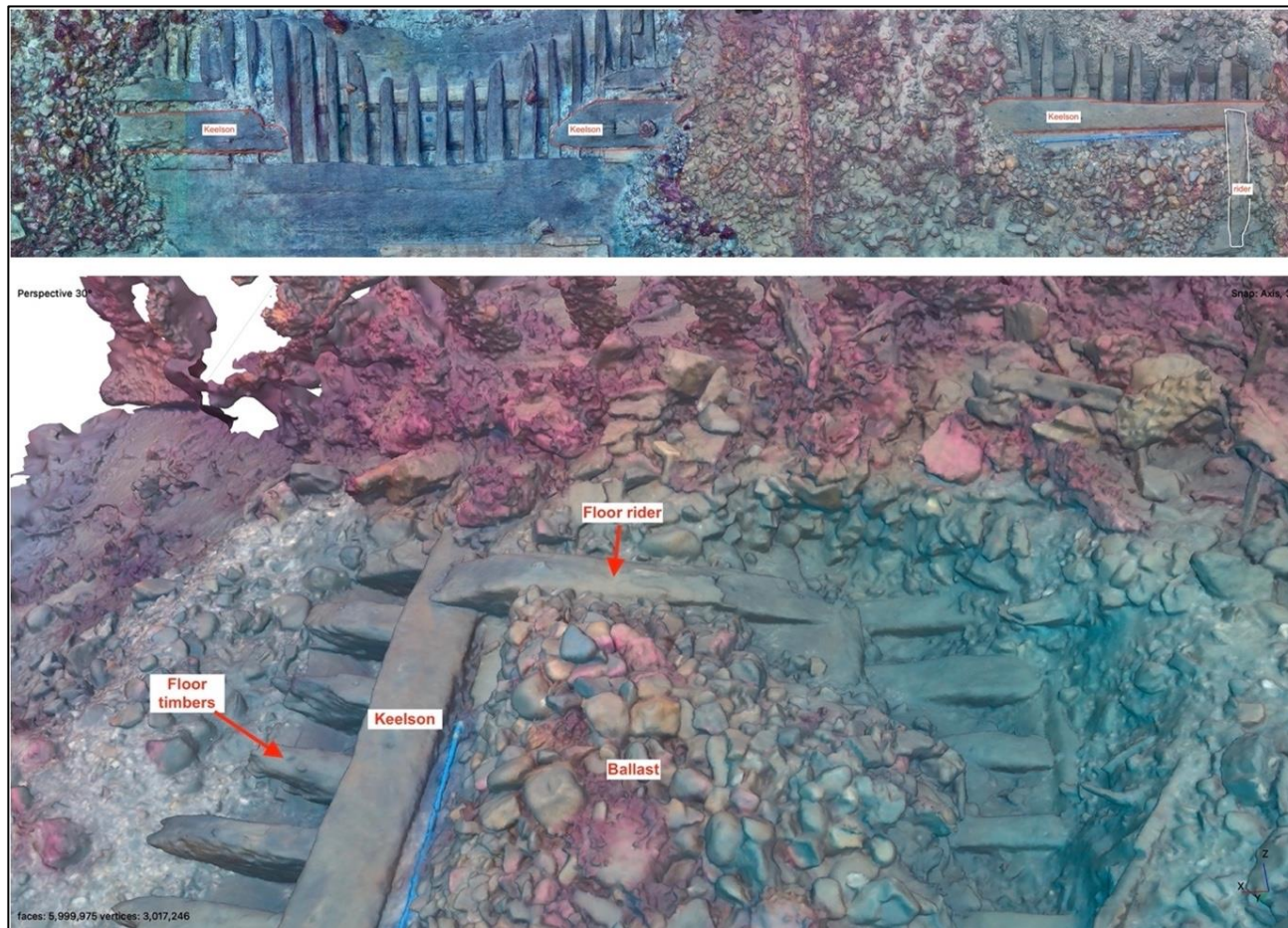


Figure 72. Upper image: The three pieces of the keelson recorded on the *Melckmeyt* and outlined in red. (left) southern section, (middle) mast step section and (right) northern section from 2018. The floor rider is outlined in white. Lower image: Perspective view looking north from the 3D model of the *Melckmeyt*. The floor rider lap jointed to the uncovered northern extent of the keelson is clearly visible. The narrowing of the keelson is also evident here. The underlying floor timbers are more sharply angled than those seen amidships. The blue pole was a scale bar used during the survey.

Ceiling planking

Remains of the inner floor (*ceiling*) planking which lined the bottom of the hold were substantially preserved in the eastern (port) side of the wreck and only two small pieces (likely from the same plank) were observed in the western starboard side next to the keelson (Figure 73, 74). Directly next to the keelson on both sides were the remains of the first strakes of the inner planking which were found to be mostly eroded and made of pinewood. They measured 0.65m long, 19cm wide and 3cm thick (Figure 75). Located north of the southern ballast mound on the port side of the keelson a 1.20m long, 19cm wide piece of the first strake of inner planking was also preserved. These planks covered a 14cm wide gap (and overlapped the second line of inner floor ceiling planks by 5cm) between the keelson and the floor strakes which were fitted to the floor timbers. These pinewood planks were often removed when the ship had no cargo and was moored within a harbour. By removing these planks, the spaces between the underlying frames could be cleaned out of any loose debris that had fallen between the floor timbers and allowed the hold to be ventilated which prevented wood rot from setting in. At least six partial-to-fully-preserved oak planks were recorded in the eastern portion of the wreck. The exposed planks were recorded to a length of 6.60-7.20m. They ranged in width of 33-40cm and were on average 4cm thick. The plank at the closest position to the bilge known as the bilge stringer (preserved on the eastern or port side of the wreck) was substantially thicker (11cm) and lay at an angle to meet the turn of the bilge (See Figure 64 timber m, Figure 74). The planks here needed to be thicker as they provided longitudinal support to the ship. The inner ceiling planking recorded in 2016 extended under both the southern and northern ballast mounds and a number of these planks were identified within the 2018 survey area north of the northern ballast mound. They were fastened to the underlying horizontal frames by wooden pegs and tree nails.

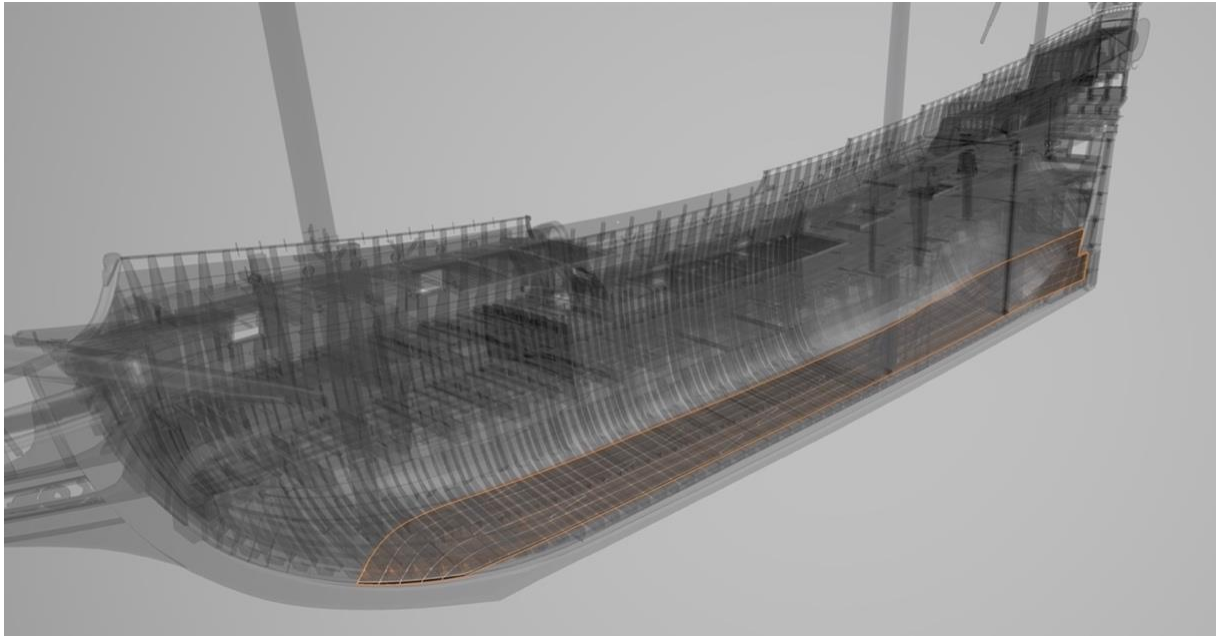


Figure 73. The position of the hold floor planking on a 3D model of 17th century Dutch pinas.
Source: See footnote 283, Web source - <https://witsenscheepsbouw.nl/encyclo/>

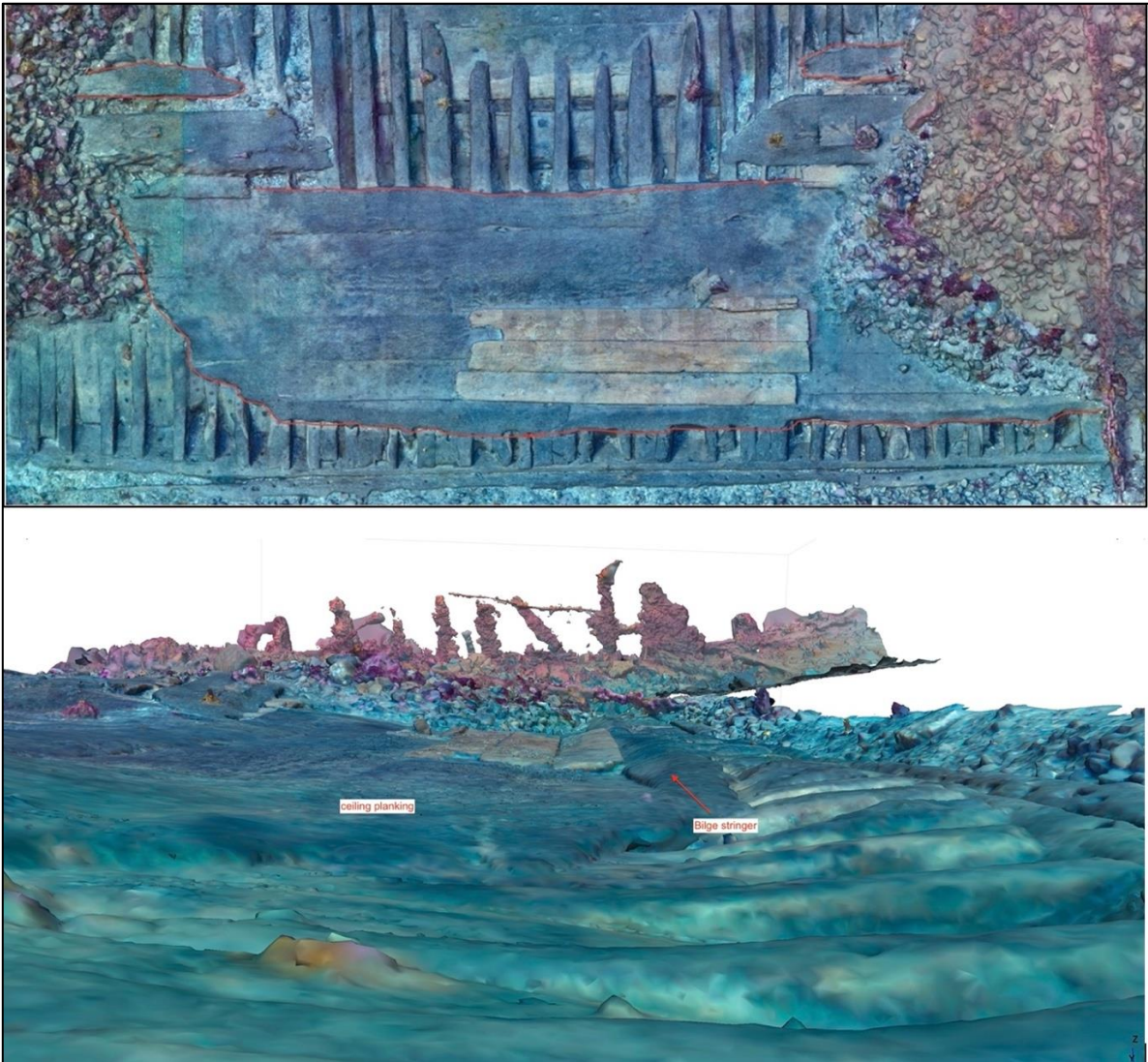


Figure 74. Upper image. The hold floor ceiling planking from above outlined in red. Lower image: Perspective view from the 3D model of the *Melckmeyt* looking north along the level of the ceiling planking showing the bilge stringer on the port (eastern edge).



Figure 75. Remnants of the first strake of inner pinewood planking (outlined in red) next to the keelson and mast step. The overlap with the next row of ceiling planking is evident in the lower piece. A second piece of the port plank was identified directly north of the southern ballast mound next to the keelson and is visible in Figures 62 and 63.

Pinewood planks

Three complete *pinewood planks* (3.14m x 30cm x 3cm) and a fragment of a fourth plank (80cm x 14cm x 3cm) were identified lying loose over the oak inner planking of the wreck (Figure 76). Einarsson's 1993 survey also recorded these also and they were termed light timber owing to their yellow appearance which contrasted to the regular dark brown colour of the other ship timbers. These were not attached to the hold floor and were interpreted as representing evidence for one of several functions on board the *Melckmeyt* which may have included: left-over or unsold timber cargo, spare timbers carried onboard for ship repairs, or the remnants of a temporary pine sheathing which had previously lined the cargo floor and served to protect the oak planking underneath from the wear and tear of moving ballast and water damage from cargo. The latter interpretation is based on archaeological research of the hull from the 17th century Dutch VOC shipwreck *Batavia* (van Duivenvoorde, 2009, p. 65). Wood and cut planks were items regularly imported to Iceland during the Trade Monopoly Period as discussed in Chapter 2, so they may have been part of the ship's unsold

cargo mentioned by the crew in their statement to the notary in 1660.²⁸⁴ A dendro-sample of the pinewood planking was taken for further analysis but unfortunately did not produce enough tree rings to provide a date. The pinewood was visibly more brittle and damaged than the oak timbers it overlaid and appeared to have been damaged by a burrowing marine organisms most likely sea-gribble (Figure 77).



Figure 76. Pinewood planks lying over the oak (inner ceiling) planking.

²⁸⁴ See also footnote 278.



Figure 77. Pinewood dendro-sample showing damage from sea-grub. Image credit: Kevin Martin.

Floor timbers and futtocks

The *floor timbers* were positioned under the ceiling planking and ran east-to-west across the hull and were visible in places where the ceiling planking was missing or eroded (Figure 78, 79). As the ceiling planking was not removed during the surveys the total amount of surviving floor timbers on the wreck was not identified. Where visible though, these timbers were found to have been in excellent condition. The floor timbers recorded ranged in widths from 20-25cm and were 15-25cm thick. Those uncovered during the 2018 survey were noticeably thicker, further spaced apart (16-26cm) and were more sharply angled to meet the outer planking than those recorded amidships in 2016, which were found to be lying more horizontally and spaced slightly tighter (16-22cm). This difference in thickness, spacing and angle was due to the differing positions of those timbers along the hull. Those uncovered in 2018 were closer to the stern of the vessel and were angled to account for the rise in the outer planking at the back of the ship while those recorded in 2016 were amidships, at the widest and flattest part of the hull. One of the floor timbers on the western edge of the wreck was dendro-sampled which identified it as oak with a total of 79 tree rings, but it was found to be unsuitable for dating analysis (Jansma, 2016). No futtocks on the

starboard (western) side of the wreck were preserved, but parts of the first futtocks and the lower parts of some of the second futtocks were evident on the port (eastern) edge of the wreck up to the level of the turn of the bilge (Figure 80, 81). In this area, they were tightly spaced against the floor timbers and ranged in width from 12-18cm and 14-16cm in thickness.

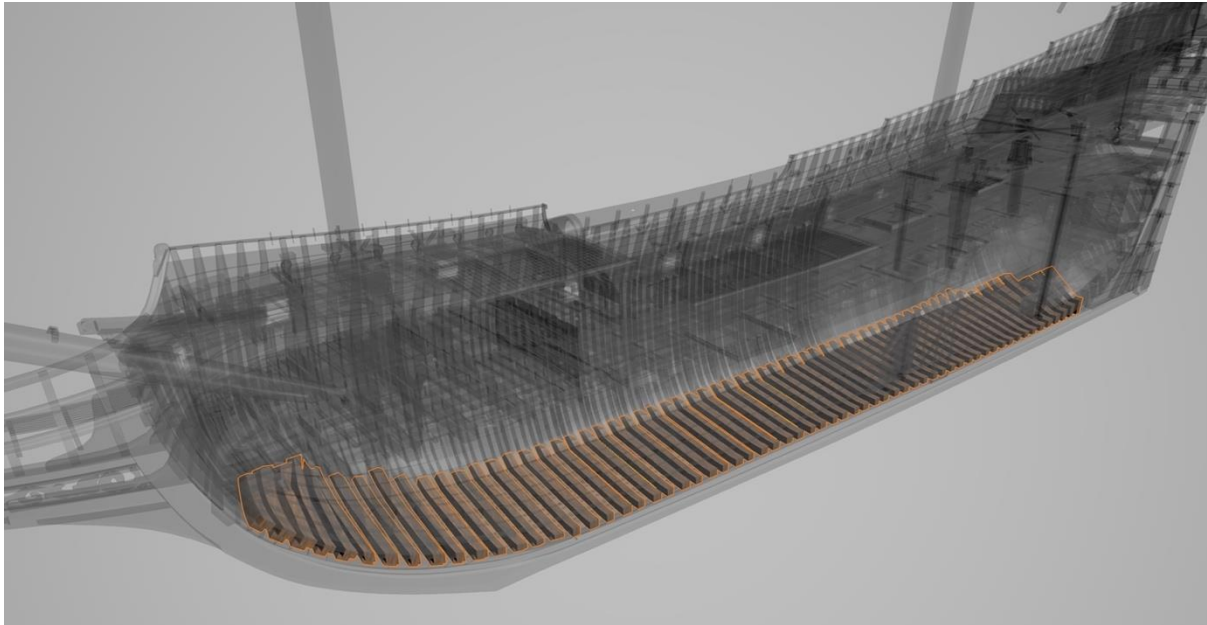


Figure 78. Position of the lower floor timbers highlighted on a 3D model of a 17th century Dutch pinas. Source: See footnote 283, Web source - <https://witsenscheepsbouw.nl/encyclo/>

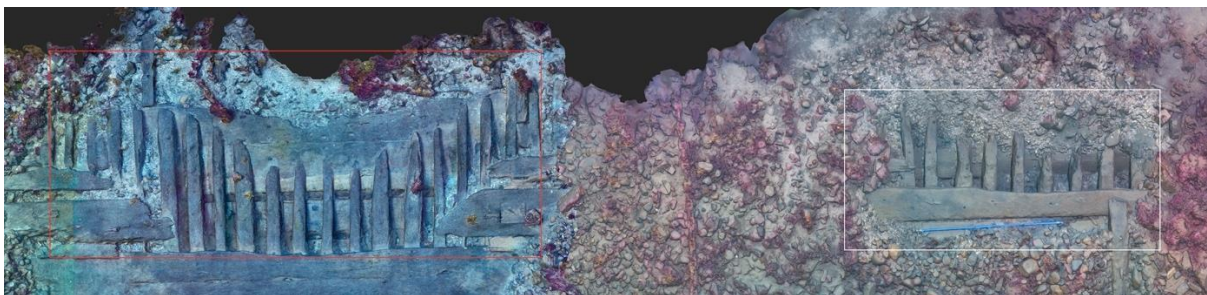


Figure 79. Floor timbers uncovered during the 2016 survey (red box) and 2018 survey (white box).

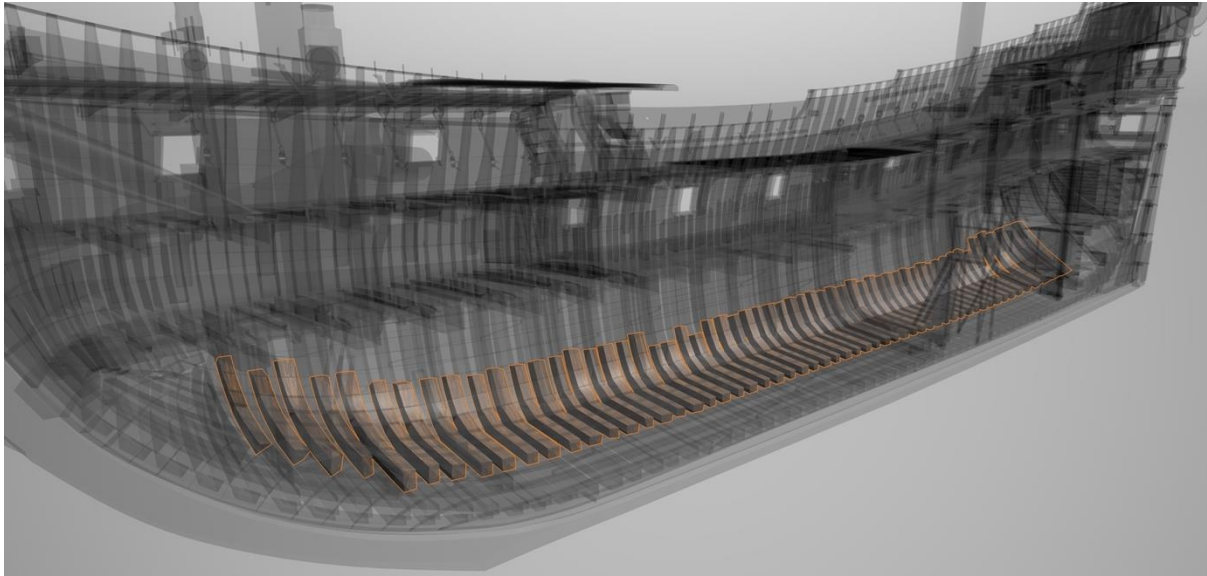


Figure 80. Position of the first futtocks highlighted on a 3D model of a 17th century Dutch pinas. Source: See footnote 283, Web source - <https://witsenscheepsbouw.nl/encyclo/>



Figure 81. Image from the 3D model showing the first and second futtocks tightly spaced next to the floor timbers amidships on the port (eastern) edge of the *Melckmeyt*.

Ribband

Running perpendicularly beneath the frames were two *ribband* timbers known in Dutch as (nl. *tingel*), (Figure 82). These were two roughly triangular pieces of oak timber placed on either side of the keel amidships in the bilge, to create a space of 12cm where water could collect and from there be pumped out by means of the bilge pumps. The exposed area of the starboard ribband measured 3.70m long, 20cm wide and 2-6cm thick. The port side ribband measured 2.0m long, 20cm wide and 2-6cm thick. It was likely to be the same length as the starboard ribband but some compacted silt and stones covered its full extent. A dendro-sample was taken of the starboard ribband and it was later identified as oak but was found to be unsuitable for dating (Jansma, 2016). Both ribbands overlay the ship's outer hull

planking/skin.

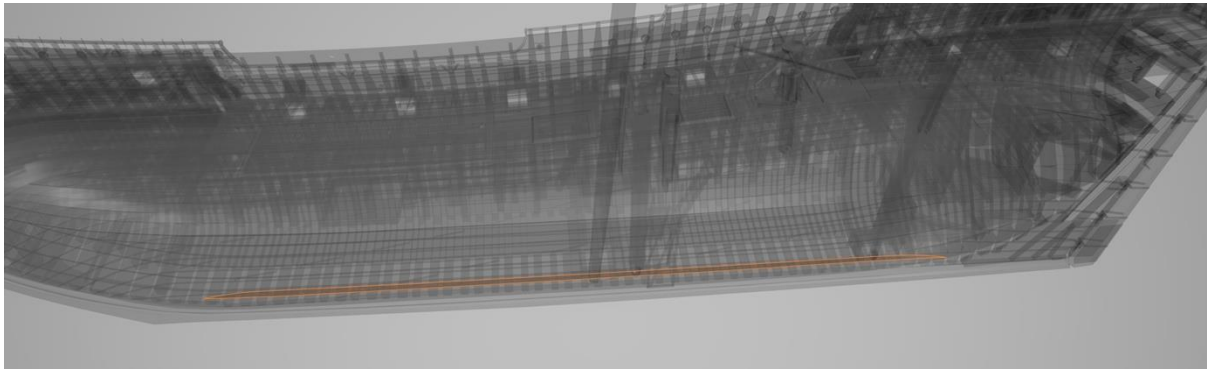


Figure 82. Position of the ribband highlighted on a 3D model of a 17th century Dutch pinas. Source: See footnote 283, Web source - <https://witsenscheepsbouw.nl/encyclo/>

Outer planking / skin

The ship's *outer planking* or *skin* underlay all of the above-mentioned timbers and the first strake of this, known as the *garboard strake* was seated directly into the side of the keel in a groove known as a *rabbet*. Although similar grooves were seen in other parts of the ship, the rabbet mostly refers to "grooves cut into the sides of the keel, stem and sternpost, into which the garboards (outer planking) were seated" (Steffy 2011, p. 1141). The outer planking was preserved both on the port and starboard sides of the wreck, but more was visible on the starboard side in the areas where the ceiling planking was missing. In this area, which was surveyed in 2016, parts of up to four outer planks were recorded underlying the ship's frames. The longest plank was recorded at 5m in length. Widths were similar to those recorded on the inner ceiling planking - up to 40cm with a board thickness of 6cm. Four dendro-samples of the outer planking were taken for analysis. All were identified as oak and contained 21, 100, 35, & 81 tree rings respectively (Jansma, 2016). One of the samples taken from a plank on the port side contained enough tree rings to provide a felling date range of 1629+/- 6 (Jansma, 2016). Moreover, it was evident that the outer planking of the *Melckmeyt* had been sheathed over with a thin layer of pine sheeting. Parts of this covering were visible on the southern portion of the 2016 survey near to the area of the ship's stem but were heavily degraded and eroded so that an accurate measurement of this layer could not be made (Figure 84). The pine sheeting would have acted as a protective layer for the outer planking, particularly against the impacts of sea-gribble, shipworm (*teredo navalis*) and additionally the rougher conditions of the North Atlantic.

Keel and deadwood

The backbone of the ship and the main longitudinal timber in the hull into which the outer planking was seated and upon which the internal frames were mounted is the *keel* (Figure

83). As mentioned previously, a keel scarf joint was identified amidships which indicated that the keel of the *Melckmeyt* was composed of at least two pieces.²⁸⁵ The keel scarf also suggested an orientation of stem to the south and stern to the north. Amidships, the exposed keel was recorded as being 3.50m long, 41cm wide and 7cm thick to the outer planking.

At the stem end of the vessel on the southern end of the 2016 survey area a layer of ballast stones about 1-1.50m wide and 80cm high was cleared to examine and inspect the ship's construction (Figure 84, 85). Here a section of the keel was identified (80cm long and 30cm thick) that featured a significant narrowing in its width to 28cm from that previously recorded amidships at 41cm. A *stopwater* was also identified at this location, running east-to-west across the keel (Figure 85). These were holes that were drilled through the keel and scarf seams and filled with moss and plugged at both ends with dowels in order to prevent the joint shifting and to make it watertight (Hoving, 2012, 304; Steffy, 2011, p. 1147).²⁸⁶ It is interpreted from the position of the stopwater on the keel that a scarf to the stem post of the ship would have been positioned south of this point. The stopwater most likely represented the northern extent of the scarf between the stem and the keel. The keel continued further south from this position and although the end of it was not detected it was interpreted based on the distance of 12.40m to the position of the mainmast step from the extent it was uncovered, that it would have continued south for approximately 1m beyond the survey area. At this point the southern end of the stem post's scarf to the keel would have ended and the stem post would have risen up (Figure 86).

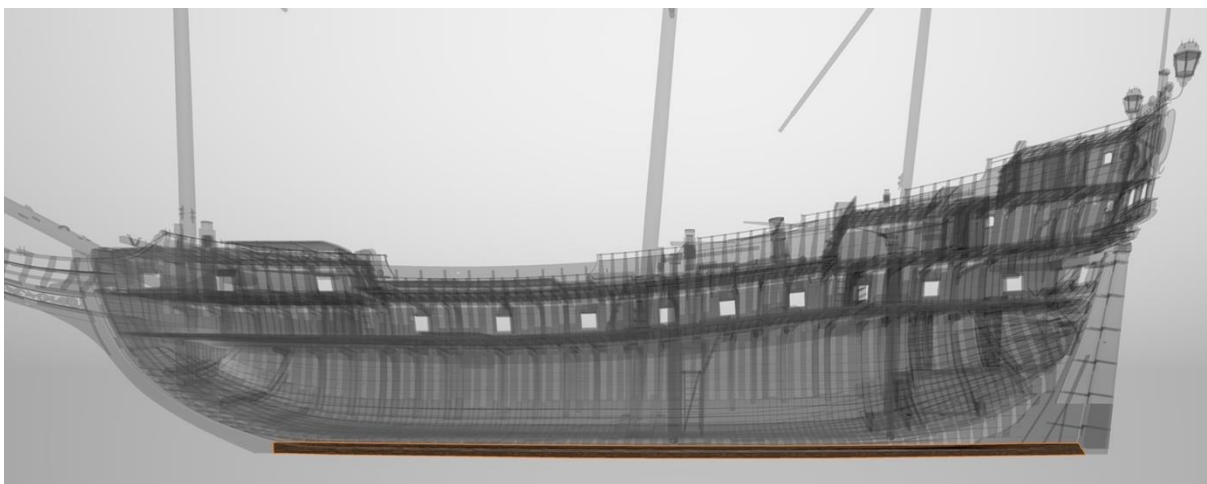


Figure 83. The position of the keel is shown highlighted on a 3D model of a 17th century Dutch pinas. Note the extra distance which the connected stem post added to the length of the ship. Source: See footnote 283, Web source - <https://witsenscheepsbouw.nl/encyclo/>

²⁸⁵ Given the 32.8m length of the ship, the keel was likely to have been built from three separate pieces.

²⁸⁶ "The water seeping in would swell the moss making the scarfs watertight" (Hoving, 2012, p. 57).

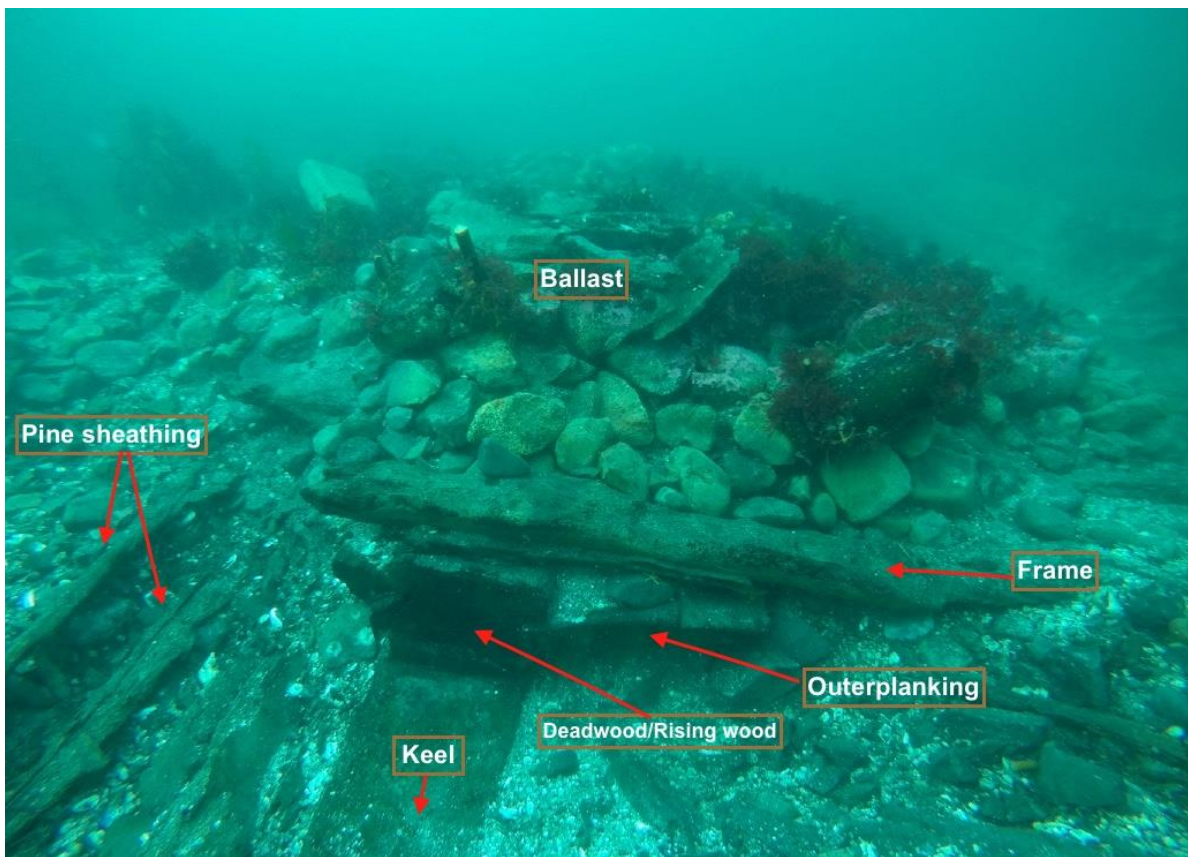


Figure 84. An annotated image of the southern area of the 2016 *Melckmeyt* survey with various construction features of the vessel labelled. Image credit: Kevin Martin.

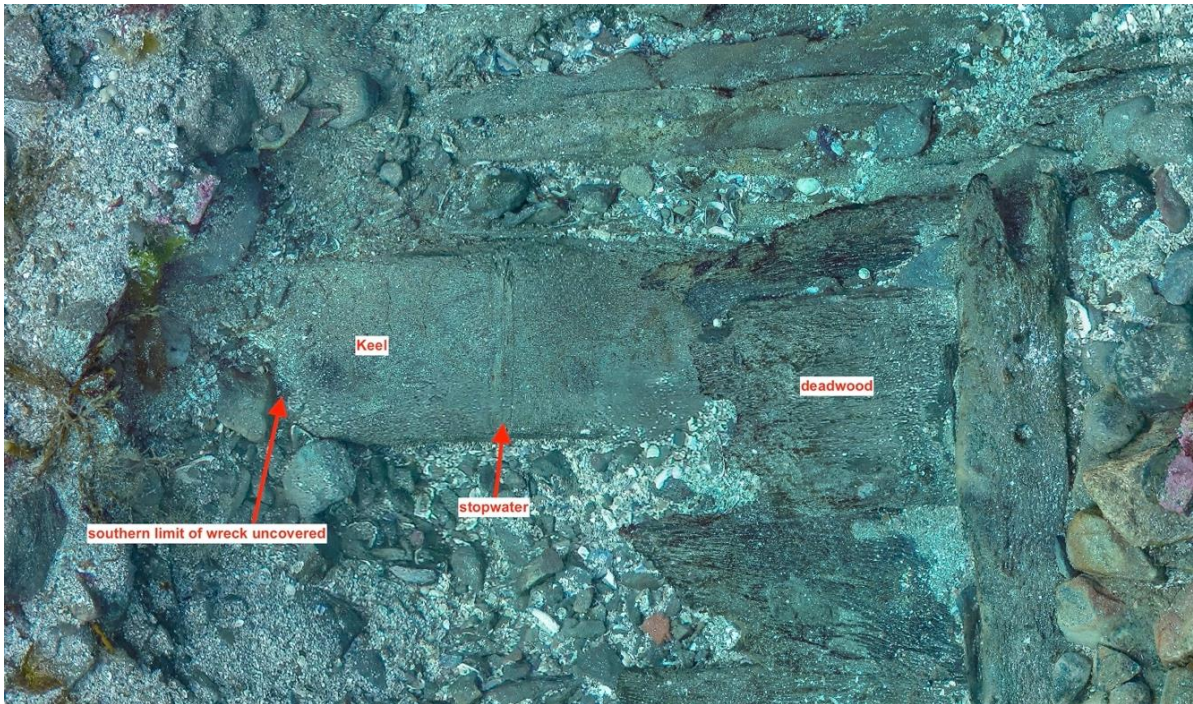


Figure 85. View from above of the southern limit of the 2016 *Melckmeyt* survey. The keel, stopwater and deadwood features are visible. Image credit: Kevin Martin.

The identification of *deadwood* or *rising wood* at this location also confirmed that the outer planking of the ship was rising upwards from the keel here to meet the stem post at the front of the ship. The subsequent gap created between the outer planking and the keel was filled with the deadwood (Figure 84, 85, 86). It was recorded as 27cm wide and 16cm thick. A rabbet groove had been cut into both sides of the deadwood on the *Melckmeyt* to seat the garboard strakes of the outer planking (Figure 84, 87). Based on the shallow angle observed on the deadwood it was interpreted that it may likely have been a composite piece, originally composed of two joined pieces rather than one. The deadwood was sampled for dendro-dating analysis but was found later to be unsuitable for determining a felling date. It was identified as oak and contained 76 tree rings.

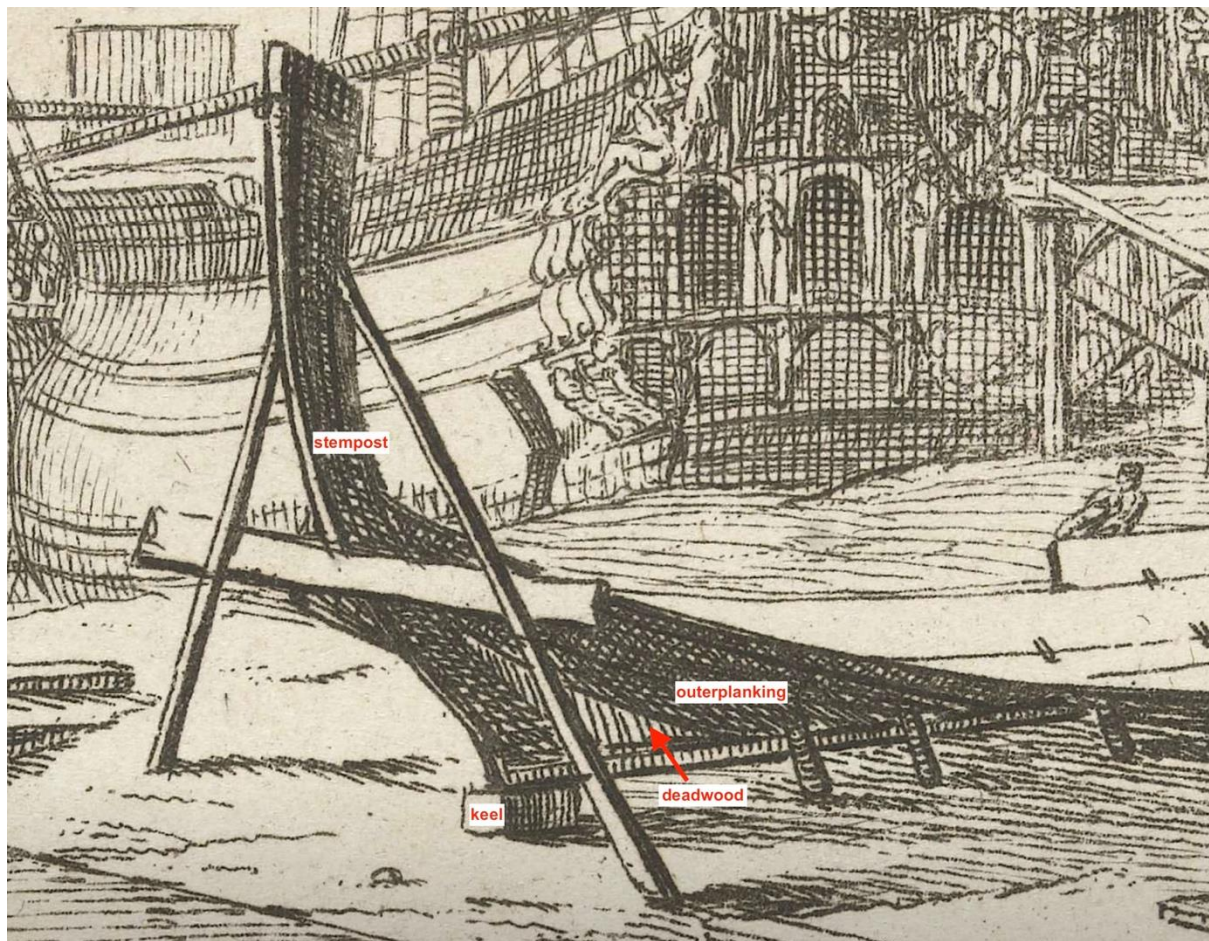


Figure 86. Annotated closeup of the stem of a 17th century Dutch ship during construction showing the stempost, keel, deadwood and outer planking. The rise of the outer planking to connect to the stempost is clearly evident and the deadwood was used to fill the gap between this and the keel. Etching by Siewart van der Meulen 1690-1710. Source: Rijksmuseum, Amsterdam, Catalogue ref. FMH 3013-A/2. Public Domain.



Figure 87. Deadwood dendro-sample showing the rabbet cut-outs on either side to seat the garboard strakes. Image credit: Kevin Martin.

Ballast and cargo

Two large *ballast* mounds were identified covering approximately two thirds of the exposed hull area on its stem (southern) and stern (northern) ends with a space between of 6.60m (Figure 62, 63). The southern ballast mound measured 6m north-to-south x 5.30m east-to-west with a maximum height of 1m and an average thickness of 60cm. The northern ballast mound measured 8.85m north-to-south and 5.50m east-to-west and was a maximum of 1.20m in height with an average thickness of 50cm. The ballast stone had most likely previously extended over a larger area of the shipwreck but much of it had been cleared amidships during the 1993 archaeological survey (Magnus A. Sigurdsson, pers. comm. 2016). Based on a visual examination and recovery of a number of samples, the ballast included a mixture of stone types including flint, coarse grained laminated sandstone, schist, granite and basalt (Sólveig Guðmundsdóttir Beck, pers. comm. 2017).²⁸⁷ The ballast stones varied in size up to 0.50m in diameter with most being 25-40cm. Several possibly worked squared schist blocks were observed in the mounds but most of the ballast stone was unworked and comprised of natural rounded boulders. Flint, granite and sandstone are not native stone types to Iceland so their occurrence on the wreck is only through import and use as ballast. The basalt was likely sourced by the crew locally in Iceland as it is one of the most common native stone types. Its presence on the ship suggests that the crew had not acquired as much export-cargo in Iceland as they had initially planned for and made up the shortfall with locally sourced ballast.

²⁸⁷ It was not possible to identify an overall breakdown of ballast stone types by quantity so for the purposes of estimating the ballast weight the stone types will be grouped together as one.

The iron cannon recovered during the 1993 survey may also have been carried on board as ballast (1 tonne est. weight) given its age and evident damage (Charles Trollope, pers. comm. 2016). An estimated 40-50m³ of ballast was on board the *Melckmeyt* at the time of its sinking. Taking the average weight of the main stone types identified granite, sandstone and basalt at 2.675 tonnes per m³, the ship was carrying approximately 107-134 tonnes (53-67 lasts) of ballast or about 40% of its cargo capacity of 280-300 tonnes (140-150 lasts) in ballast when it sank.²⁸⁸ No archaeological remains of the fish and meat cargo the *Melckmeyt* was carrying was identified, but the specific quantities of this cargo are known from the historical sources, so its cargo weight can be accurately estimated, and added to the ballast weight, should allow an approximate calculation of the total carriage capacity being used on board when the ship sank.²⁸⁹ The fish and meat cargo would have weighed something in the region of 90-105 tonnes (45-52.5 lasts) or approximately 40% of the ship's capacity, which when added to the ballast weight suggests it was carrying approximately 240 tonnes (120 lasts) or about 80% of its 280-300 tonne (140-150 last) capacity when it sank.

The finding of Icelandic basalt in the hold is an important detail in the *Melckmeyt's* story and its presence suggests not only a deliberate and time-consuming burden on the crew of sourcing and adding it but also one done in recognition that the ship would otherwise rise higher and be less balanced than anticipated on the voyage home. We know already that the ship arrived late into the trading season and perhaps too late to fill its hold to capacity after other merchant ships had already traded for the bulk of the local fish supplies in the Breiðafjörður region. Its departure was then likely further delayed (fatefully, as it turned out) in order to source and load sufficient local basalt into the hold to offset the cargo shortfall.

The *Charlotte*

The 19th century wreckage of the *Charlotte* perpendicularly overlaid the stern end of the *Melckmeyt* and is itself a protected underwater archaeological feature, based on it being a shipwreck over 100 years old (Figure 89).²⁹⁰ Due to time limitations and a priority to investigate the older shipwreck (*Melckmeyt*) there was no time to make any detailed record of the *Charlotte's* wreckage though much of it was recorded in the 2018 photogrammetric survey. The *Charlotte's* remains are broken up and extend over an area of 10.40m (east-to-west) and 7.10m north-to-south. The remains comprised heavily concreted twisted fragments of iron sheeting, metal tubing and rods and the remnants of boilers. Burnt and charred timber was also evident amongst the wreckage. The internal ribs of the *Charlotte* stood upright to a height of 1.20m and marked the northern extent of the exposed and recorded remains of the *Melckmeyt* (Figure 88).

²⁸⁸ Source for weights - <https://www.aqua-calc.com/calculate/volume-to-weight>

²⁸⁹ See Chapter 4.1, Financing the trade, for details on cargo quantities and weight.

²⁹⁰ See Chapter 1, Icelandic legislation on underwater cultural heritage sites.

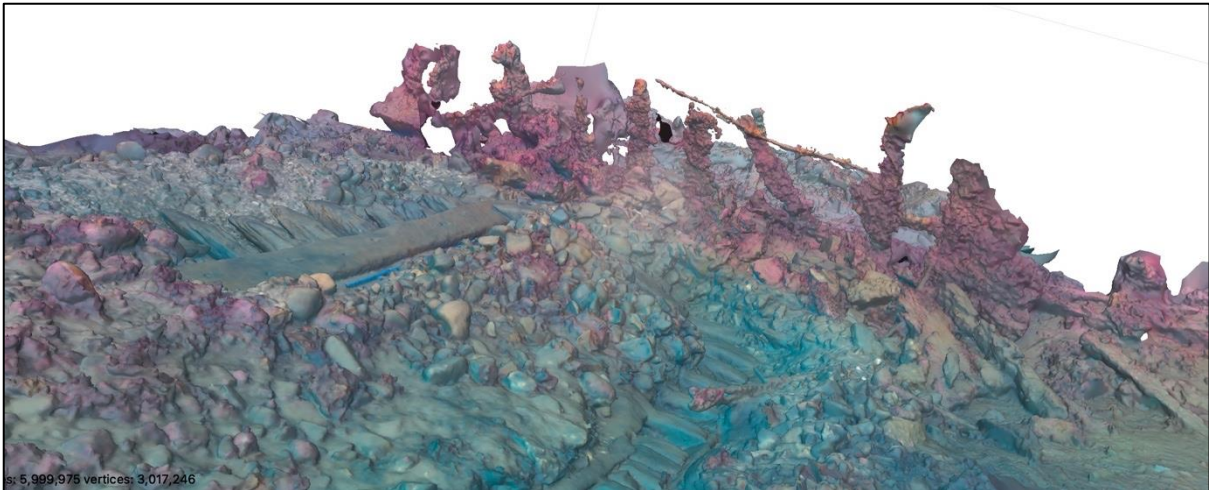


Figure 88. A perspective view looking north from the 3D model of the *Melckmeyt*. The upright ribs of the *Charlotte* can be clearly seen running east to west across the stern remains of the *Melckmeyt* which abuts them and runs north to south.

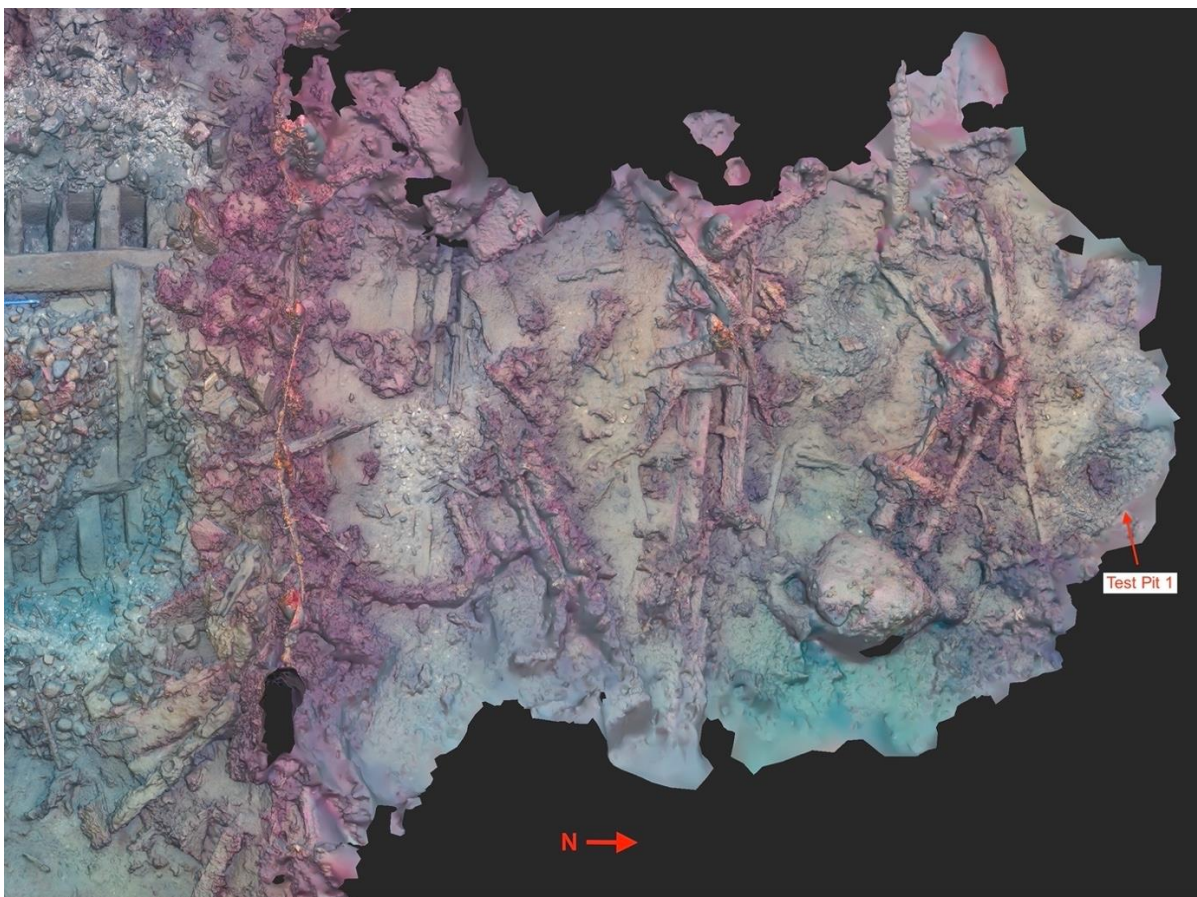


Figure 89. An ortho-photo of the wreck of the *Charlotte* from above with the location of test pit 1 indicated on its northern edge. Note the extent of the floor timbers from the *Melckmeyt* wreck on the left.

Test pits

During the 2018 survey, five test pits (50cm x 50cm) were excavated to the north of the wreckage of the *Charlotte* to investigate whether any remains of the *Melckmeyt* existed in this area. The test pits were dug at approximately 3m intervals from each other, starting against the edge of the *Charlotte* (Figure 89) and extending to about 10m north from this point. No archaeological remains were identified within the test pits, with all containing fills of angular stones and fine compact gravels which suggested that the remains of the *Melckmeyt* did not extend into this area (Figure 90).

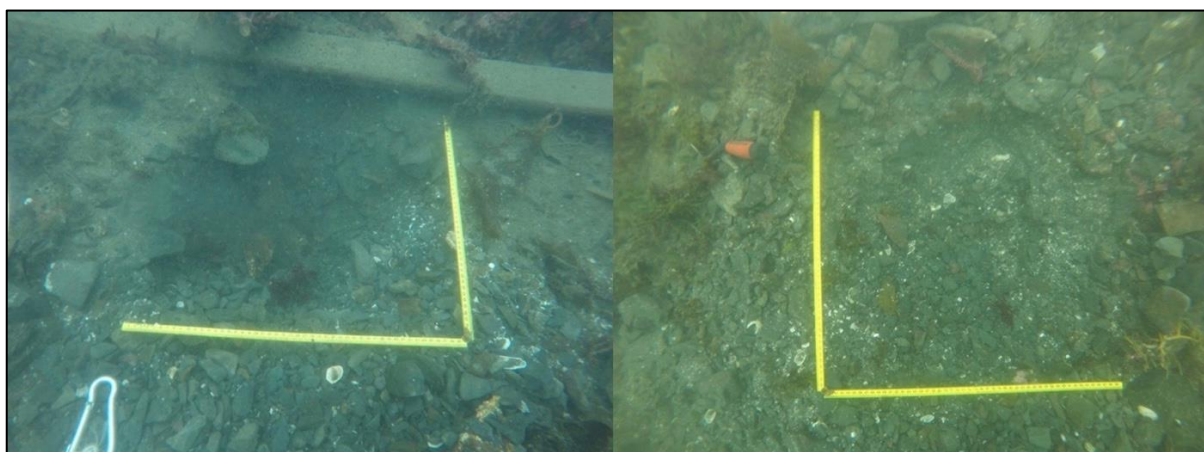


Figure 90. Test pits 1 (left) and 2 (right). Note the timber from the edge of the *Charlotte* in the upper part of the left image. Image credits: Kevin Martin.

Preservation and conservation

One of the benefits of carrying out a survey of the wreck 23 years after the initial survey took place was that it offered an opportunity to access the integrity of the wreck site within its marine environment and consequently examine issues of timber preservation. Overall, based on a comparison with the records from the 1993 survey, the remains of the *Melckmeyt* have remained relatively stable and undisturbed. Little in the way of modern rubbish or debris has found its way onto the wreck (apart from several golf balls found during the silt cleaning which were subsequently reunited with their owners on Flatey). One very stark difference in the preservation, however, was observed at the mainmast step which had lain exposed and uncovered since 1993 (Figure 91). The complete wearing away and smoothing out of the upper (western) edge of the mast step was recorded, which had lost an estimated 8cm of depth on this edge. The parts of the wreck which were covered in deeper silt, particularly in the northern stern area, were better preserved than those in the southern stern area which mostly had only ballast stones covering them. Damage to the ship's timbers from a marine organism known as the sea gribble was also identified. Many of the dendrochronological samples exhibited pitting and holes which were a tell-tale sign that this organism had been actively consuming exposed ship timbers. Moreover, it was evident from

the samples that the pinewood had been damaged more than the oak frames and planking (this was also recorded on the pine sheeting layer), indicating that the less dense wood types were more susceptible to erosion and gribble damage than the oak timbers (Figure 77).

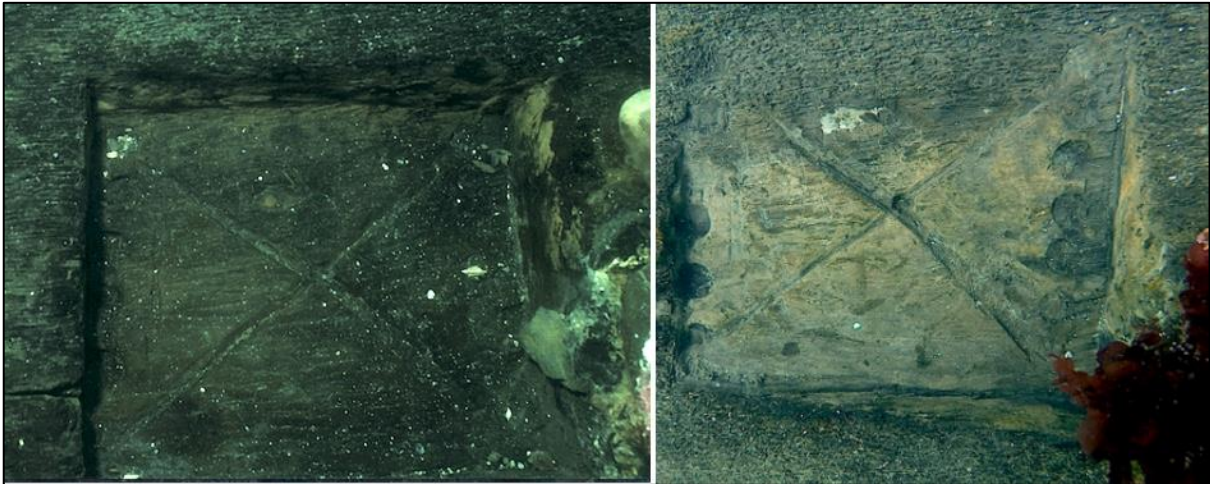


Figure 91. (left) Image of the mainmast step from the 1993 survey and (right) the mast step from the same position in 2016. Image credit: Bjarni F. Einarsson (left), Kevin Martin (right).

Overall, the condition of the wreck's timbers were found to be in a good-to-excellent condition, particularly for a wooden wreck that has been submerged at a relatively shallow depth (<10m) for more than 360 years. The dark colouring of the oak timbers which Einarsson (1993) suggested was a result of charring from a fire onboard during the wrecking event was interpreted by the author to be natural staining on the wood rather than evidence of fire damage. To protect the wreck for future generations the exposed areas from the surveys in 2016 and 2018 were fully covered with a geo-textile membrane that should enhance its protection from future corrosive marine elements (Figure 92). These textiles work by establishing a smooth, continuous barrier on the seabed which promotes a stable, often anaerobic environment beneath it (Bowens, 2009, p. 168). This is a recommended conservation technique for in-situ preservation of submerged wooden archaeological remains (Bowens, 2009; Manders, 2011). The geo-textile covering should also prevent or make it more difficult for kelp and other marine plants to attach and anchor themselves to the ship's timbers. Although bacterial decay will inevitably continue to affect the ship's timbers, this should be slowed down to some degree due to a lack of ambient sunlight. Future marine archaeological research on the wreck should also be a less arduous process as it should be a much easier operation to re-expose and re-cover its remains.



Figure 92. Marine archaeologist Johan Opdebeeck unrolling the protective geo-textile membrane over the remains of the *Melckmeyt*. Image credit: Kevin Martin.

Specialist analysis

Ceramic assemblage

The ceramic assemblages recovered from the 1993, 2016 and 2018 survey projects were catalogued and analysed by Gavin Lucas from Háskóli Íslands (Lucas, 2017).²⁹¹ His analysis identified a total of 421 ceramic sherds representing a minimum of 54 vessels of varying types (Figure 93).

Wares	MNV	Sherds	Dating
Tin-glazed Earthenwares			
<i>Majolica</i>	13	220	c.1650-1675
<i>Faience</i>	17	149	c.1650-1675
Glazed Red Earthenwares	8	24	c.1600-1800
Chinese porcelain	1	1	c.1720-1780
Industrial Wares			
<i>Creamware</i>	5	10	c.1780-1820
<i>Whiteware</i>	9	12	c.1800-1900
<i>Porcelain</i>	1	5	c.1800-1900
Total	54	421	

Figure 93. Results of the analysis by Lucas (2017) of the various ceramic wares (types), minimum number of vessels (MNV), sherd quantities and dating recovered from the *Melckmeyt* wreck in 1993 & 2016. Source: (Lucas, 2017, p. 1, Table 1).

The ceramic types identified included tin-glazed earthenwares – majolica, faience, glazed red earthenwares, Chinese porcelain and industrial wares (creamware, whiteware, porcelain). The industrial period creamwares, whitewares and porcelains could potentially be linked to the later 19th century wreck of the *Charlotte* overlying the *Melckmeyt*. The saucer fragment of Chinese porcelain (c. 1720-1800), sits ‘in-between’ both wrecks chronologically and so most likely ended up on the *Melckmeyt* wreck from being thrown overboard from an anchoring vessel and attests to the use of Hafnarey as an active harbour during the 18th century.

The assemblage was dominated by tin-glazed earthen wares, majolica and faience with 220

²⁹¹ Three ceramic artefacts recovered from the 2018 fieldwork on the *Melckmeyt* were not part of this 2017 analysis report by Gavin Lucas and were examined by him separately. They were found approximately 50m northeast of the shipwreck during an exploration dive survey of the harbour in Hafnarey. They consisted of a portion of a small whiteware bowl (c. 1840-1920), a fragment of a whiteware tankard with stencilled, blue floral spray and cross-hatched border (c. 1890-1940) and a complete whiteware base – likely from a tankard or jug (c. 19th/20th century), (Martin, 2018). It should also be noted that in addition to the ceramics outlined in this section a number of other artefacts types were recovered from the wreck site during the *Melckmeyt* project in 1993 and included fragments of metal (iron, lead, copper), glass bottles, coloured glass fragments, brick fragments and a number of heavily concreted unidentified objects. These were provisionally listed in an unpublished survey report by Einarsson (1993) and cursory reviewed by the author indicating a provisional dating range of 17th to early 20th century with most falling in the latter category. No further analysis of them was carried out in relation to this study.

and 149 sherds recovered for each type respectively (Lucas, 2017). The majority of these were recovered close by to each other from an area directly east of the *Melckmeyt* wreck, which suggested to Lucas that they were part of the cargo inventory stored in the hold that had spilled out during the wrecking process (ibid.), (Figure 94).

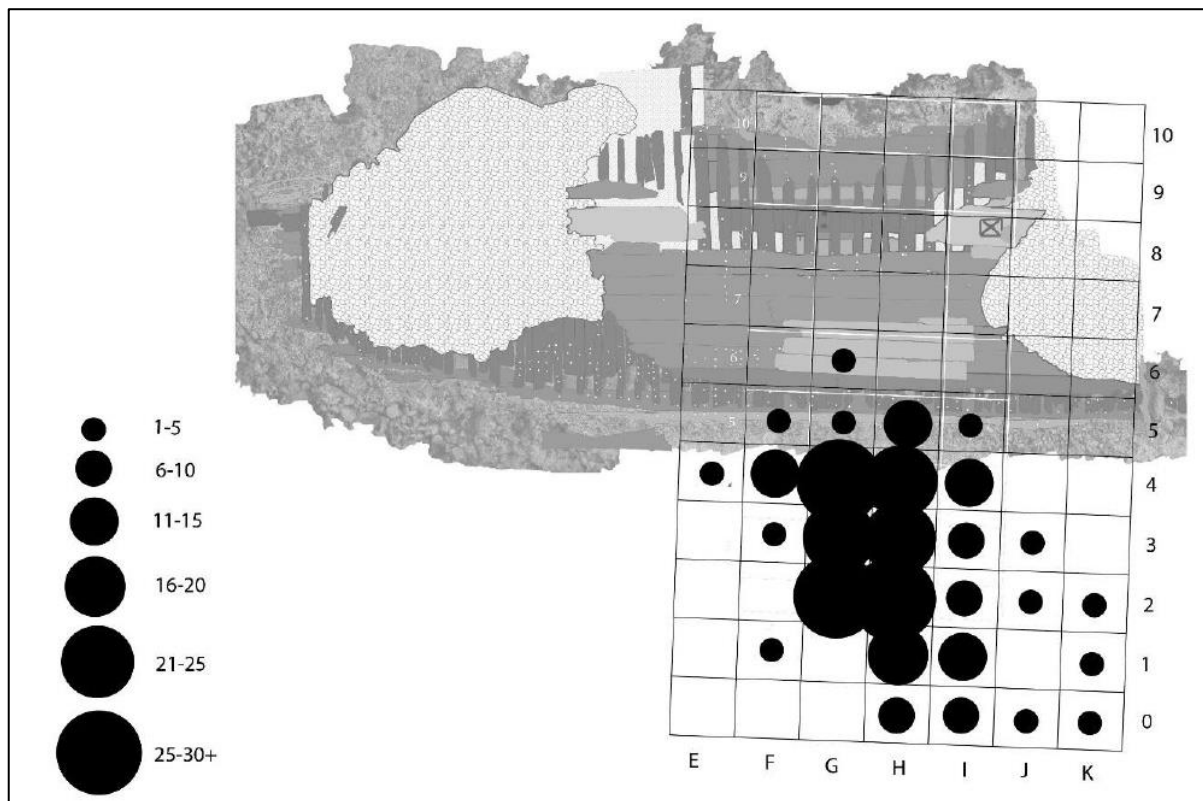


Figure 94. A bubble density plot of the tin-glazed earthenwares recovered in 1993 overlaid on the 2016 survey area. Quantities are in sherd numbers. Source: (Lucas, 2017, p. 19, Figure 10).

Lucas (2017) noted that many of the majolica plates still had their preserved stilt scars from when they were stacked in the firing kiln and were mostly decorated in blue patterns (Figure 95). Designs identified within this assemblage included: dot and flower border, floral border, kraak, v and dot border, and undecorated (ibid.). Moreover, he noted that several vessel forms occurred in faience, which like the majolica were flat/open tablewares, either plates or dishes. The dishes were mostly undecorated and generally much larger (c. 300mm in diameter), while the plates were all decorated and tended to be very small (c. 210-220mm in diameter)” (ibid.). The dishes varied in type and included: lobed dishes, everted rim dishes, a single upright rim dish and several flanged rim dishes. The plate decoration also varied and included: white border, flower and insect border and floral border.

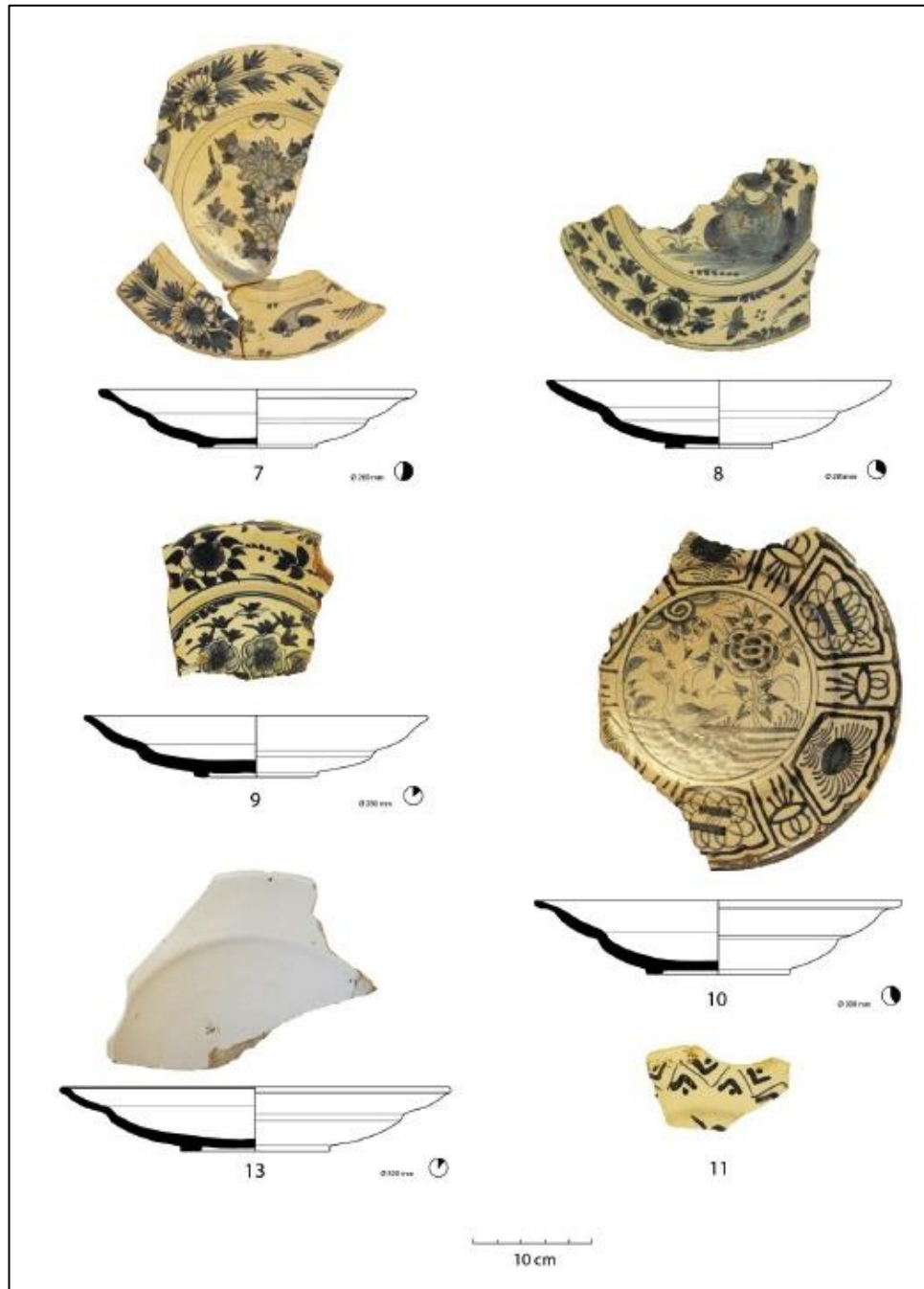


Figure 95. Majolica plates decorated with blue patterns. Source: (Lucas, 2017, p. 9, Figure 4).

The glazed red earthenwares included both cooking and tablewares and many were likely to have been used by the ship's own crew with one of the cooking vessels showing clear signs of regular use in the form of exterior sooting (*ibid.*). Interestingly, one of the larger cooking vessels, a cauldron, appeared completely unused and new which suggested it most likely was on board as cargo. At least three different medium-sized cooking vessels (pipkins/cauldrons), a colander, three bowls and a dish were identified within the red earthenware assemblage.

The dating and find-spot concentration (particularly evident with the tin-glazed earthenwares) of the ceramic assemblage suggest that they were likely contemporaneous with the timeline of the *Melckmeyt* and support an interpretation that a quantity of (tin-glazed earthenwares and glazed red earthenwares) were onboard the wreck as it sank. As for the later dated ceramics, these were not directly connected with the ship but ended up being deposited on or nearby the *Melckmeyt* wreckage at a later date mostly likely connected with the 19th century sinking of the *Charlotte* and additionally through the normal day-to-day use of the harbour at Hafnarey from the 17th-20th centuries.

Six sherds from the assemblage (four faience and two majolica) were selected for ICP analysis to determine their provenances based on their chemical signatures (Brorsson, 2019). Five of the six were found to be matching established profiles of vessels made in the Netherlands and one of the faience fragments most closely matches profiles from Copenhagen (ibid.).

Dendro-chronological dating

A total of 11 wood samples were sawn from various parts of the *Melckmeyt* for dendro-chronological analysis. This analysis identified oak and pine species and a North German provenance for two timbers (Jansma, 2016). Only two samples could be dated by Jansma. One of these, was from the outer planking of the *Melckmeyt*, which had 100 rings and produced a date after 1629 +/- 6. The other, was from the keelson, which contained 109 rings and provided a date after 1624 +/- 7 (Jansma, 2016). There was no sapwood (outer rings) on any of the timber samples analysed, and it is of course impossible to determine how much heartwood had been trimmed off the timbers for use in the ship, meaning that it is not possible to establish exactly in which year the trees were cut. With only two samples dated and those dates being *termini post quem*, it is not possible to make a definite conclusion about the exact age of the vessel when it sank.

The measurements of the samples analysed were supplied with Jansma's report and a reassessment of these recently, by Daly (pers. comm. 2021), meant that three more samples can be provisionally dated, and also suggests Scandinavian provenances for these. The dendro-provenance data gained from all of these samples thus indicates that the ship was built of timber sourced from various jurisdictions in northern Europe, which was a common practice for Dutch ships in the 17th century (Aoife Daly, pers. comm. 2021). In relation to the construction date of the *Melckmeyt* several scenarios are possible 1) The timbers sampled may have been salvaged from an older vessel and re-used in *Melckmeyt*, 2) the *Melckmeyt* may have been constructed sometime after 1623 and so could have been

over 30 years old when it sank in 1659 and 3) the ship could have been constructed in the mid to late 1640's as indicated by its earliest identified archival reference to a whaling trip to Greenland in 1649. The last scenario seems the most likely to the author based on the average lifespan of 15 years for vessels like the *Melckmeyt* (Heijink, 2017). Timbers could indeed have been felled several years before the completion of the ship, as is evident during the construction of *Vasa* (Aoife Daly, pers. comm. 2021). This means that the ship was most likely about 10-15 years old when it sank in 1659, indicating that it was already close to the end of its working life.

Spatial analysis and 3D reconstruction

Through a collaboration established with this author, John McCarthy (Flinders University) carried out a spatial and design analysis of the *Melckmeyt's* construction – based on the combined results of the 2016 & 2018 3D-surveys of the wreck – as part of his own doctoral research on 3D digital libraries of Dutch merchant ships in which the *Melckmeyt* was one of his case studies. His findings indicated that the *Melckmeyt* was most likely to have been a *Noordsvaarder* flute (see Chapter 3), and a close design match to a model of a mid-17th century flute known as the *Houtpoort* model (Figure 96). The model “lacks a beakhead and galleries but has the high and narrow stern of the classic flute, as well as some light armament. The model also carried 14 guns; the same number reportedly salvaged from *Melckmeyt*. It also lacks the beam across the stern that whalers bore, and which would probably have been removed from *Melckmeyt* after it left the whaling trade” (McCarthy, 2020, p. 258). Further analysis by McCarthy (ibid., p. 259) suggested that the *Melckmeyt* would have fallen at the upper end of the Category II flutes devised by Wegner Sleeswyk (2003) which were defined as vessels with a cargo capacity of 120-150 lasts and an average crew size of 13.6. Moreover, the *Melckmeyt* was most likely a two-decker without a forecastle (ibid.).

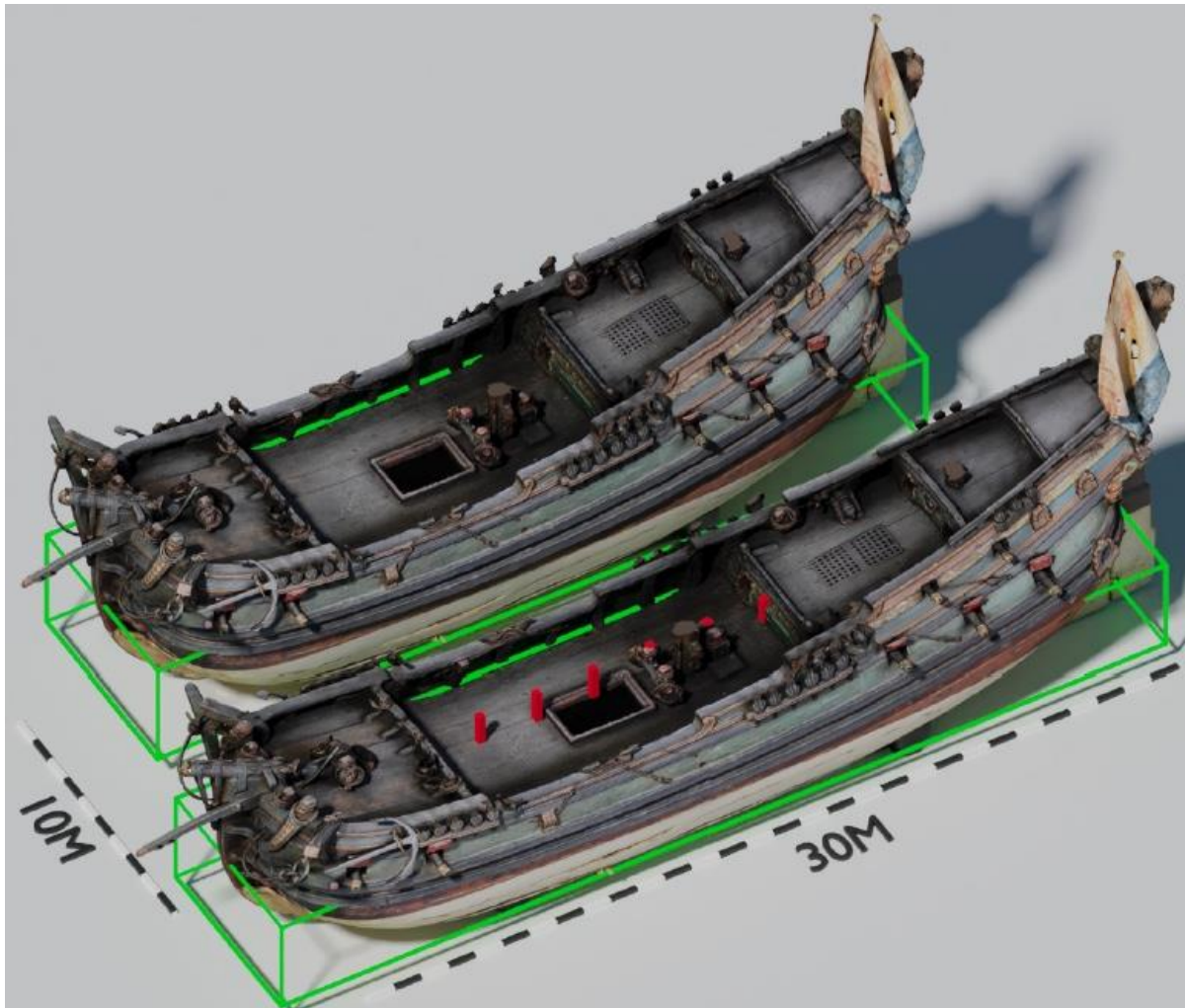


Figure 96. Modifying the proportions of the *Houtpoort* model (top) to match those recorded for *Melckmeyt* (bottom). The red pegs show the height of the second deck as stated in the 1658 voyage charter. Source: (McCarthy, 2020, p. 260, Figure 153).

The 3D-scan of the *Houtpoort* model was digitally modified by McCarthy (2020) to match the dimensions of the *Melckmeyt* (Figure 96), while a later adjustment to the hull shape factored in Witsen's drawing of a flute from 1671 that had length-to-breadth proportions of 1:4.7 (closely matching the known historical proportions of the *Melckmeyt's* at 1:4.84). The final result according to McCarthy (2020, p. 261) "should be a close proxy in shape and design for *Melckmeyt* that can be compared to the archaeological remains" (Figure 97).



Figure 97. Witsen's plan of a flute (bottom) compared with the scanned *Houtpoort* model (middle) to alter its hull form and add a full upper deck to approximate the shape and design of the *Melckmeyt* (top). Source: (McCarthy, 2020. p. 262, Figure 155).

McCarthy's (2020, p. 272) 3D reconstructions and visualisations of the *Melckmeyt*, which combined and converted the results of a variety of data sets into a spatial format, allow an opportunity to forensically reconstruct the wrecking event and offer a new phenomenological engagement with the shipwreck. This fosters an immersive perspective that takes the viewer's perspective as close as possible to that of one of the ship's crew during the wrecking or one of the locals on Flatey watching the chaos unfold. McCarthy (ibid., p. 269) noted that "the spatial data gathered, including the accurate reconstruction of the ship, drone and underwater photogrammetry georeferenced horizontally and levelled with respect to tidal datums, allows the reconstruction to be positioned accurately in its wider landscape, based on the current position of the wreck".

The date of the wrecking, on the 15th-16th of October 1659, occurred a few days before a full moon phase on the 20th of October. Given the tidal range of 7m around the island, would have resulted in an exceptionally large spring/neap tide submerging most of Hafnarey and

trapping the ship against the rocks which sealed its fate (Figure 98).²⁹² Figures 99 and 100 show how little of the ship would have been available for the crew to shelter on for the two nights while the storm raged. Figure 100 also clearly shows the angle at which the ship wrecked, with its starboard side lifted as the ship submerged against the underlying sloping seabed. This position was confirmed during the archaeological survey and may have been the reason that many of the timbers on the starboard side were missing, since they would have been the easiest to salvage in the weeks and months afterwards. The archaeological survey also confirmed the accuracy of Icelandic historical references to the wrecking of the *Melckmeyt*, which mentioned that only the back of the ship was above water during the sinking and it was here on the open decks that the crew clung for survival.²⁹³

The remaining element which resulted from the collaboration between the author and John McCarthy was the creation of a virtual dive experience for the *Melckmeyt* 1659 exhibition at the Reykjavik Maritime Museum. This is discussed in a separate section on collaboration and dissemination in the Conclusions, Chapter 7.



Figure 98. Hafnarey harbour looking west, submerged during a spring tide in July of 2017. Image credit: Kevin Martin.

²⁹² Moon phase calculator: <https://www.timeanddate.com/moon/phases/iceland/reykjavik?year=1659>

²⁹³ See Chapter 4.1, Historical references to the *Melckmeyt*.



Figure 99. The reconstructed wreck of the *Melckmeyt* is positioned relative to the landscape and the sea surface near high tide. Source: (McCarthy, 2020, p. 268, Figure 163).



Figure 100. The 3D reconstruction of the wrecking of the *Melckmeyt* showing how little of the stern would have been available for the 15 crew members to shelter on for two nights. The standing figure is 1.6m and added for scale. Source: (McCarthy, 2020, p. 269, Figure 164).

The results of the archaeological survey of the *Melckmeyt*, outlined above, have shown just how complex a machine the ship was and how the various interlocking and interconnected components were assembled together and the specific function of each component. In comparison to the other previous wreck investigations of wrecks outlined in Chapter 4.1, the *Melckmeyt* compares best with the B&W 5 wreck excavated from Copenhagen in terms of the preservation of its hull and its components' measurements. Both ships were mid-17th century flutes of approximately the same size (the *Melckmeyt* was slightly narrower). The comparison also evidences that hull preservation of 17th century ships in the North Atlantic area is an exceptional occurrence and that the *Melckmeyt*'s importance in terms of informing our archaeological knowledge of merchant ships from this period should not be understated. Having established an archaeological understanding of the wreck site, our attention can now turn to explore a more human aspect of the merchant ships in the monopoly period. The next section will discuss the crew and their life on board.

The crew and life on board

“No man will be a sailor who has contrivance enough to get himself into a jail; for being in a ship is being in a jail, with the chance of being drowned...a man in a jail has more room, better food, and commonly better company” Samuel Johnson (Boswell, 1773, p. 104).

Samuel Johnson's opinion of life as a sailor in the 18th century presents a fairly bleak and austere picture of life aboard a ship of the period. The ocean-going ship in the Early Modern Period, has been described as the prototype of the factory, a setting in which large numbers of workers cooperated on complex and synchronised tasks under slavish, hierarchical discipline in which human will was subordinated to mechanical equipment, all for a monetary wage (Linebaugh & Rediker, 2012, p. 150). Flatman (2003, p. 150) citing (Fricke, 1973) defined those who worked on board the ships as representing an 'occupational community', who primarily went to sea for economic reasons but who were "deeply tied to the past and the continuity of lifestyles at sea as providing a focus for social organization and patterns of life". Flatman (2003, p. 148) additionally noted that the traditionally smaller crews of merchant ships left little room for class distinctions, with crews often being composed of family members from the same social class. This wasn't always the case though. Alternatively, enforced recruitment (impressment), carried out by groups known as *press gangs*, became a popular method for manning naval ships from the mid-17th century. The life of a press-ganged sailor was described as akin to slavery and death in which non-payment of salaries became the norm and featured a staggering mortality rate of 75% within two years for impressed men (Linebaugh & Rediker, 2012, p. 151).

The *Melckmeyt* had a crew of 15 at the time of its wrecking with an estimated median age of 32 years old.²⁹⁴ Though an estimate, this age conforms well with the assertions of Rediker (1987) and Stirland (2000) that ships' crews in the period tended to be comprised primarily of men in their 20s or 30s, which isn't that surprising given the risks involved. Van Royen's (1988) analysis of the crew nationalities on Dutch merchant ships of the period 1700-1710, established that as many as 24% were foreign-born with higher percentages on longer, riskier voyages. This situation was not uncommon in other European merchant navies of the time and has been described as a setting from which "grew a different hydrarchy, one that was both proletarian and oppositional" and in later stages manifested itself as Atlantic piracy (Linebaugh & Rediker, 2012, pp. 154,156). Further supporting this, a recent study by Scorrer *et al.*, (2021) using multi-isotope analysis to investigate the origins of eight crew members from the 16th century English warship *Mary Rose*, identified three individuals amongst this sample group as being foreign-born and most likely originating from places in Southern Europe including southwest Spain and the Mediterranean coastline.

It's accurate to say that since the 1960's archaeological studies of shipwrecks have generally been focussed more on the technical recording and description of the wrecks themselves and their related artefactual assemblages than on the crews who served on board and whose *wooden worlds* the vessels represented. More recently, analysis by archaeologists such as Niklas Eriksson (2014) in deconstructing human behaviour and actions within the confined spatial area of 17th century flute ships has brought us several degrees closer to understanding life on board vessels like the *Melckmeyt* from a human perspective. The dearth of written and primary sources on ships from this period has already been highlighted but one thing that is completely lacking in the primary records is any detailed account of how the interiors of these ships were arranged or how the space on board was used by the crew (Eriksson, 2014, p. 12). It is worth noting that a typical journey from northern Europe to Iceland at this time could have taken upwards of four weeks sailing in each direction. As all of the trade station anchorages in Iceland during the monopoly period were located in natural coves or bays with few harbour facilities, foreign crews – particularly those trading illegally – would likely have remained on-board their ships for months at a time during the trading season.

Since only the lower portion of the *Melckmeyt*'s hull was preserved, it is necessary to turn to findings from a handful of other contemporary, comparable and spectacularly well-preserved flute ships which have been archaeologically examined (most of which now lie on the bottom

²⁹⁴ This figure is based on the recorded ages of only five crew members out of 14 known survivors referenced in their notary statement in 1660.

of the Baltic Sea) for a better understanding of *Melckmeyt's* former interior layout. One of these wrecks, known as *The Ghost Ship*, has been recently documented and spatially analysed (N. Eriksson, 2014; N. Eriksson & Rönby, 2012). Though the 32m long *Melckmeyt* may have seemed large given the size of its crew, its design was to maximise cargo transport rather than crew comfort and undoubtedly privacy amongst the 15 crew members on board would have been severely limited and at a premium. For comparison, the crew of the *The Ghost Ship* is estimated to have been seven to ten depending on the season (N. Eriksson & Rönby, 2012, p. 356). Privacy may have been a less important issue to a crew already familiar with one another from past voyages and who in some cases may have grown up together or even been related. Eriksson (2014, p. 112), noted in respect to flute ships that the facilities for cooking, eating and sleeping, as well as the privy, were all located in the two adjoining rooms under the quarterdeck at the stern of the ship (A & B in Figure 101).²⁹⁵ These facilities were all located within a shared movement space. Thus, the majority of everyday concerns on board were carried out together with other people. This was an environment in which the individual seems to have been erased (N. Eriksson, 2013, p. 106). It's hard for us today to conceive just how small and uncomfortable these shared spaces actually were. A daily routine consisting of constant crouching, bumping against fellow shipmates in the dim light of the main cabin and galley whilst attending to personal hygiene, drying of clothes and the preparation of meals (Rönby, 2013, p. 12). The main cabin of *The Ghost Ship* (A on Figure 101), is estimated to have been approximately 15m² in size, while the galley or kitchen (B) based on findings from another wreck known as the *Lion Wreck*, was about half that size at around 8m² (Eriksson, 2014, pp. 94-95). The main cabin, in addition to accommodating eating and sleeping was also the area of the flute where the toilet or privy for the crew would have been situated and based on examples identified, comprised a simple plank-seat with a square cut out in the port side corner of the stern (Figure 102, 103), with maybe a cloth, temporary screen or perhaps nothing at all in use by the crew for some element of privacy (Eriksson, 2014, p. 112).

²⁹⁵ This position for the crew quarters on the *Melckmeyt* was also noted by McCarthy (2020, p. 258) based on a suggestion to him by Ab Hoving.

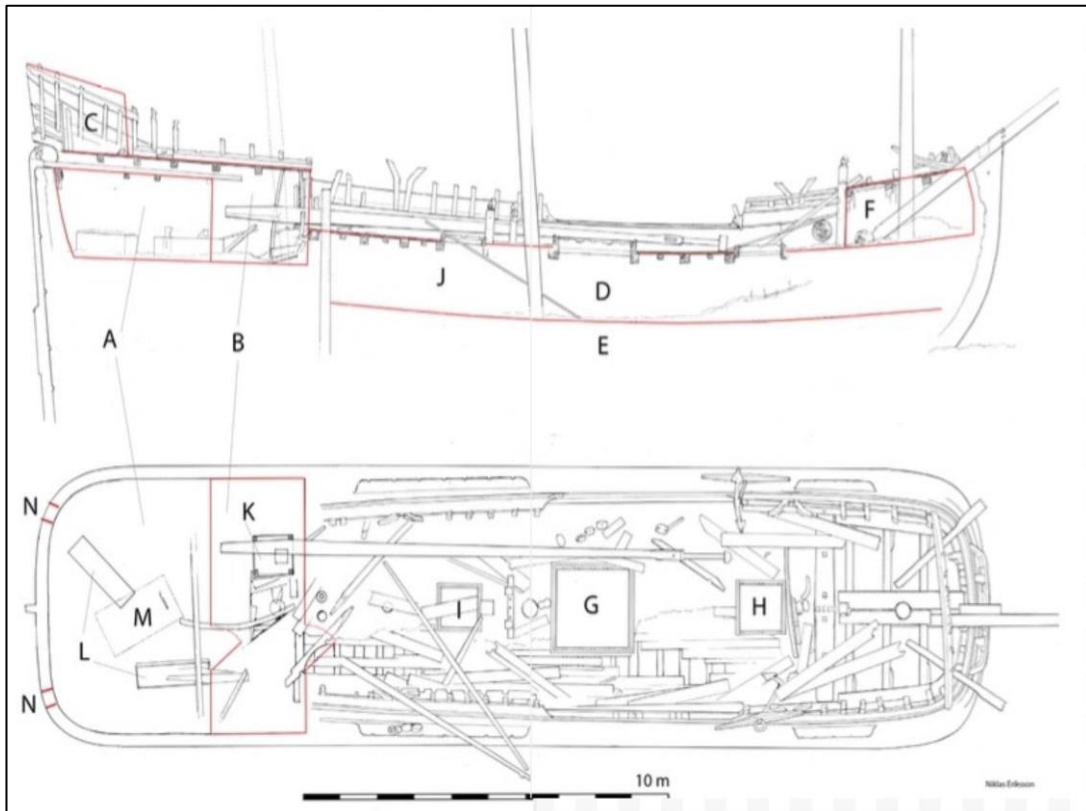


Figure 101. Longitudinal section and plan of *The Ghost Ship*, with removed quarterdeck. A: cabin, B: galley, C: upper cabin, D: lower deck, E: hold, F: forecastle, G: main hatch, H: hatch, I: hatch, J: room abaft the mainmast, K: hearth, L: chests/benches, M: table (dotted line indicates estimated shape), N: windows. Source: N. Eriksson, 2014, pp. 67,68, Fig. 4.8)

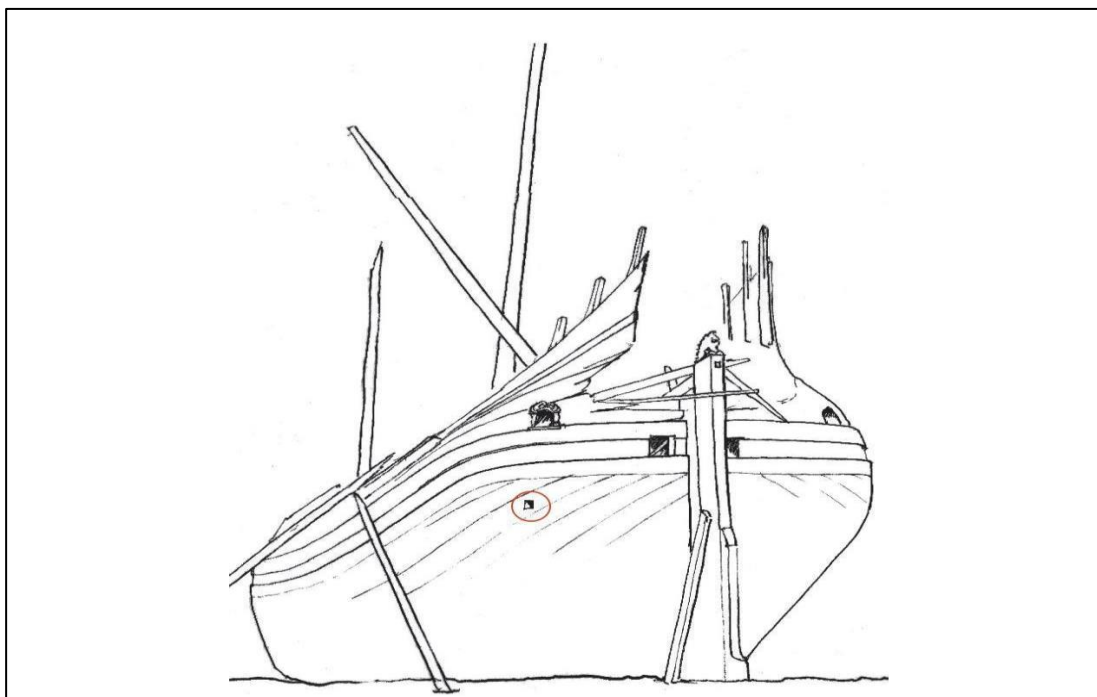


Figure 102. Sketch of the *Lion Wreck* showing the window openings in the stern and the privy exhaust hole circled in red directly below the cabin window. Source: (Eriksson, 2014, p. 114, Fig. 5.6).



Figure 103. Privy on board the replica of the 17th century *Batavia* in *Batavialand*, Lelystad, the Netherlands. Image credit: Kevin Martin.

Based on other surveyed flutes, the spatial demarcation of hierarchy on board the *Melckmeyt*, in the form of any closed off or restricted areas of the ship, likely did not exist. Although the crew had different roles and were paid varying wages “hierarchy was a silent agreement between the persons on board” (Eriksson, 2014, p. 118). In terms of the evidence for food preparation and consumption on board the *Melckmeyt*, though a large assemblage of ceramics were recovered during the 1993 and 2016 surveys, the vast majority were interpreted as representing unsold cargo rather than the ship's own equipment (Lucas, 2017). However, a number of the glazed red earthenware fragments of everyday items such as dishes, a bowl, a colander and a cooking pipkin/cauldron had notable traces of sooting on their exteriors are considered to be part of the ship's wares used by the crew (ibid.). Presumably, much of the other equipment used on board was organic and so did not survive the wrecking and additionally some items may have been removed by the crew or locals

during the ship's salvage in the days after the wrecking. Within the crew's cabin (A), *The Ghost Ship* survey revealed the presence of an upturned table (M) and two chests (L) interpreted both for storage and sitting (Figure 101). The chests were each considered big enough for three crew members to sit on, with one crew member on either side of the table, allowing a crew of 8 to all sit and eat together (N. Eriksson & Rönnby, 2012, p. 356). *Melckmeyt* likely had similar arrangements, although a larger crew would have required more furniture to accommodate their needs. In relation to sleeping, although there are some references to hammocks being used by crews on armed ships in this period, as well as some evidence for partially enclosed sleeping berths or cubby holes which could have been utilised, this aspect of the life on board is still poorly understood (Eriksson, 2014, p. 104). However the crew of the *Melckmeyt* slept, it would have been within the confines of the main cabin and was most likely done in shifts to accommodate everyone (Rönnby, 2013, p. 12).

Though *Melckmeyt* carried guns, they would have been onboard primarily as a defence against privateers and pirates active in the North Atlantic at the time. *Melckmeyt's* primary function when it sank was as a merchant ship rather than a warship, and so its social space on board should be considered in that light.²⁹⁶ Eriksson (2014) has previously outlined some major distinctions in terms of the arrangement of space on board flutes at war and those sailing in the merchant navies. Flutes at war carried larger calibre in greater numbers, and much bigger crews than their merchant flute counterparts. For example, *The Constantia*, which was of similar size to the *Melckmeyt*, carried 30 guns along with a crew of 137 (7 officers, 96 seamen and 34 soldiers), (Eriksson, 2014, p. 128). The shared social space which was a characteristic of the merchant flutes would have been transformed aboard a warship like *The Constantia*, where formal social hierarchies between officers and regular crew (commons) were much more defined, regimented and enforced. Eriksson (2014, p. 144) citing (Bollnow, 1994) described this transformation as a restriction of 'movement space' in order to create 'possession space'. The places where the officers ate, slept and answered nature's call would have been deliberately separated from the regular crew, with the officers housed in the stern of the ship and the commons located on the gun deck at the foremast and beakhead areas. As a general rule of practice aboard the warship, depending on which specific *seat of ease* or toilet you were assigned to, would accordingly define your role on board (Eriksson 2014, p. 142). That's not to rule out, though, that there may have been some restrictions of movement on board the *Melckmeyt*. The ship carried guns, after all, and access to those may have been limited to only those crew members trained in their operation. There may also have been parts of the hold, containing more valuable elements

²⁹⁶The Icelandic annals recorded that the crew recovered 14 canons from the wreck. It's likely these were light guns or (nl. *gotelingen*) such as those mentioned in the 1658 charter (see Chapter 4.1).

of the cargo or the personal possessions of the higher-ranking crew members, which were off-limits to other members of the crew or which required specific permission to access.

Considering the *Melckmeyt* and the activities of the crew on board, outside of those necessary daily ones mentioned above, how else would the crew have passed their time? One imagines that for a small crew gathered together in one space, that storytelling, religious observances, handicrafts, smoking, drinking and games would have been practised. Unfortunately, apart from some fragments of used clay pipes and glass bottles, none of the surviving artefacts recovered during the archaeological surveys of the ship provided further insights into these types of activities. Many of these downtime activities were aspects of the *shipboard* culture referenced by Rönby (2013., p. 11) who citing (Weibust, 1969), outlined the non-material forms these often took, including songs, narratives and rituals as well as the material forms such as special clothing, things and equipment. Regarding drinking practices on board, if beer rations on the *Melckmeyt* were similar to Danish, British and Swedish allowances at the time then each of the crew may have consumed up to four litres of beer per day as well as potentially ½ pint of distilled liquor (Glamann, 2011; Söderlind, 2006). A gaming piece found on the wreck *Jutholmen* which sank around 1700, illustrates that board games were also carried on board for downtime amongst its crew (Kaijser, 1983).

When a merchant ship like the *Melckmeyt* eventually arrived in Iceland and anchored at its destination port it's obvious that the crew would have been relieved for a number of reasons. Crossing the North Atlantic in the 17th century was certainly not without its risks, but one might question whether life on board was so different from the life that awaited the crew at the trade port in Iceland. As will be outlined in the proceeding Chapter, the infrastructural set up at these ports in the early to mid-17th century was neither substantial nor elaborate by any means (comprising one or two simple structures) and may likely not have been any major improvement on the crews existing cramped living conditions on board their ships. In this situation, with limited options for shelter on land, and depending on the specific trading arrangements and legalities of their operations, the ship would surely have temporarily functioned as part of the trade port's infrastructure for housing the crew and cargo during the trade season window. Eriksson (2014, p. 120) contended that "the moored-state ship affects how the ship is used. The ability to leave the hull, to have contact with people ashore or crews lodged in other moored ships, changes the living conditions inside the hull in a profound way, not least as regards interpersonal relations". Far from being dwarfed by a surrounding urban cityscape as would have been the case of Stockholm as depicted in

Figure 104, the merchant ships arriving at places like Flatey and Arnarstapi would have dwarfed their immediate surroundings and stood out starkly against the scale of the trade port's infrastructure. Contrasting the social divisions and material spaces of a merchant ship like the *Melckmeyt* with those at a trade port, such as the next case study site at Arnarstapi examines, takes the narrative of this period into a different direction and allows us to explore some commonalities and differences that may have existed between these two major components of the trade monopoly infrastructure.



Figure 104. Detail from an engraving of 17th century Stockholm from Erik Dahlbergh's *Suecia antique et hodierna*. Source: National Library of Sweden.

Chapter 5: The archaeology of the Danish Trade Monopoly ports in Iceland

The discussion up to this point has been mostly focussed on the maritime element of the trade infrastructure, exploring the vessels of trade, with the case study of the *Melckmeyt* providing an example of the new avenues which the narrative of this period can be expanded. Situated within the same *in-between* space horizon and forming the other critical component of the trade monopoly infrastructure, were the terrestrial trade ports. Before the specific case study of Arnarstapi is presented, several broader themes will be outlined and considered in relation to the ports, which should help later to frame the main issues through which to understand the case study.

Proto-urban centres or manifestations of economic colonialism - What did these trade ports represent?

Aside from simply being places of trade, where various imported goods were sold or exchanged for domestically sourced products and raw materials (i.e. sulphur) destined for export, it could be argued that these ports also represented the physical manifestation of economic colonialism imposed by the Danes on Iceland during this period. Officially, the trade with Iceland was operated exclusively by Danish companies supported and heavily influenced by the Crown, who could ensure, through the trading companies, that claims to their North Atlantic territories of Greenland (from the 18th century onwards), Iceland and the Faroe Islands as well as northern Norway were maintained. The trade monopoly and its ports should be viewed as part of a larger global trade expansion by the Danes that also included Asia, Africa and The West Indies, mirroring the more well-known trade companies of the Dutch and English (Blussé & Gaastra, 1981). Although the Danes never established a formal colonial settlement in Iceland, Gardiner and Mehler (2013, p. 10), referencing Gosden (2004), reminded us that colonialism can still exist without formal colonies and in the case of the trade monopoly could be identified through the perceptions and attitudes of Icelanders towards the imported trade goods, noting “if the introduced artefacts and practices are associated with superior power, then the native peoples place themselves in an inferior, colonized position”. Adding another complexity to this issue was that many of the goods the Danes imported (as artefacts recovered during the Arnarstapi excavations revealed) were not Danish made at all and often included Dutch and German ceramics and clay-pipes.²⁹⁷ It's

²⁹⁷ The alternative was also the case as ICP analysis of ceramics from the *Melckmeyt* revealed. Danish made faience was included in the recovered ceramic assemblage along with Dutch made ceramics which were interpreted to be part of the unsold cargo carried onboard.

been argued by Folke Ax (2009) though, that the mere fact of the object being foreign and therefore not Icelandic was enough for it during the monopoly period to be perceived as Danish by the Icelanders. However, this does not imply that being perceived as Danish always had a negative connotation associated with it (ibid.). Might the Icelanders in this period have also viewed the arriving Dutch trade ships, such as the *Melckmeyt*, in this same regard: foreign, therefore un-Icelandic, therefore Danish? However, ultimately they may have been a good thing as they were able to get the goods which they needed.

That Iceland, was or was not a Danish colony during the 500-year period it was officially part of the Danish Kingdom, has long been disputed by various historians with most rejecting the idea of Iceland being a formal colony but instead viewing Iceland as part of conglomerate state (Lucas & Parigoris, 2013, p. 6; Hrefna Róbertsdóttir, pers. comm. 2021). Much like historical relations between Ireland and England, arguments against this idea have been tied up within Icelandic nationalistic sentiments that emerged during the 19th century and that have clouded the issue to some degree (ibid.). Some historians such as Andrésón (1997, 2001) and Bjarnason (2001) perceived the enforced trade monopoly as being clear evidence of colonial dominance by the Danes with Iceland playing the role of an economic colony within the Danish realm. In this argument, the trade ports would have represented physical and ostentatious manifestations of the coloniser within Iceland with the ostentatious expression of this through their imported building styles, occupied by inhabitants who spoke a foreign language, consumed foreign foods, and publicly flew the flag of the oppressor over the ports and from their vessels. In this perspective, the trade ports may have been perceived as we would perceive a foreign embassy today. As an Icelander coming to buy or trade goods at the merchants' store, once you stepped inside the boundary wall or embankment of the port area you were physically entering land owned by the Danish King.²⁹⁸ However, viewing the colonial question solely in this way can be somewhat myopic as Lucas & Parigoris (2013, p. 8) have argued, "this approach has bound the colonial experience to the very specific spheres of politics and economics...when the colonial experience is a more complex and dynamic process". Through an archaeological lens they have examined the issue of colonialism as it pertains to Iceland and concluded that because it does not neatly fall within fixed predefined parameters, it requires closer attention (ibid., p. 13). Herzfeld (2002, pp. 900,901) examined the colonial question as it related to Greece and Thailand – an approach which Lucas & Parigoris (2013) felt could also be applicable

²⁹⁸ This was the case regarding the land at Arnarstapi and a number of the other ports. These enclosing walls and boundaries are depicted on a number of contemporary sketches and drawings i.e. Djúpvogur (Figure 178) and Hólmur (Reykjavík) (Figure 179) of the trade ports and also referenced specifically in the 1763 merchant record book inventory for the Grundarfjörður trade port (see Chapter 5.1).

examining this issue in Iceland's past – and developed the concept of *crypto-colonialism* which he defined as “the curious alchemy whereby certain countries, buffer zones between the colonized lands and those as yet un-tamed, were compelled to acquire their political independence at the expense of massive economic dependence, this relationship being articulated in the iconic guise of aggressively national culture fashioned to suit foreign models”.

Lucas and Parigoris (2013, p. 13) pointed out that the ambiguous colonial issue for Iceland has turned into a sort of “political geography”, one which is concerned with spatial definitions of Iceland either being at the margins from the rest of civilisation or at the core of something such as the North Atlantic or Arctic area. In terms of an archaeological approach to this issue, they suggested that archaeologists abandon these spatial hierarchies when interpreting material culture and instead “follow objects and connections between places suggested by objects” and allow their perspectives to move in unison with (ibid.). Their approach does not attempt to deny the existence of unequal power relations in the past but is concerned more with “exploring the paths and networks along which these power relations flow” (ibid.).

Urban, urbanisation or something else?

Similar to the issue of colonialism in Iceland, discussions relating to the development of urbanism is somewhat ambiguous with many settlement types – such as fishing stations, trade ports and large rural farm estates (including bishoprics) – not fitting into traditional and accepted classifications of pre-industrial urban or even proto-urban settlements such as those suggested by Childe (1950) and Hodges (1989) despite having significant concentrations of the population relative to the rest of the island.²⁹⁹ Perhaps Charles Tilly's (1964) definition of urbanisation which has direct applications to the Baltic area in the Early Modern Period, is more relatable to the Icelandic evidence being considered. He (ibid., p.16) defined urbanisation as “...a collective term for a set of changes which generally occur with the appearance and expansion of large-scale coordinated activities in a society”.

Iceland traditionally is considered to have been without formal towns or urban centres until the later 18th century, when six of the former Danish trade monopoly ports received official royal town charter status (is. *kaupstaðir*) in 1786. These included: Reykjavík, Vestmanneyjar, Grundarfjörður, Ísafjörður, Akureyri and Eskifjörður. Eliassen (2012, p. 29) viewed this act as part of Danish colonial economic policy to establish towns in the far reaches of the realm and

²⁹⁹ These classifications based on Prehistoric and Dark Age Periods may however be too unrelatable to the early modern period trade monopoly ports.

considered only Reykjavík in this group to be a town in “any real, functional or structural sense”. By 1836, all except for Reykjavík had lost their charters (Agnarsdóttir, 2012, p. 125). But what about the period prior to this? Could it be argued that the trade ports were, in some respects, precursors to developing urbanisation in Iceland? There are some historians who in recent times have challenged the established narrative and the timeline on urbanisation in Iceland. Gardiner and Mehler (2013, p. 7) defined the 16th century Hanseatic trade port in Hafnarfjörður as *proto-urban*, highlighting distinctive features there which distinguished it from other settlements at the time, such as imported prefabricated German-style buildings and a copper-roofed church serviced by imported German priests. This argument is less convincing when we consider that the Hanse were only present in Iceland for part of the year and presumably with their departure so, too, went a large proportion of the short-term population of Hafnarfjörður.

Róbertsdóttir (2018) has contributed some refreshing observations on this subject and argued that smaller, informal (non-chartered) rural settlements from the 1700’s, have, to date, been excluded from discussions about the beginnings of urbanisation in Iceland. Although clarifying that she was not arguing for the presence of previously unrecognised towns in pre-industrial Iceland, she categorised these informal rural settlements into four main types – trade ports, farming settlements (is. *þykkvibær*), fishing settlements and rural centres – examining the diversity, character, influence, and seasonality of each (ibid., p. 333). In relation to the trade ports, the question of their seasonality was explored as well as their close proximity to and in some cases embeddedness within, existing fishing settlements. These embedded settlements, including Arnarstapi, were found mostly in the southwest and western part of the country. An important point to note is that around 1700, fishing settlements were the most densely populated areas in the country, in particular those near or next to a trade port (ibid., p. 361). There were eight settlements in this category, which are listed here along with their populations around the year 1700: Vestmannaeyjar (330), Eyrarbakki (155), Grindavík (180), Hólmur (Reykjavík) (220), Búðir (140), Arnarstapi (150), Ríf (205) and Ólafsvík (130), (ibid., p. 371). Róbertsdóttir described the trade ports as being “gateways to the outside world”, where not only were goods traded but also where human beings (officials, students, prisoners, and foreigners) were transported in and out of the country (ibid., p. 349). Finally, she highlighted how these ports may have stood out in their local contexts within Iceland, but could also be seen as parts of a larger network of trade ports within the Danish-Norwegian state, connecting Iceland to regions such as Finnmark in northern Norway, Greenland and the Faroe Islands (ibid., p. 350).

It could be argued that the trade ports were perceived as an ‘*exotic*’ feature within the

Icelandic society at the time of their operation. Certainly, by the 18th century, the buildings at the ports employed substantially different architectural styles built predominantly of imported wood and building materials than the typical vernacular turf-and-stone construction found across Iceland's countryside. Instead of Icelandic, the languages spoken predominantly at the ports, at least by the merchants and their associates, would have been Danish as well as Dutch/German (depending on if the trade had been outsourced to foreign crews). Even dress styles were likely to have been noticeably different from the locally worn attires. Luxury goods, including imported ceramics and foodstuffs unavailable or unaffordable to the majority of Icelanders, were also present or could be specially requested. The merchants even kept their own vegetable gardens. To what extent these 'exotic' centres exerted influences on their surroundings is difficult to ascertain.

One way to address this question of urbanism is to consider the trade monopoly ports through the lens of earlier discussions regarding pre- and proto-urbanism in relation to Viking and Early Medieval trade sites and to consider the methodologies archaeologists have previously used to define them. Much like the monopoly ports, the Viking Age towns such as Birka, Ribe and Hedeby, do not fit into traditional classifications of urban habitats. Skre (2008, p. 84) noted that "an urban community is composed of people whose main occupation is non-agrarian" and was typified during the Viking Age by craft production and trade. Though these activities also existed in rural settings in Scandinavia, what set the Viking Age towns apart was the density, size and permanency of their settlements, which were occupied by communities mostly engaged in these non-subsistence activities (ibid.). Hodges (1989, p. 23) defined an urban community as "a settlement of some size and population that is markedly larger than communities concerned with subsistence alone; the majority of its inhabitants, moreover, are not engaged in full-time agrarian pursuits. Such a community should include the presence of more than one institution". He added that it was not possible to sustain proto-urbanism, as a concept, maintaining that a site was either urban or it was not (ibid.). The turning point for many of these Viking towns in terms of longevity and progression from their early phases, was, first, in their use as administrative centres by kings and the Church and, later, the development of separate legislation applying specifically within the town areas (ibid., pp. 84, 87).

Skre (2008, p. 87) noted it was evident that Viking Age towns were conceived and developed as a specific settlement type from their beginning by groups aware of the idea of urban communities, rather than having naturally developed into an urban communities from earlier settlement types such as seasonal marketplaces. Excavations at former Viking Age towns, such as Birka have shown that the communities who lived there represented a

complex urban society with an economy based on trade and handicraft and that formed part of a trade network spanning the whole of northern Europe (Ambrosiani, 2008, p. 99). Staying with this theme of distant trade connections, Sindbæk (2008, p. 154) viewed communication in the form of commercial long-distance relationships practised at certain Viking trade sites, capable of being monitored in the archaeological record as imported cultural objects and raw materials, as being a crucial indicator of developing urbanism at one site over another. Viewing things in this way differentiates settlements during the Viking Age into “a ranked network with a few sites acting as hubs or nodal points for long-distance traffic within a widespread web of more local contacts” (ibid.). Sindbæk (ibid., p. 155) also noted that these early towns were the only places in Scandinavia where a large number of foreign traders and sailors would have lived amongst the local population on a regular basis, which he in turn believed fostered interpersonal cultural transmissions and innovations that otherwise could not have occurred.

The discussion of whether specific settlements were urban or not has also cropped up in Irish archaeology in relation to the debates about whether the pre-Viking Age monastic settlements represented indigenously developed towns and urban centres with market economies or were just monastic settlements involved in local trade and displaying limited manufacturing capabilities (Valante, 1998).³⁰⁰

Bringing the urbanisation discussion from the Viking Age back to the 17th and 18th centuries it is also worth considering how the situation regarding the development of towns and urban centres in Norway have been previously explored. Agnarsdóttir (2012, p. 116) previously noted that classic descriptions of urbanisation models did not fit in Iceland, although there were parallels with the developments in Norway. In a description which could equally apply to Iceland during the same period, Eliassen (1995, p. 23) described Norway as belonging “to the periphery in more than one sense. Geographically, economically and culturally, the country was far removed from the centre of the continent, and even within the kingdom of Denmark/Norway, Norway was secondary to Denmark itself...its population was smaller...its economy less developed, its inhabitants generally poorer and its towns fewer and smaller”. In many ways Iceland’s lack of urban centres is similar to northern Norway, where, as Eliassen noted, “north of Trondheim – [Norway] was completely devoid of towns until the late 1780’s” (ibid., p. 25). This is visually represented in Figure 105 which shows Iceland classified by Eliassen into urbanisation Zone III along with northern Norway, Sweden and

³⁰⁰ Vallante (1998) provided an excellent overview of the arguments for and against this and ultimately concluded that the monastic centres were not the “hub of a redistributive system, ‘proto-urban’, nor any sort of ‘town’” which they had often been represented as and also considered misleading the commonly accepted term ‘monastic town’ which she advocated should be excised from the lexicon (ibid., p. 18).

Finland. He (ibid., pp. 28-29) listed four formal categories of urban settlements that existed at this time in Norway, which included: (no. *kjøpstad*) a chartered trading town with full urban rights, (no. *ladested*) a loading place/export port without a permanent settlement, (no. *strandsted*) a coastal village that was simply a cluster of houses with no official trading rights, and (no. *bergstad*) a mountain/mining town.

To what degree, if any, did the monopoly ports that existed in Iceland align within these categorisations? They were in some respects a hybridisation of the *kjøpstad*, *ladested* and *strandsted* categories, albeit with some differences at least before 1786 when the six chartered Icelandic towns mentioned earlier were formally recognised. After this occurred at least six of the ports were essentially *kjøpstad* and the rest were a mixture of *ladested* and *strandsted*. For example, many of the Icelandic trade ports were sited next to an active farm or near to a fishing settlement, yet for part of the year the trade port itself would have been empty. The Norwegian towns, in particular the *ladested* types, were export-oriented settlements including the small mining towns (Eliassen, 2012, p. 32), whilst it could be argued that the Icelandic ports were more equally balanced between imports and exports due mostly to the fixed price system and relative pricing of commodities which governed the monopoly trade. The issue of the seasonality in the trade activity, the non-chartered status of the ports up until 1786, a lack of a local elite or any community of craftworkers, artisans and tradesmen living at the monopoly ports are potentially the main differences when Iceland's trade ports are compared to the *kjøpstad* towns. This was the case at least until the mid to late 1750's and 1760's when certain developments began to change the character of some of Iceland's trade ports, including the relaxation of the overwintering rule at a number of ports for the Danish merchants, and Skúli Magnússon's development of weaving workshops with attendant transformations to the textile manufacturing industry implemented in Reykjavík, which in turn attracted artisans and craftworkers into the settlement.

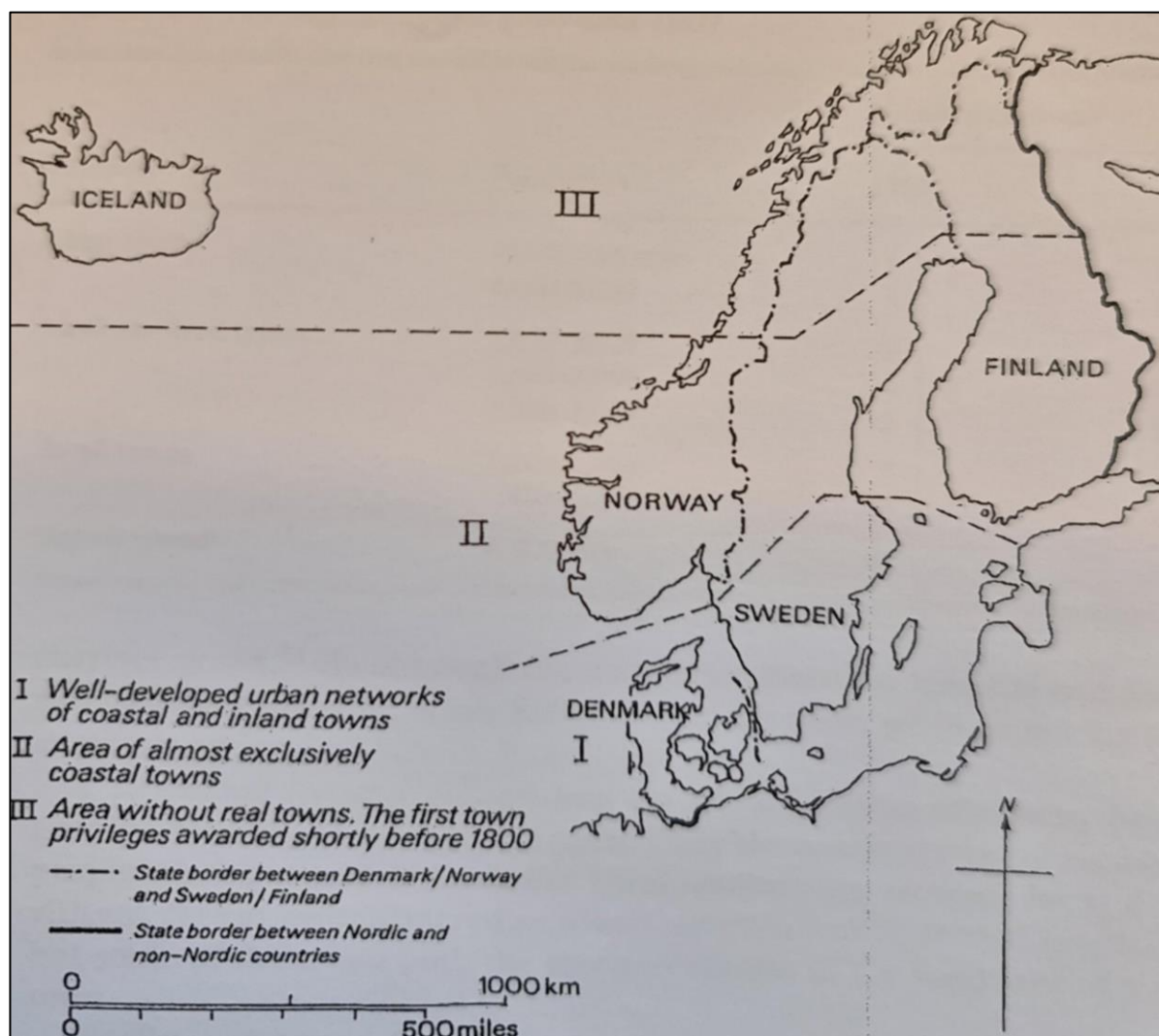


Figure 105. Zones of urbanisation within the Nordic countries c.1800. Source: (Eliassen, 1995, p. 27).

The issue of categorising the monopoly ports as a semi-permanent or seasonal settlements is further complicated by the fact that there existed a substantial level of permanent settlement at the nearby fishing settlements, as outlined above and highlighted by Róbertsdóttir (2018). These settlements were located adjacent to at least eight of the monopoly ports, some of which had much more substantial, sized concentrated populations than the dispersed farms on which most of the country's population lived at the time. Eliassen (2012, p. 31) noted that Hammerfest and Tromsø, in Norway, had populations of 79 and 151, respectively, in 1801 and labelled them as 'shadow towns', meaning that they had the "legal trappings but not the substance of real towns". He (ibid.) further noted some places in southern Norway that could be considered as 'micro-towns', which had populations of 200-400 and had some functions of real towns, but acted primarily as trading centres. However, there existed a degree of ambiguity within these formal classifications as Eliassen (ibid., p. 28) pointed out, particularly between the *kjøpstad* and *ladested* categories. He

referenced several examples of *ladested* settlements that had obtained the same export rights as *kjøpstad* settlements despite not having official charters.

In Iceland, it's clear that several of the monopoly trade ports, particularly those with associated with fishing settlements, displayed certain urban characteristics that entitle them to be included in a discussion about proto-urbanisation in Iceland. Population size is perhaps one of the biggest indicators. The Arnarstapi fishing settlement had a permanent population of 150 people around the year 1700, and this number increased to 800 when we include those farmers and other fishing communities living in its hinterlands, all of whom were within the trade district of the monopoly port which measured approximately (23km x 10km). Eliassen (*ibid.*, pp. 41, 45) described the varied structure of urban society in Norway and noted that towns large and small had an urban elite, who in a small town could dominate the life of the town using "private power" to a much greater extent than their counterparts could in a larger town. Projecting this structure onto the monopoly ports, the Danish merchants could certainly have played the role of an implanted urban elite and though no doubt influential with local magistrates and Crown officials they would have lacked any real power such as legislative powers over the ports operations. They were ultimately licenced trading agents of the crown and nothing more. There was, as Agnarsdóttir (2012, p. 116) put it, "no native merchant class, the dynamic element in society was lacking" with little if any capital investments and profits sent directly to Copenhagen. The Danish merchants almost certainly developed interpersonal relationships with the people who lived around the ports and were also their customers. It is likely that their interactions were similar to the relationships Eliassen (2012, p. 43) describes regarding the elites in Norwegian small towns who were on a first-name basis with members of poorer classes amongst whom they lived.

Agnarsdóttir (2012, pp. 116, 117) has elaborated on why contemporary towns and urban developments did not occur in Iceland to the same form and degree as in Norway and other jurisdictions within the Danish realm. She argued that they simply weren't allowed to develop by the Icelandic landowning farming elite who had a vested interest in controlling the lives of their tenant peasantry/workforce. In 1490, they banned foreigners from hiring Icelanders, and they also banned the overwintering of foreign merchants. Paraphrasing the views of Jón Ólafsson, an 18th century Icelandic antiquarian and author, she (*ibid.*, p. 122) provided a useful insight into the negative mindset and attitude held by him and some of his influential contemporaries regarding any potential Icelandic urban development stating that towns were not only un-Icelandic but were also dangerous places, "because the coast sucks all from the land" and that they "would be magnets for power-hungry foreigners". Not all Icelanders in high authority shared the views of Jón Ólafsson and wanted to stifle urban developments.

Agnarsdóttir outlined (ibid., pp. 118-123) the visions and proposals for the urbanisation of Iceland by numerous prominent Icelanders in the 17th and 18th centuries including county sheriff/magistrate (is. *sýslumaður*) Gísli Magnússon and Páll Vídalín, scholar Arngrímur Þorkelsson Vídalín, lawman (is. *lögmaður*) and the Dane Hans Becker, but it was not until as mentioned earlier, until Skúli Magnússon – the first native-born treasurer (is. *landfógeti*) – pushed forward his ideas for the “regeneration of Iceland” in Reykjavík during the 1750’s that things began to advance.

Greenland

The development of 14 fortified ports on the west coast of Greenland by the Danes during the period 1728-1797 is, like the situation in northern Norway, also relevant to the discussion of urbanisation and additionally colonisation within the marginal areas of the Danish realm during the 18th century (Figure 106). Thorkild Kjærgaard (2012) previously provided a useful overview of this mostly overlooked part of Greenlandic history and efforts of Danish imperialism, though he noted at the time it would have been considered “restauration” within the Danish-Norwegian state rather than specifically as an act of imperialism. There is no doubt the approximately 6,000 native Inuit Greenlanders would have viewed this act of ‘restauration’ somewhat differently. He (ibid., p. 151) described the settlements as being a wall of fortified *towns*, each armed with three to four cannons that included various buildings built mostly of wood, in the Norwegian style, but sometimes in stone, which were used for trade and secular administration including a house for the merchant, who unlike those based in Iceland, held authority not only over trade but also had secular powers, extending to military/defence. This was in contrast to the situation in Iceland, The Faroe Islands and Norway where the Danish administrative system was in place. In Greenland, the merchants themselves had the administrative power. Schools and churches were also added through the 18th century. As was the case in Iceland (in relation to the fishing settlements mentioned above), a native Greenlandic population lived around these towns in simpler structures made of turf, driftwood and whalebones, though they would have had a different relationship to the port than the settlements in Iceland. Kjærgaard (ibid., p. 152) stressed that despite their extreme marginal and peripheral geographical locations these “14 Greenlandic towns were full towns in the sense that they had got all of the institutions of administrative, economic and spiritual nature for urban life”. Kjærgaard (ibid.) further supported his argument by citing the census data of the towns which indicated that up to 1,800 people or 20-25% of the entire population of Greenland (including both Danes and Inuit) lived within them or adjacent to them. The same cannot be said of the monopoly ports in Iceland, so perhaps we are looking at a period during the 18th century when Greenland had more examples of semi-urbanised

settlements than Iceland. However there was substantially differing formal relations between the native Greenlanders and the Danish in comparison to the Icelanders and the Danish.

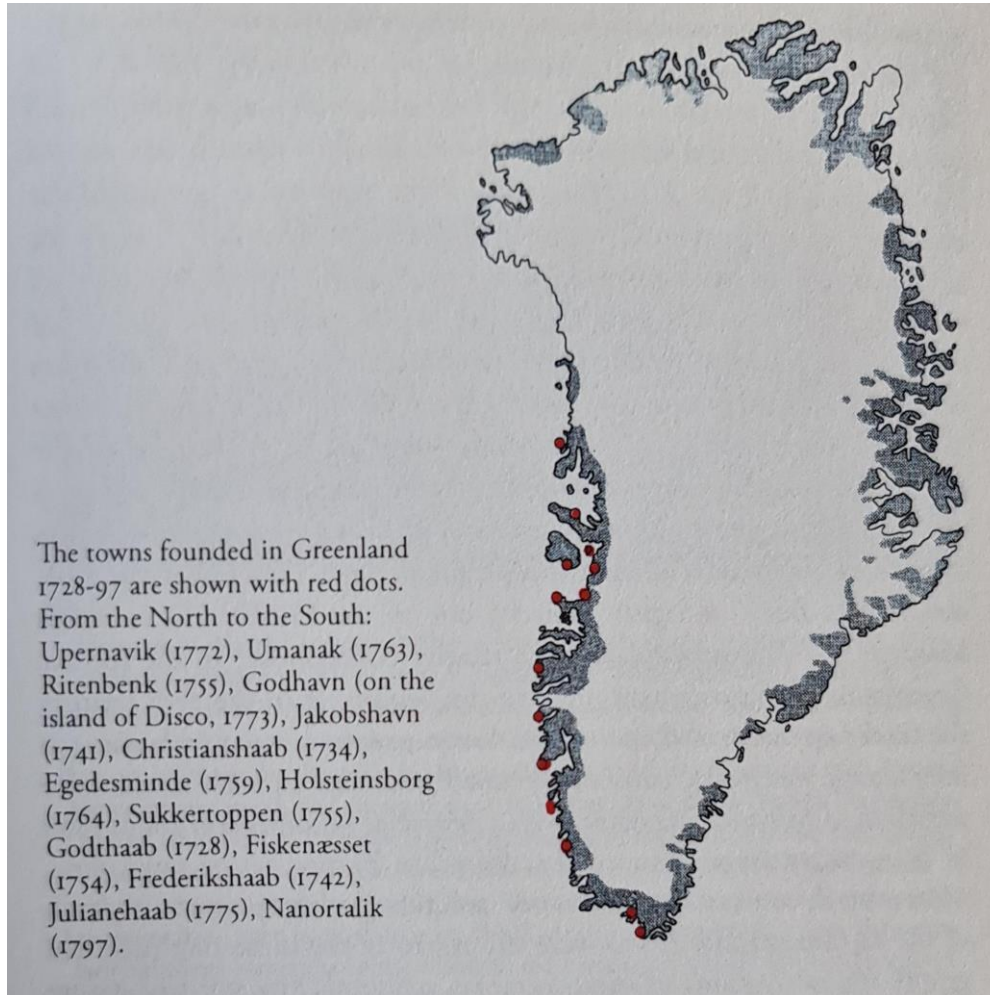


Figure 106. Location map of the 14 fortified 18th century towns founded in Greenland. Source: (Kjærgaard, 2012, p. 151).



Figure 107. Godthaab in Greenland depicted by Jacob A. A. Arøe in 1817. Source: The Danish Maritime Museum, Kjærgaard, 2012, p. 158).



Figure 108. Frederikshaab in southern Greenland depicted in 1817 by Jacob A. A. Arøe. Source: The Danish Maritime Museum.

Visually the Greenlandic towns bore a striking resemblance to the Danish monopoly ports in Iceland with the trade buildings centrally placed in the harbour area and specific buildings for the merchants adjacent to those. (Figures 107, 108). However, economically and culturally though, two very different systems were operating. The administrative system in Greenland was different from everywhere else within the Danish-Norwegian state and had more in common with the West Indies in terms of the formal relationship between the merchants and the local population (Hrefna Róbertsdóttir, pers. comm. 2021). The Greenlandic settlements were being heavily subsidised by the Danish Crown, whom Kjærgaard (ibid., p. 155) has argued, were pursuing higher priorities than simply monetary rewards. In contrast, the Icelandic ports were operated by private Danish companies and merchants on a profit or loss basis with no direct colonial agendas governing them but with many restrictions in place specifically to limit their influence and interaction with the local population and any development of the ports beyond being seasonal trade ports. The level of interaction between the merchants and the local Icelandic population seemed to grow and developed during the 18th century when small numbers of Icelanders were hired by the merchants to work at the merchant houses in the trade ports (Róbertsdóttir, 2001). Kjærgaard (ibid.) described the Greenlandic towns as imposed colonial towns developed by an external force in the same way as the colonial towns along the eastern coast of America developed in the 16th and 17th centuries. It is clear that different agendas within the Danish Crown were at work when it came to managing the affairs in Iceland and Greenland, both in terms of trade and development. How that difference manifested itself in the physical port infrastructures in both jurisdictions is another issue worth investigating, but one which is beyond the scope of this study. There have in recent years been some archaeological investigations in Nuuk (Noorliit Archaeology Project) and in Alluitsoq (formerly Lichtenau), (Turley, 2018).³⁰¹ Both are examining Inuit/European interactions linked to Moravian missions and trading stations. There is so far little published results from these projects but they at least suggest more comparative archaeological data may be available to researchers examining the issues outlined above in the coming years. For now however, we must rely for the most part on the documentary sources and contemporary accounts and depictions.

The Faroe Islands

The final peripheral region to examine in relation to urban settlement developments within the Danish realm are the Faroe Islands. Only one settlement in the Faroes, Tórshavn, the

³⁰¹ Both projects have a Facebook page where updates and images from the fieldwork have been shared. 1) The Noorliit Archaeology Project – <https://www.facebook.com/noorliit/> , 2) The Alluitsoq Project – <https://www.facebook.com/Alluitsoq/>.

An information poster for The Alluitsoq Project is also available online:

https://www.nabohome.org/uploads/cameronoturley/Turley_et_al_GSW_2019_Poster_Final_Small.pdf

capital city, can potentially be considered to have developed some pre-urban characteristics prior to the 18th century and remained the largest urban centre in the North Atlantic until the 19th century. A monopoly trade similar to that operated in Iceland was enforced by the Danes in the Faroes during the 17th century with Danish merchant travelling to both countries and from 1709, it became a royal monopoly, and under those rules, people had to travel to Tórshavn from all the other Faroese islands to trade their agricultural and fishery products for grain and other imports (Arge, 2019, p. 278; Jacobsen, 2012, p. 146). The trading infrastructure in Tórshavn was concentrated in an area known as Tinganes and dates from the 16th century (Figure 109). Surviving documents from the mid-16th century indicate that a variety of craftsmen and artisans were residents in the settlement including “a barber, a baker/brewer, a chandler, a sailmaker, porters, fishermen and female millers” (Jacobsen, 2012, p. 142). Attracted from the surrounding rural areas by the increasing employment opportunities which the military garrison in the town and trade station offered, as well as a number of other construction projects, Tórshavn’s population grew from 100-150 in 1600 to over 300 by the end of that century and more than doubled to 700 by the late 18th century, although it had declined by almost 25% in 1801. It wasn’t until 1908 though, that it received an official town charter (ibid., pp. 142-146). It is interesting that Tórshavn took so long to receive an official town charter in comparison to towns in Iceland and Northern Norway which began to receive their official charters in the 1780’s. Tórshavn was not established as part of an expansive economic policy by the Danes, it had organically developed as a town long before the end of the 18th century.



Figure 109. Tórshavn depicted by Rasmus Juel in 1710. Tinganes area circled in red. A. The old fort. B&C: batteries, D: store, E&F: warehouses, G: church, H: rectory, I: school, L: boathouses. Source: Andersen, N. 1895 (1964). *Færøerne 1600–1709*. Reprint. Tórshavn: Helge Justinussens Bókahandil).

The scale of the infrastructural development in Tórshavn as depicted by Juel in 1710 (Figure 109), was significantly larger than at any of the monopoly ports in Iceland during the same period. That does not necessarily mean that urbanisation fully developed in Tórshavn in this period but provides more evidence that varying levels of urban growth and development were occurring within the peripheral territories of the Danish-Norwegian state. What were the reasons behind these varying degrees? It's evident that domestic as well as external factors influenced the degree of urbanisation that a settlement achieved. Though similarly operating under a trade monopoly restriction, there was evidently less coercion from local Faroese elites to halt such developments than existed in Iceland, whereas Agnarsdóttir (2012, p. 117) described, “the landowners consciously regulated the non-growth of fishing towns along the coast and thereby the development of an urban class”, ultimately resulting in “no special incentive for urbanisation”. The Westman Islands may be an exception though amongst the

Icelandic settlements and trade ports. Since the 15th century fisheries had played a significant role in the life of the inhabitants than in most other places in Iceland and the islands enjoyed year-round royal trade from 1588 and it has been estimated that there were around 420 inhabitants living there in the 1620's (Róbertsdóttir, 2018, p. 346).

Perhaps a more pragmatic approach to the narrative of whether these monopoly ports represented urban centres or not is to follow Hans Andersson's (2016, pp. 62-63) argument that we should be conscious of recognising an urbanisation process occurring at regional levels and different scales at these types of places over extended periods of time, rather than being overly focussed on defining such places as being urban or not during specific time periods. He views "urban" as a static definition, aligned with a rigid typology of what the model for an urban place is. He also found limitations in the application of *central place theory* (Christaller, 1933 [1968]) from which much of the discussion of modern urbanisation has been framed. This theory sought to explain "how different types of settlements (differentiated by size and function) are located in geographical space" (Daniels, 2017, p. 1), where the central functions have more relevance for the larger surrounding region than the place itself (Andersson, 2016, p. 63). For Scandinavian regions in the Middle Ages (Iceland included), where central functions were often dispersed (an early form of decentralisation) and regions lacked dense concentrations of settlements, resulting in something that was "not urban but it fulfils urban tasks" (ibid.), central place theory isn't sufficient enough to explain.

Moving forward, it seems prudent that any future discussions of urbanisation, especially as it might relate to the monopoly ports, should be framed from a regional context in which value is also given to the relationships the ports had to their neighbouring settlements of fishing stations, farms and the local administrative setups over an extended period of time. Comparing these trade ports directly against established urban centres in Europe or colonial trading posts in North America is somewhat myopic and "overlooks the historical contexts in which urbanization evolves" (ibid., p. 64). Perhaps we also need to focus more on the reasons behind the issue of why the established and accepted models of urbanism do not easily fit settlement types such as the monopoly ports rather than on why these settlement types do not easily fit into established models. To avoid getting overly distracted by the semantics of the urbanisation discussion and to try to determine to what degree these sites were pre- or proto-urban in nature it's maybe better in this author's opinion to use the term '*pro-urban*', which establishes them as being preludes to towns and cities, performing some of the functions of these places without being fully developed urban settlements themselves.

Previous archaeological investigations of coastal trading sites in Iceland Although archaeological research in Iceland has, to date, been predominantly focussed on examining evidence from the Viking period, an increasing number of research and commercial excavations on trade, ecclesiastical and habitation sites from the medieval and post-medieval periods have been carried out over the last decades. Lucas (2012, p. 439), acknowledging this issue of a Viking period bias in the Icelandic archaeological record, argued for the immense potential of archaeological research into the post-medieval period in contributing to a more in-depth understanding of that period than had hitherto existed.

As a prelude to discussing the archaeological remains at the trade monopoly ports, the next section will summarise the results from four previously investigated early- to late-medieval coastal trading sites in Iceland in order to give the reader a sense of what trading ports in the centuries before the Danish Trade Monopoly Period were comprised of and what archaeological investigations have revealed about them. Figure 110, shows a location map of these coastal trading sites.

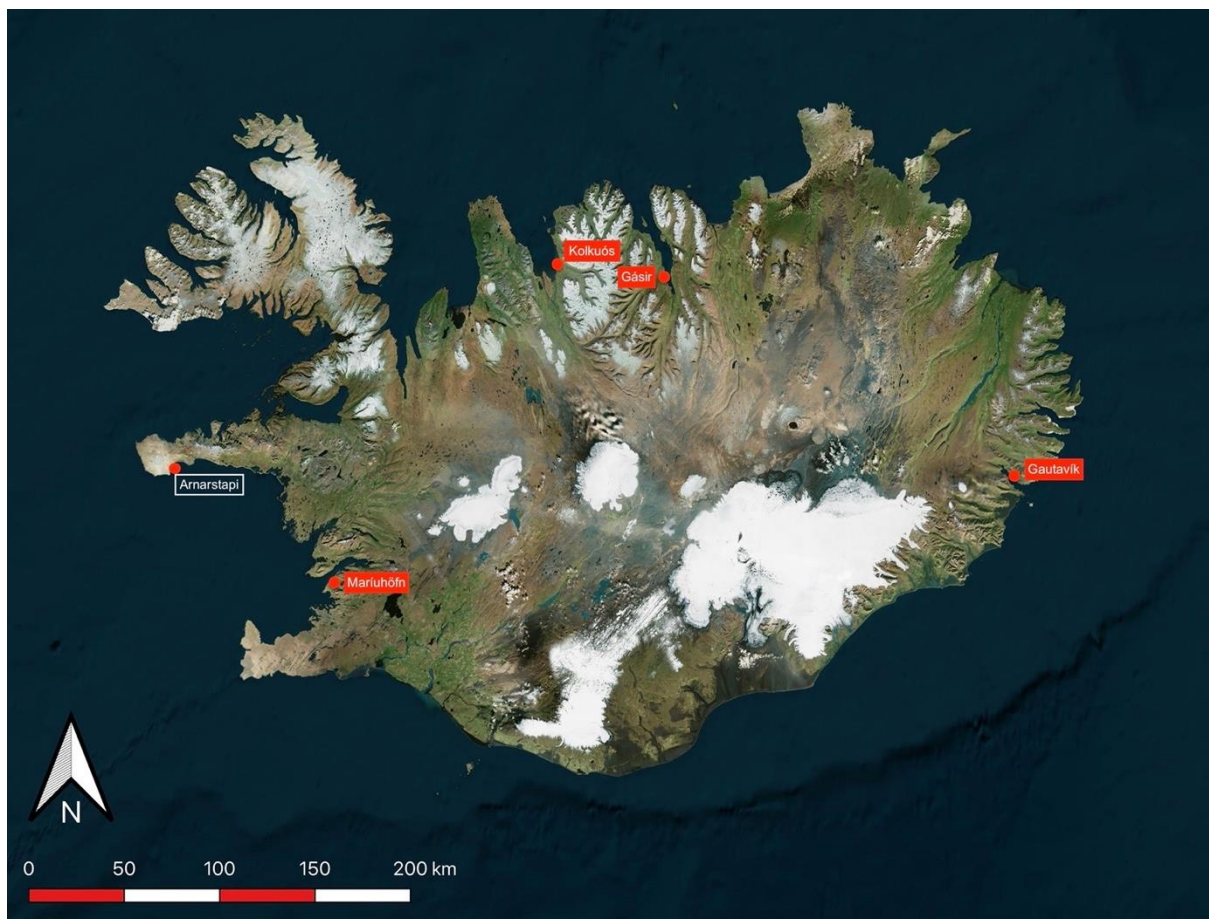


Figure 110. Location map of the early to late coastal trading sites previously archaeologically investigated in Iceland and summarised in this section below. The location of the case study site in Arnarstapi is also shown.

Gásir, Gautavík, Maríuhöfn and Kolkuós

Archaeological investigations at Gásir located in Eyjafjörður, northern Iceland, took place in 1907, 1986 and 2001-2006 and have revealed the existence of a large number of sub-rectangular structures interpreted as booths (is. *búðir*) and associated artefacts (mostly ceramics) dating the use of the site from the 13th to 15th century (Figure 111), (Hermannsdóttir, 1987; Roberts, 2005; Pálsdóttir *et al.*, 2007). The artefacts indicated “important evidence of export, import, and consumption, of international and local trade connections” at Gásir during this period (Pálsdóttir *et al.*, 2007, p. 22). The site likely fell out of use some time during the first half of the 15th century due to over-silting of the surrounding coastline, which would have prevented visiting trade ships from anchoring safely (Gardiner & Mehler, 2007, p. 389).³⁰²

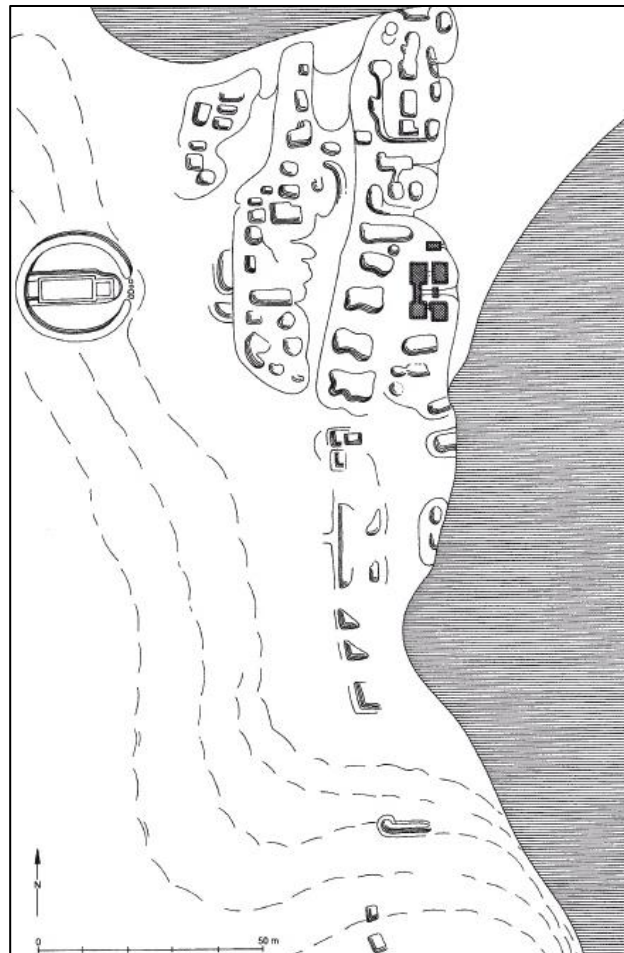


Figure 111. Plan of the archaeological remains at Gásir. Scale 1:1000. Source: Ellmers 1972, p. 215.

³⁰²The abandonment date is based on the analysis of ceramic artefacts recovered from the site.

Excavations of a former late-medieval trade site in the east of Iceland at Gautavík took place in 1979 (Capelle, 1982; Ólafsson, 1982). The site, which is located on the northern shores of Berufjörður, contained the remains of four clusters of stone and turf-built structures and associated artefacts (including imported ceramics), which were interpreted to represent the remains of a seasonal trading harbour site that was abandoned around the beginning of the 16th century (Ólafsson, 2005). The remains uncovered included an unusual, partially surviving brick-built circular structure, 2.1m in diameter which may have been a drying kiln or was used for train oil or sulphur production (Figure 112), (Mehler *et al.*, 2019, pp. 262-263).³⁰³



Figure 112. Circular brick structure uncovered in 1979. Image credit: Guðmundur Ólafsson.

³⁰³Unusual at least within an Icelandic archaeological context.

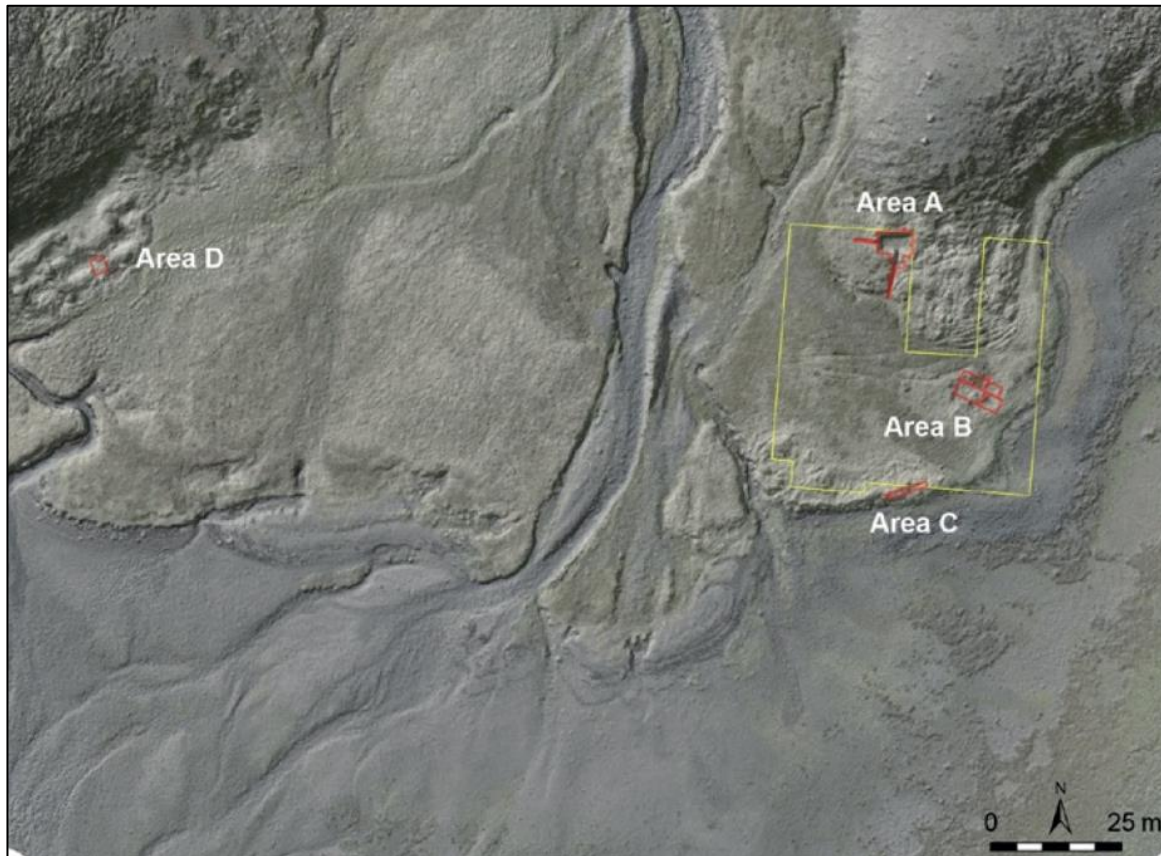


Figure 113. Orthophoto of Gautavík with the areas of the 1979 excavation trenches in red and the recent GPR survey in yellow. Source: (Mehler *et al*, 2019, p. 261, fig. 2).

Since 2015, the archaeological remains at Gautavík have undergone a re-assessment through new avenues of non-invasive research, including examination of recently uncovered documentary sources from the German archives which reference the former Hanseatic trading connections to the area, a ground-penetrating radar (GPR) survey over the site, a side-scan sonar survey of the surrounding bay which investigated potential maritime remains connected to the trading site and targeted analysis of the ceramics recovered using ICP analysis (*ibid.*), (Figure 113, 114). The conclusions of these new analyses suggested that trading activities at Gautavík ceased to exist shortly before 1600 and that the site may have been a farm site with a trade harbour attached to it rather than a specific stand-alone seasonal trade site. The underwater sonar survey did not reveal the presence of submerged shipwrecks or any remains of structures associated with the trade site, but the demonstration that the seabed in the bay had heavily silted up suggests one of the reasons for the site being abandoned, similar to the silting up observed at Gásir. The Gautavík trade site later relocated to the areas of Fýluvogur and Djúpvogur, at the mouth of Berufjörður, during the early 17th century.

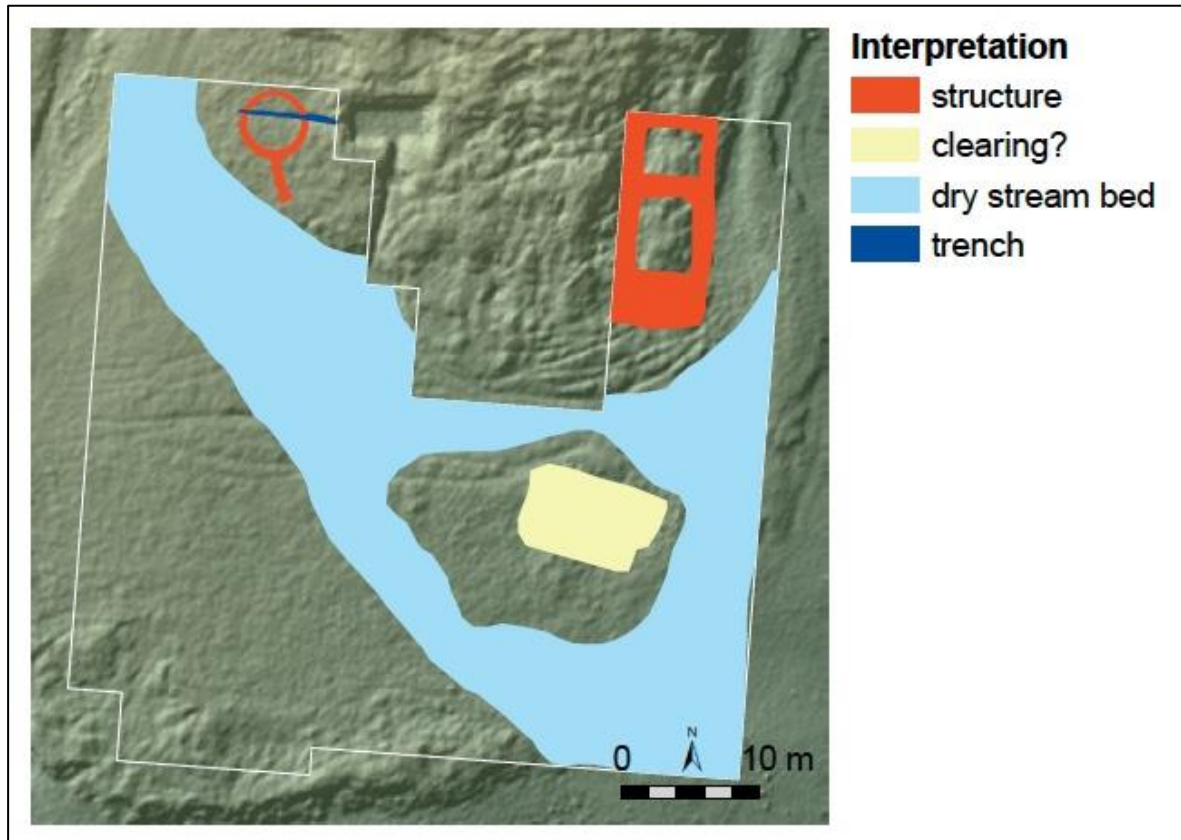


Figure 114. Interpretation map based on the GPR data. Source: (Mehler *et al.*, 2019, p. 264, Fig 7).

Excavations at Maríuhöfn, located in Hvalfjörður in the southwest corner of Iceland, took place during the summers of 1982-1985 (Þorkelsson, 2004). The site was referenced in Icelandic historical sources in relation to trade activities connected with the Skálholt bishop's seat and the parliament assembly site (is. *Alþingi*) in Þingvellir (Gardiner & Mehler, 2007, p. 393). Þorkelsson believed that the earthworks at the site were distributed across eight defined areas and excavated four trenches into them, identifying turf and stone walled booths and a naust (boathouse). Unlike at Gásir and Gautavík, no imported ceramics were recovered at Maríuhöfn and the artefacts recovered consisted of "bone, charcoal, fragments of iron nails, copper fragments and a spindle whorl (Þorkelsson, 1984, pp. 109-111), (ibid.). In 2006, the site was re-assessed and re-surveyed by Gardiner and Mehler (2007) as part of their research project on English and Hanseatic trade with Iceland in the later Middle Ages. They completed a digital terrain model of the original excavation area which confirmed and defined several of Þorkelsson's interpretations regarding the layout and orientation of the structures identified (Figure 115). Based on the artefactual assemblage, which lacked any obvious connections to trade or import, they considered that the "whole settlement could have been a fishing station" (Gardiner & Mehler, 2007, p. 414). More recently, Guðnadóttir (2012, p. 34) suggested that the lack of foreign artefacts from the site may relate to an

excavation and artefact recovery bias, in addition to the temporary nature of the trading operations at the site. However, without further investigations at the site, either theory that the site was just a fishing station, a temporary trade site or potentially a combination of both may be correct.

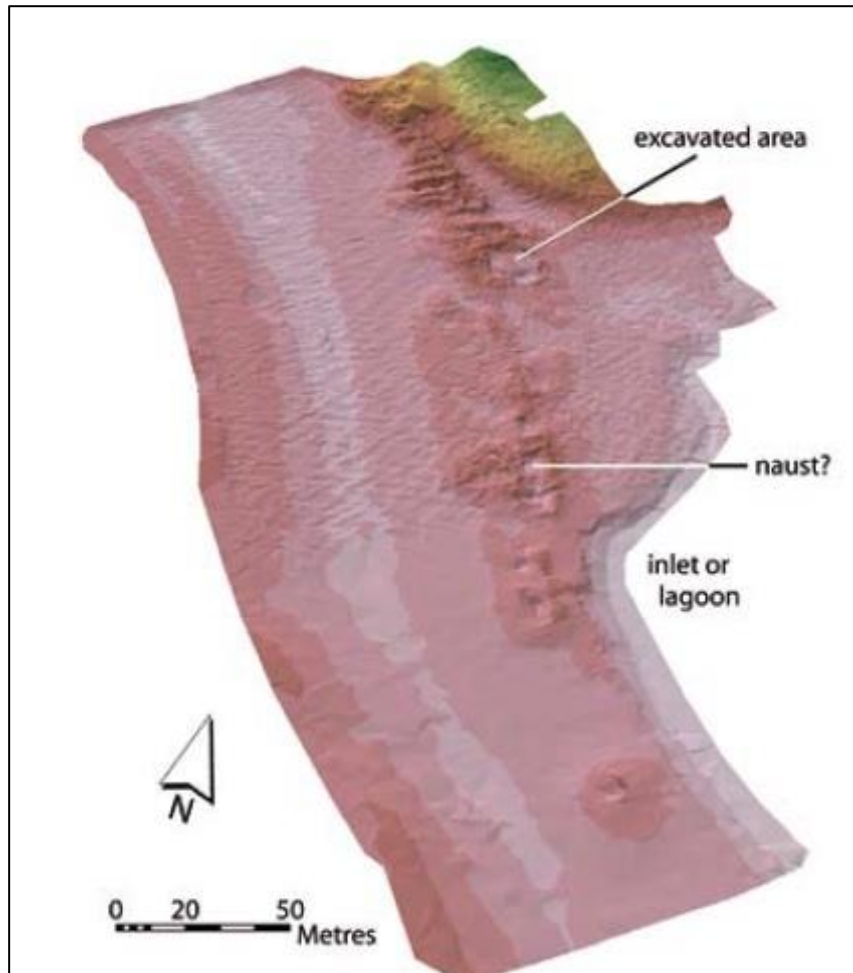


Figure 115. Digital terrain model of Maríuhöfn showing remains of structures and features. Source: (Gardiner & Mehler, 2007, p. 415, Fig. 14).

Lastly, Kolkuós situated in northern Iceland on the eastern coast of Skagafjörður was investigated during the period 2002-2012 (Traustadóttir 2018; Traustadóttir & Svenson 2012; Traustadóttir *et al.*, 2010). The harbour at Kolkuós is mentioned in the Icelandic sagas and historical sources, where its close ties to the episcopal see at Hólar are referenced from the late 14th century onwards (Traustadóttir, 2018). A range of features were recorded and excavated at the site and included the remains of “at least 80 structures and features, booths/houses, turf walls, floor layers, fireplaces, charcoal pits and other pits, besides a paved path/street” (ibid., p. 125), (Figure 116). The settlement area is interpreted to have been organised and planned with designated plots and paths between structures (ibid., p. 127). Around 1,700 artefacts were recovered which included a small assemblage of

imported ceramics providing a date range from the 11th-14th centuries (*ibid.*, p. 129). A large number (450) of iron boat nails were also found, which suggested that boat repairs was a common practice at the site (*ibid.*). Moreover, an underwater survey in the harbour area recovered an iron stocked anchor, a line sinker and evidence of granite ballast (*ibid.*, p. 134), (Figure 116). The trading settlement at Kolkuós was interpreted to have been a seasonal one that featured intensive periods of activity between the 11th-13th centuries, with rising sea levels forcing the abandonment of the site in the 16th century (*ibid.*, p. 135).



Figure 116. (left) Overview of the Kolkuós excavation showing structural remains and part of the pathway, (right) iron stocked anchor found during the underwater harbour survey: Image credit: Traustadóttir, 2018, p. 128, Fig 6, Jennica Einebrant Svensson, (right) Traustadóttir, 2018, p. 128, Fig 10, Jørgen Dencker.

Undoubtedly, additional trading sites beyond those mentioned above existed during the medieval and later medieval periods in Iceland, and Gardiner & Mehler (2007) provide a good overview of the historical and place-name evidence for these and the problems associated with using this evidence to identify new sites. They also highlighted the need to “establish the characteristic features of late medieval trading sites” so that examples of undocumented sites could potentially be recognised through their physical earthworks (*ibid.*, p. 420). An understanding of the relevant characteristics for trading sites would reduce

confusion, since their archaeological remains and the construction methods employed during this time for building temporary structures may make it hard to differentiate trading sites from seasonal fishing booths (is. *verbuðir*) or vice versa (ibid.). Mehler *et al.*, (2019, pp. 269-270) noted that medieval coastal trading sites in Iceland are generally still poorly understood and have suffered from oversimplified interpretations in the past. What is clear, however, is that the excavated examples of coastal trading sites have merely scratched the surface in terms of our understanding of not only the physical set-up at these sites but the operation and management of the trade itself at these places. Gardiner & Mehler (2007, p. 420) also highlighted this point and suggested the merit in comparing the archaeological evidence from the investigated trade sites against each other, as a way to inform and interpret how the “business of trade” may have operated differently at each place.

It's evident, in relation to the medieval and later medieval trading sites, that there was evidently little to no regularisation or uniformity between them in terms of layout or structure. Building styles employed for the structures/booths followed vernacular styles with some exceptions such as the circular brick-built structure from Gautavík. Potentially the most consistent factor for the establishment of these sites would have been the availability of suitable anchorages. However, as was evidenced with Gásir and Gautavík, anchorage conditions were not always favourable and deteriorated over time due to over-silting, often resulting in these sites being abandoned. Moreover, advances and developments in ship technology and the increasing size of trade vessels throughout this period would have favoured some trade sites continuing while others would have been abandoned due to unfavourable anchorages. Gardiner and Mehler (2007, p. 397) previously argued that the changes in trade sites up to the end of the Danish trade monopoly in 1787 came as a “consequence of developments in the commodities traded, the character of the trading systems and the nature of landing places required by ships”. As will be presented in the next section, our understanding and knowledge of trade sites from the 17th and 18th centuries is also quite limited from an archaeological perspective and an attempt to investigate and explore this issue was one of the goals behind the instigation of this study.

Chapter 5.1: An archaeological overview of the Danish Trade Monopoly ports

“An absence of evidence is not evidence of absence” (Martin Rees - Astrophysicist)

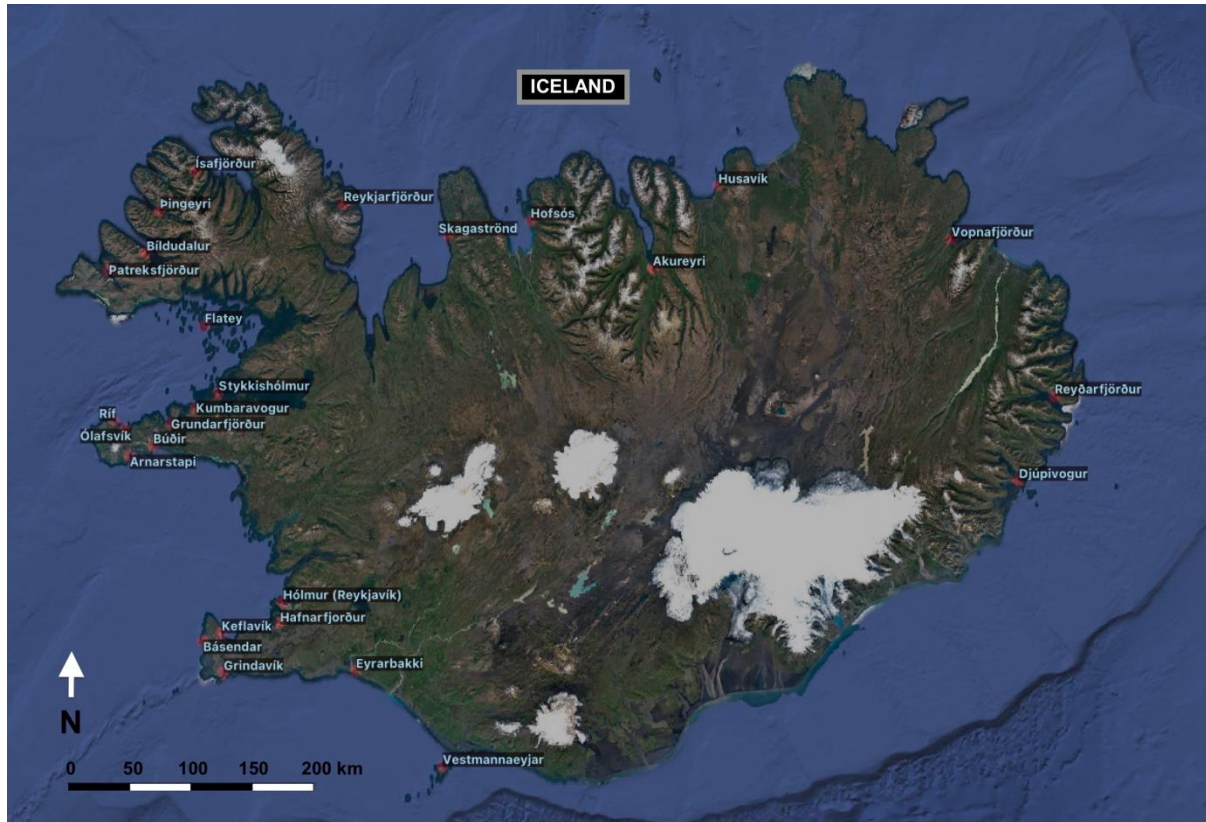


Figure 117. Location map of the licenced trade ports used by the Danish merchants in Iceland during the period 1602-1787. See Table 11 for a detailed timeline of operation for each port Source - Map based on (Gunnarsson, 1983, p. 58), using Google Earth background layer.

Rumsfeldian archaeology

The term *Rumsfeldian archaeology* coined by Wilkins (2009, p. 43), which contemplated the *known knowns* – the things we know we know, the *known unknowns* – the things we know we don't know and the *unknown unknowns* – the things we don't know we don't know; encountered during commercial archaeological investigations on Irish road schemes, could suitably apply when considering the issue of the archaeological evidence for the Danish trade monopoly ports in Iceland.³⁰⁴ ³⁰⁵ From the outset in relation to the trade ports, one is

³⁰⁴This term was inspired by the comments of the former United States Secretary of Defence Donald Rumsfeld (whom Wilkins describes as an 'existential poet') on the existence of weapons of mass destruction in Iraq. '*Rumsfeldian Archaeology on Irish Road Schemes*' was also the title of a presentation delivered by Brendan Wilkins at the Archaeology 2008 Conference at the British Museum <https://vimeo.com/5783874>

essentially working in an archaeological information vacuum for a period which spanned approximately 200 years and ended just over two centuries ago. The few *known knowns* identified from this period included ten formally protected (is. *fríðlýstar fornleifar*) archaeological areas with above-ground remains, situated at former Danish monopoly trade ports, including Básendar, Grundarfjörður (*Grundarkampur*) and Kumbaravogur (Figure 117).³⁰⁶ Previous archaeological research at these sites is detailed below. The *Melckmeyt* shipwreck could also be included in this category. Before this study began, these sites were known and established archaeological sites within the Icelandic archaeological record. However, though the sites contained physical archaeological remains potentially arising from activity during the Trade Monopoly Period, these remains are currently not properly understood or archaeologically investigated (excavated). Because of this, many of these sites should also belong to the *known unknowns* category. Although they were known trading port locations nothing more beyond that is known about them archaeologically.

The *known unknowns* category were identified through a process of archaeological assessment and, in particular, through the compilation by the author of an archaeological dossier on the trade monopoly ports as part of this study (K. Martin, 2017a), which essentially synthesized and collated relevant available archaeological data sets alongside historical references for each of the trade ports. Visual inspections at locations of former Danish monopoly trade ports around Iceland were also carried out as part of this assessment. The purpose of this exercise was to establish a baseline of where the archaeological evidence for the trade ports currently stood and to develop a list of potential target case study sites for further investigation, in order to reveal evidence for the third category of: *unknown unknowns*. The remains of a 17th century turf-walled structure investigated at Arnarstapi over two seasons as part of the terrestrial case study for this project was an example of an *unknown unknown*, i.e., new evidence which came to light as part of this project's investigations and something we didn't know we didn't know about before we began!

³⁰⁵ Transcript of Donald Rumsfeld's 2002 statement: "Reports that say that something hasn't happened are always interesting to me, because as we know, there are known knowns; there are things we know we know. We also know there are known unknowns; that is to say we know there are some things we do not know. But there are also unknown unknowns - the ones we don't know we don't know". Source:

<https://www.youtube.com/watch?v=REWeBzGuzCc>

³⁰⁶ A report by Georgsson (1990) named '*Skrá um fríðlýstar fornleifar*' prepared for the National Museum of Iceland (Þjóðminjasafn Íslands) listed these protected sites, many of which received their designations in the 1920's. The report is accessible through the following link:

<https://www.minjastofnun.is/media/skjol-i-grein/fridlysingaskra-med-vidbotum.pdf>

A proposed timeline for development at the trade ports

Turning the discussion now towards establishing a broader understanding of the physical footprint and infrastructural layout at the monopoly ports over the period 1602-1787, a tripartite timeline of development is suggested by the author. While there is clearly an evidence bias of documentary sources in favour of the mid-late 18th century, it is still possible to make some observations and interpretations for developments at these ports in the 17th century.

Early transition period 1602 - 1680

The first period could be described as a *learning the ropes* stage and took place during the transition of the Icelandic trade from being German-dominated and essentially monopolised to formally monopolised by the Danish. This was not an overnight occurrence, however, and German involvement in the Icelandic trade continued into the 1620's, as outlined previously in Chapter 2, (Holterman, 2020; Karlsson, 2000, pp. 124-127). During the early decades of the trade monopoly, the Icelanders themselves petitioned the Danish King frequently, calling for the abolition of the monopoly trade arrangements and permission for German merchants to trade again as they had provided better merchandise, more frequent services, and had sailed to more harbours than the Danish merchants (Aðils, 1971, pp. 67-85). Investments in trade infrastructure by the Danes, therefore, were unlikely to have been a significant feature in these early monopoly years. The first half of the 17th century was a period that also saw a significant number of foreign vessels active in the Icelandic trade, which were either being hired directly by Danish merchants or traded outside of the trade monopoly arrangements such as the merchant ships of Jonas Trellund that included the *Melckmeyt*. As was outlined in Chapter 3, the Danish state's involvement in numerous naval wars during the 17th century diverted vessels away from the merchant shipping fleets into the naval service, which dramatically reduced the number of vessels active in the Icelandic trade. Foreign traders particularly the Dutch often stepped in to fill this gap in the market

King Christian IV's decree in 1608 to tear down the German trade buildings in Iceland is revealing about the motivations of the Crown to legitimise and brand the monopoly trade as Danish from the beginning. Whether this decree was actually enacted upon on the ground at the ports in Iceland is not known, nor to date archaeologically established. It seems highly unlikely that the Danish merchants operating so peripherally from Denmark would have destroyed any existing and functional port buildings if they didn't absolutely have to, but without further archaeological investigations, this is merely speculation. The fact that a decree like this was issued in the first place, is itself, revealing and suggests that upstanding

structures did exist at the ports. Any inherited Hanseatic infrastructure (with the exception of Hafnarfjörður's with its German-style church and wooden buildings) would generally likely have been almost monastic in simplicity but otherwise functional (most likely shelters for goods storage rather than solely for people to occupy). These likely consisted of a combination of turf and stone-built booths, which were essentially rectangular earthwork structures 2-3m² in size that would have provided a base for a superstructure of tents (Gardiner & Mehler, 2007, p. 403), as well as potentially some boathouses (nausts) and in some cases larger storehouses (Figure 118).



Figure 118. Illustration of a Hanseatic trade port in Iceland by Olaus Magnus from the 16th century showing tent structures and other stand-alone buildings perhaps representing storage houses. Source: Olaus Magnus, *Historia de Gentibus Septentrionalibus*, 1555, p. 459.

The booths were likely multi-functional, being used as stores or temporary dwellings when needed. The two structures archaeologically investigated at Landey – located adjacent to the Kumbaravogur trade port in western Iceland – revealed evidence that of one was a storage shed with internal partitions, while the other had a small fireplace and was likely for sleeping in (Natascha Mehler, pers. comm. 2016), (see later section on Kumbaravogur). These were structures that would have been used most intensively for a period of only three to four months during the summer trading season after which they would be left exposed to the harsh Icelandic elements over the winter to be repaired or rebuilt the following year. It's

plausible that some of the more active Hanse trade ports also had larger stand-alone storage structures that would have been less transient in nature than the booths. One such structure is referenced as being bought and sold along with a booth in 1557/1558 (Hofmeister & Löhr, 2000 cited in (Gardiner & Mehler, 2007). The documentary sources indicate that the Hanseatic merchants would generally have slept on land while the ship's crew remained on board during the trading season.³⁰⁷ Crew sizes varied during this time, with larger ships (typically destined for Hafnarfjörður and Keflavík) carrying 40-60 persons (10-15 of these being merchants) and smaller vessels carrying crews of between 12-21 (Gardiner & Mehler, 2007, p. 406; Holterman, 2020, p. 141). Holterman (ibid.) references an outlier vessel carrying 77 onboard of which only 10-20 were crew with the rest being merchants and their servants. Apart from a reduction in crew size (mainly due to changes in ship design that required fewer crew and therefore reduced costs), there is no reason to think that the Danish merchants deviated too much from this arrangement as they were, themselves under the same summer trading restrictions as the Germans had been (Gunnarsson, 1983).³⁰⁸ One thing that is apparent from the contemporary written sources at the time is that the Danish merchants initially struggled to get a handle on the logistics involved in operating the Icelandic trade and from the local's perspective it clearly wasn't always business as usual. Aðils (1971, p. 299) remarked that, in his opinion, the quality of any inherited German buildings at the ports would not have been very good or usable over the long term for the Danes. Given the frequency with which the trade licences changed hands between the Hanse merchants, he felt they would have only invested minimal resources in these structures and most were likely falling into ruin.

There was a significant overlap of the former German trade ports and anchorages used by the Danish merchants (Figure 119), evidently for two main reasons. The first was that many of these locations were established nearby or adjacent to existing Icelandic fishing settlements, which provided a close supply of the main sought-after export commodity prized by both the Hanse and Danish merchants (Róbertsdóttir, 2018). There was a clear concentration of these fishing stations and an associated trade ports in the west and southwest of Iceland where the most accessible fishing grounds were known to be. The second reason is undoubtedly the favourable vessel anchorages utilised by the Hanse, many of which were located at river estuaries around the coast. As there were no large or permanent wooden quays or wharf structures built at these sites, the trade ships needed to anchor in deeper waters inshore and from there small boats or lighters ferried goods and people back and forth (Gardiner & Mehler, 2007, p. 406).

³⁰⁷<https://fishandships.dsm.museum/?tag=iceland>

³⁰⁸ The author has used the analogy in past presentations of a parodic scenario in the early years of the trade monopoly of the merchant store signs advertising hotdogs (is. *pylsa*) - Iceland's most commonly consumed fast food today - changing from (de. *wurst*) to (dk. *pølse*) but otherwise at least from the exterior setup, of things being business as usual.

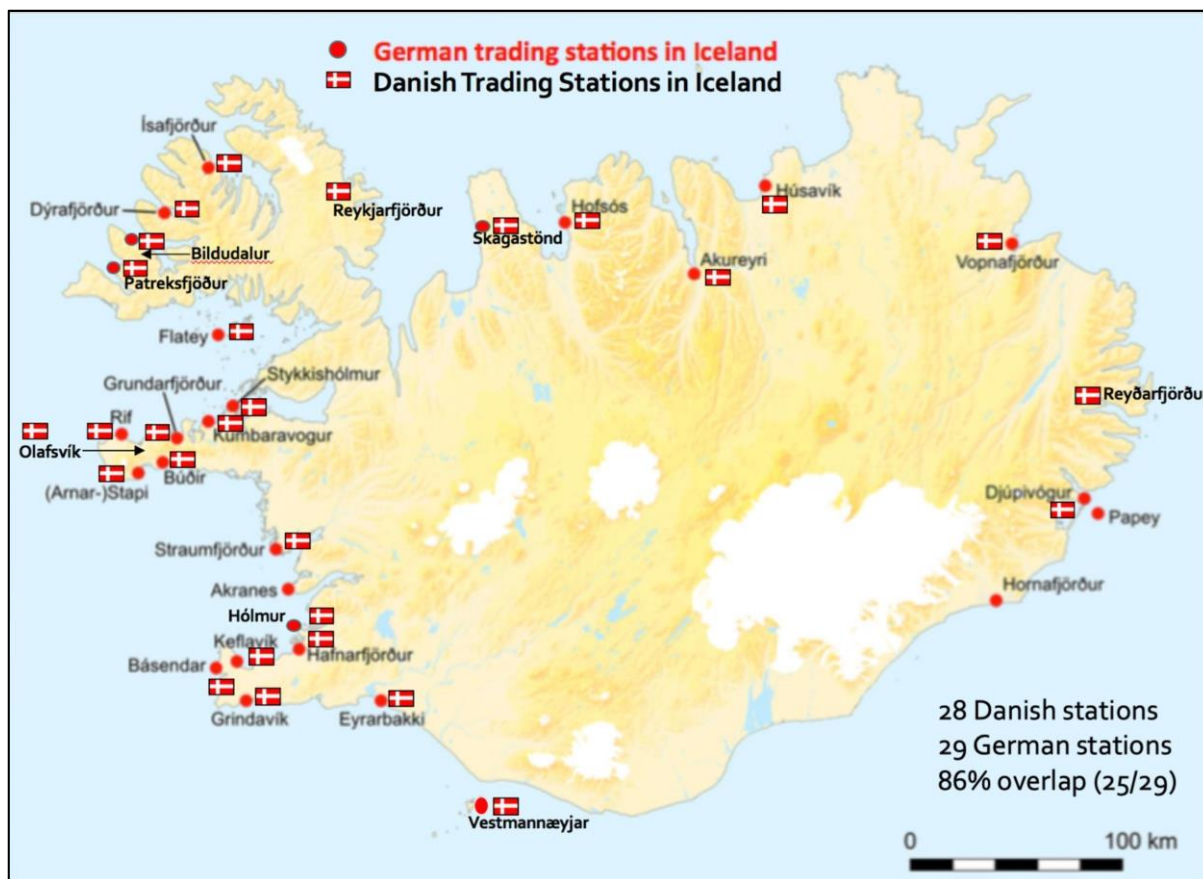


Figure 119. Location map showing the overlap of the Hanseatic trade ports (red dots) and the Danish monopoly ports (Danish flags) in Iceland. Source: Adapted by the author from the original by Joris Coolen, Mark Gardiner, Natascha Mehler, Libby Mulqueeny.

Consolidation period 1680 - 1759

By the start of this period, the reliance by the Danish on foreign-owned vessels had declined sharply, although not entirely (Gunnarsson, 1983, p. 65), as the Danish were no longer diverting merchant ships into the war effort and to be able to meet their own merchant shipping needs from their own resources. There was also a degree of consolidation occurring in relation to the trade ports in Iceland. Trading licences were auctioned with several ports merged into the same licence, while smaller trading ports were abandoned such as Kumbaravogur in 1662 and the temporary used port of Hrutafjörður sometime after this. The trade was diverted to larger ports nearby (Gardiner & Mehler 2007, 397). Trading at the Rif port in Snæfellsnes was discontinued in 1750 and instead moved to the nearby port of Ólafsvík (Aðils, 1971, p. 279). The cessation of trading at these smaller ports may also be linked to increasingly larger ships arriving, requiring deeper and more reliable anchorages.

Rif is a good example of this issue noted in the historical records. Due to over-silting from

the rivers Hólmkílu and Hólmkelsá the harbour became more challenging for visiting vessels to navigate safely (ibid., p. 278). In 1686, the merchants at Rif petitioned the parliament (is. *Alþingi*) for permission to reroute the rivers to correct this issue. This solution was obviously not sufficient to solve the problem, as by the following year they petitioned the Danish King to operate trade from the nearby port of Ólafsvík (ibid., p. 278). They still kept an under-merchant stationed at Rif, but evidently stopped any further investment at the port. Despite the poor anchorage conditions of the harbour, the value of Rif due to its proximity to the rich fishing grounds around Snæfellsnes was not diminished or affected. Between 1706 and 1715 the auction price of the trade licence at Rif increased by more than 30% from 1195 rdl. to 1600 rdl., which was the highest price paid for a trade licence at any of the Icelandic ports (ibid., p. 280). It's evident that certain ports continued to receive investment from the merchants while others which were falling out of favour were being left to fall into ruin. Aðils (ibid., p. 279) noted a building inspection report from 1719 that recorded the terrible condition of the trade houses at Rif and which by that point were stated to be 50 years old, built around 1670. This report included architectural descriptions that noted that the merchant's storehouse in Rif was

“12 stafgólf (20.52m) long, 14 álnir (8.82m) wide and the exterior was built of good wood.³⁰⁹ In the house was a storage room, merchants store with a platform/deck, bedrooms, and a pantry. Above the basement was a simple loft but double in height on the south side of the building as it was most important the merchant's goods were not destroyed or rotted. It is especially noted that the bedroom walls had been panelled all around and gives that reason to indicate that the shop area was not panelled except the platform area. The ceiling was in the shop and over the bedroom. Attached to the shop was the kitchen with a chimney which on the bottom was plastered and on top was boarded. This kitchen was a lot smaller than the shop because it was 8 álnir (5.04m) wide and 5.5 álnir (3.46m) long. Down by the sea, there was a salt-house 12 álnir (7.56m) long and 8 álnir (5.04m) wide and appears better built than the store because it was fully panelled and it had a double loft. In this salt-house, was a panelled room with a bed and a table, probably for the under-merchant or another lower ranked trade servant” (ibid., pp. 278-280).

³⁰⁹A stafgólf represented the distance between two pillars or rafters (unit of measurement for the size of houses in Icelandic turf farms, varying in length, often 2.5–3.5 cubits (about 1.5–2m) - Source: <https://snara.is/>. Þorsteinn Gunnarsson (forthcoming) has recently noted that a stafgólf was equal in distance to three Icelandic álnir (3 x 57cm) which equals 1.71m and this measurement is used in the main text.

Helgi Þorláksson's sketch of the merchant's storehouse at Rif (Figure 120) based on this description certainly helps to visualise how these buildings may have appeared but fails to convey the dilapidated nature which Aðils's reproduced passage from the inspection report referenced.



Figure 120. Drawing of the merchants' store at Rif based on a description from the 1719 building inspection report. Source: (Þorláksson, 2004, p. 70).

The same building inspection report also referenced the merchant's storehouse in the nearby port of Ólafsvík which was stated to be 30 years old in 1719. The house was described as a log cabin (is. *bjálkaús*) which was

“12 álnir (7.56m) long, with a double height loft over the whole house. It had a shop platform and a bedroom and a storage room. The ceiling extended over the whole shop and a partition wall was in place in front of the shop platform. On the platform was a shelf for the goods and a big table to write or put things on. The storage room was mostly thought for storing fish but the loft was used for storing corn” (Aðils, 1971, p. 301).

Aðils remarked that this internal layout is thought to have been how most of the merchant storehouses were set up in the 17th century (ibid.). Archaeological investigations have yet to confirm this conclusion. He further stated that “the wood for the houses was most often imported already worked and the beams were stacked on top of each other according to Norwegian tradition. The houses were solid and long-lasting if you maintained them and

tarred the outside every year. By the end of the monopoly period, they started to use plaster in the house construction” (ibid.).

The merchant record books from Arnarstapi referenced the merchant’s storehouse being constructed at the port in 1697. This building was still upstanding and used in 1774 when the record book was compiled. Subtle references like this indicate that at least for the middle to larger-sized trade ports, buildings connected to the onsite trading activities were constructed to be more permanent despite an existing ban on the merchants overwintering. The merchants would still have required structures to store their goods even though they may only have been actively trading at the ports for part of the year. A comprehensive review of the architectural details from the available merchant record books from each of the ports is one potential research avenue to establish a more detailed picture of the existing architectural infrastructure for this period, but this is unfortunately beyond the scope of this project. In this period, we also have evidence of direct investments in trade infrastructure outside of the trade ports, and in the case of Skálholt, directly within the estate of one the largest clients of the merchants at Eyrarbakki. Historical sources record that a merchant’s store was built at Skálholt between 1674-1698 (Gavin Lucas, pers. comm. 2019).

Final period 1759 - 1787

The relaxation of the long-established ban on merchants’ winter trading in Iceland likely had a significant impact on trade port developments. The ban was lifted at different times in various parts of the country: 1759 at Hólmur (Reykjavík), 1765 in the Westfjords and Eyrarbakki and became obligatory nationwide by 1777 (Róbertsdóttir, 2018). Róbertsdóttir noted, in relation to the beginning of winter trade at the Hólmur port, that there was a direct link between this change and the development of nearby Reykjavík as a manufacturing village with workshops run by the trading company, which attracted many different artisans including weavers, spinners, shipbuilders, carpenters, and rope makers (2018, pp. 347-349). Surviving maps, depictions, and historical accounts of the trade ports from the later 18th century can also be used to explore these places in higher resolution and to track the changes occurring at the ports during the final decades of the monopoly trade. A number of the ports will be further discussed in the following section based, primarily, on architectural references from historical sources.

Grundarfjörður’s merchant record books from 1763 provide some of the earliest information and record the trade port as having a warehouse (dk. *handelshuus*) built in 1761, a house for the main merchant (dk. *Overkiöbmandskammer*), a shop (dk. *Kramboed*), an old trading house (dk. *det gamle huus*) and an enclosure wall around the trade port that measured

139.5 álnir / 88m long (Reviderede regnskaber (Rev.Regn.) 571. Handelsregnskaber for de enkelte havne, 1759-1763). A map from 1766 of the trade station at Patreksfjörður, which Róbertsdóttir discovered in the Danish National Archives (Figure 121, 122) and published in (2012), offers a unique overview of the layout at one of the major Icelandic trading stations from the later 18th century. The map not only shows the internal layout and arrangement of the various buildings at the trade port but also indicates which of the structures were turf-built or of wooden construction, based on the conventions used to represent the house's walls. The new winter house (5), built in 1765 was likely the merchant's new permanent residence at the station (the ban on merchants overwintering at trade stations in the Westfjords region was abolished from 1765), (Figure 166). The old kitchen house (1) is depicted as a turf and stone-walled structure while all the rest are built of wood. The merchant's storehouse (4) was the largest building at the trade station and was subdivided into several rooms labelled with specific functions including barrel storage, corn/grain storage, general storage, shop area, the merchant's living/sleeping area (13) and even a specific location named the Icelander's seat (12). Presumably, this indicated the place where the local patrons who frequented the store would sit before being attended to by the merchant. Other defined areas of note which are represented on the map include (6) the vegetable garden, (7) cod fish storage, (8) various fish storage, (9) timber supplies, (10) Spanish salt pile, and (11) French salt pile.

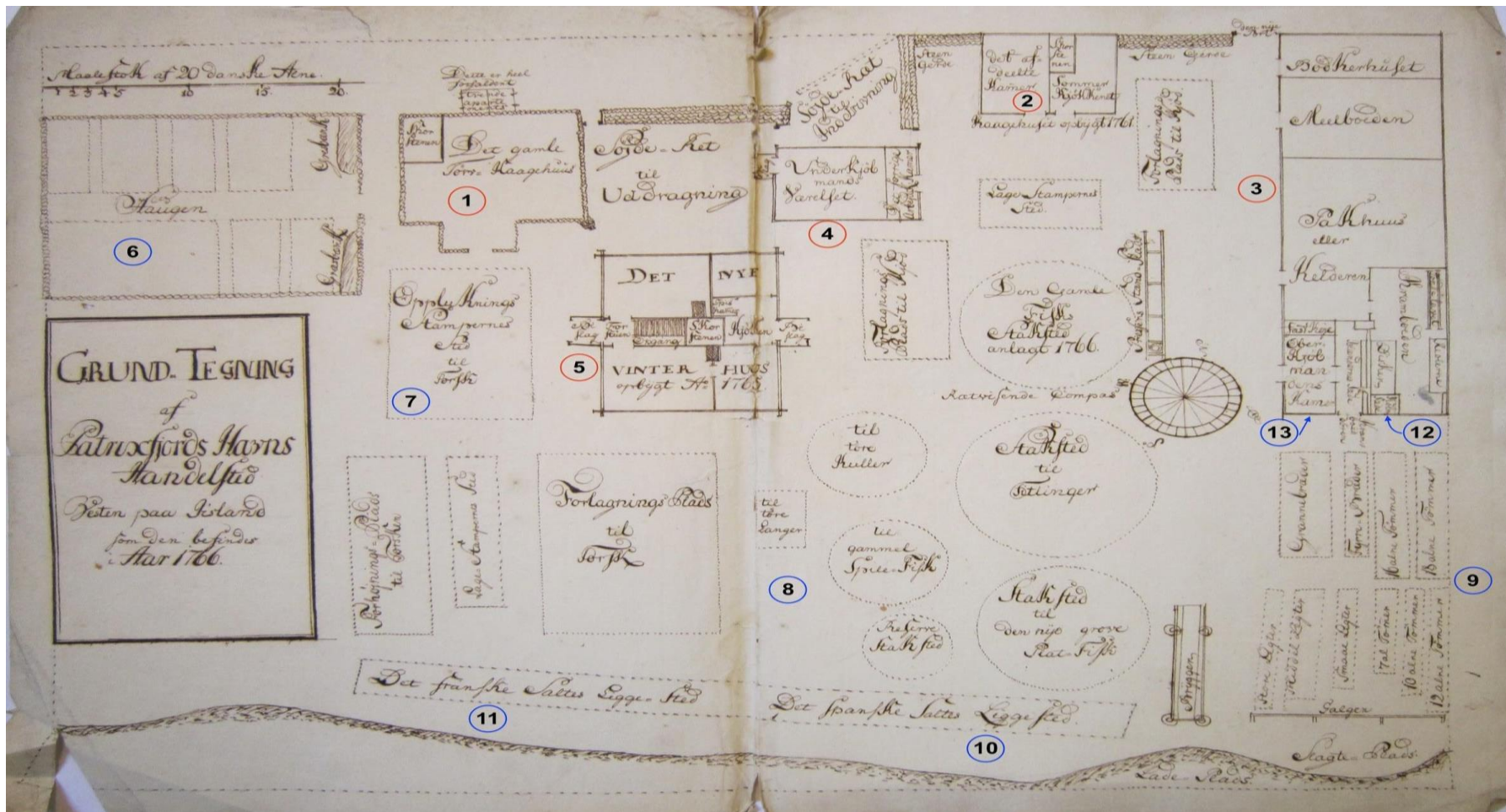


Figure 121. A map of the Patreksfjörður trade station from 1766 with annotations by the author. The buildings shown included: (1) The old kitchen house, (2) The new kitchen house, (3) The merchant's storehouse, (4) The under-merchants house and (5) The new winter house. Source: Direktionen for den kongelige handel. (Dir.Kgl.Hand.) 455. Diverse sager vedr. Island og Finmarken 1766–1801, nr. 243.

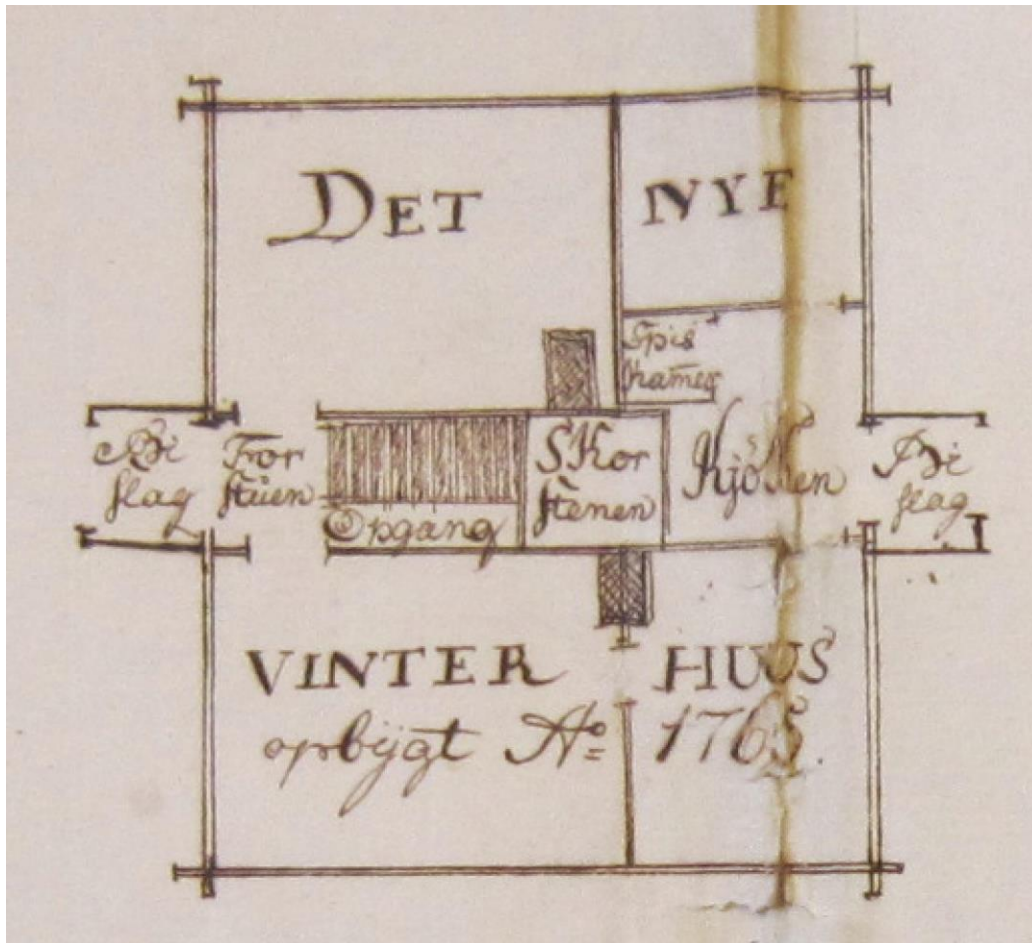


Figure 122. A close up of the merchant's new winter house (*Det Nye Vinter Huus*) at Patreksfjörður, built in 1765 in the *stokkahús* construction style (note the wall corners). Source: Direktionen for den kongelige handel. (Dir.Kgl.Hand.) 455. *Diverse sager vedr. Island og Finmarken 1766–1801*, nr. 243.

It can be interpreted that this map shows the Patreksfjörður trading station not only in a period of transition and expansion but also likely at a peak in its scale up to that point. At least two of the buildings are labelled as new, replacing earlier constructions and illustrating investments and improvements at the port. We can get a sense of the scale of the port at this time from a drawing by Pierre Ozanne from 1771 (Figure 123).³¹⁰ The relaxation of the overwintering ban on trade for the merchants had direct influences for the merchants on infrastructural developments and expansion at their trade stations. The merchants no longer confined themselves to small rooms or studios within the storehouses but instead built permanent family homes within the trade stations. Though made after the trade monopoly had ended, a painting of the trade station at Vopnafjörður from ca. 1800 illustrates how these

³¹⁰There is some discrepancy whether this was sketched in 1771 or 1772 with some sources <https://www.mbl.is/greinasafn/grein/377468/> indicating 1772 but others such as the Louvre website reference for the image states 1771.

stations may have appeared in the late 18th century (Figure 124). It depicts six wooden buildings which likely represented some of the types of buildings already discussed above in relation to Patreksfjörður. Four turf and stone-built structures are also featured, one of which may have been the home of a local tenant or official.

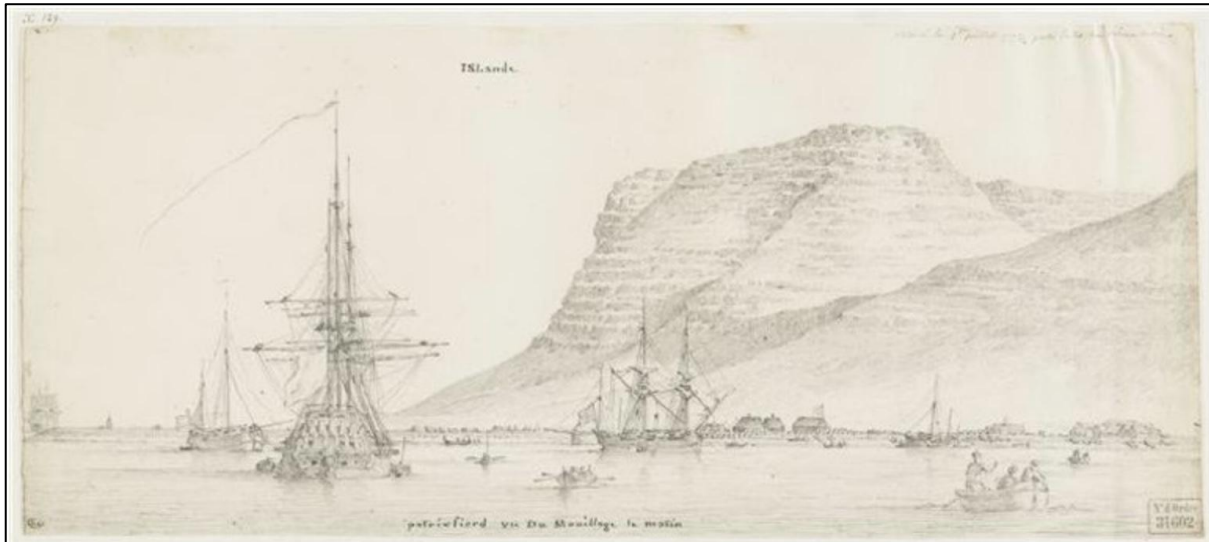


Figure 123. A sketch of the French frigate *La Flore*, a Danish merchant ship and smaller skiffs at the Patreksfjörður trade port in 1771/72 by Pierre Ozanne. Source: Louvre Museum, Inventory nr. 31602. Public Domain.



Figure 124. Vopnafjörður trade port around 1800. Source: National Museum of Iceland (Þjóðminjasafn Íslands), Catalogue ref, L&Pr. 1898-299, C.Ch.B.

The trade station at Básendar trade is another good example providing architectural details about the buildings that existed there (Figure 125). The merchant Hinrik Hansen's account, which described fleeing a devastating flood that occurred there in January 1799, mentioned his family home of several rooms with a loft above, in which it was possible to stand upright. He shared the house with his wife, four children and a housekeeper (Traustadóttir, 2000, p. 30). The official damage report made afterwards added further details about his home noting

“south wall gone, that which faced the sea, and likewise half the north side. Windows broken and gone. All rooms piled with sand, 1-2 yards deep. The stone foundation is jumbled and two floor posts in the west end have salvaged it from total destruction” (ibid., p. 37).

The ruins of this building and at least 6 other structures likely connected to the monopoly trade activity are still visible at the site today; but without archaeological excavation, it is not possible to determine definitively either phasing or interpretations for the remains. (Figure 125).



Figure 125. Conjectural interpretation map of the Básendar archaeological remains. Source: Ferlir.is. Public Domain.

Traustadóttir's (2000) review of the historical sources and an onsite inspection of the archaeological remains at Básendar catalogued evidence for up to 29 potential archaeological features at the site. No archaeological investigations were conducted on the remains so the interpretations are based solely on her visual inspections. The largest building known to be at the site was a timber-built warehouse (is. *Vöruhús*) that was 20m long and 12-15m wide. The historical records anecdotally note the merchant's intentions in the weeks after the flood's destruction to build a temporary 'pop-up' store within these ruins in order to carry on selling goods at Básendar. The archaeological remains of this warehouse are said to be easily visible and also evidence of a front yard abutting the building was also reported (ibid., pp. 35-36). A third timber building, recorded approximately 10m east of the warehouse, was thought to be the remains of the merchants' store (is. *Sölubúð*) which was noted to have had a clearly visible structural footprint of 9m long and 6m wide (ibid.). A fourth building at the site was the fish-oil booth (is. *Lýsisbúð*), which written records say was built in 1798 but destroyed totally by the floodwaters. No discernible

archaeological remains for this building were noted, although they may lie within what is interpreted to be the jumbled ruins of up to four structures north of the shop and merchant's house (ibid., p. 37). Other ruins at the site were thought to have represented up to three additional structures set in a row, including a small storage structure, a shack and a specific structure where liver was boiled (is. *Lifrarbræðsluhús*), (ibid., p. 38). A fenced garden area, recognised archaeologically as a feature 1.2m wide and 10-14m long, was also catalogued at the site (ibid.). Traces of two further buildings at the site connected to the monopoly era are listed as an animal shed (is. *fjós*) and a hay barn (is. *hlaða*). The merchant's account of fleeing the floodwaters with his family said that they sheltered in an animal barn that "stands a bit higher and distant from the sea than the house" and from there they ran to the hay barn before that too was destroyed. Archaeological remains of these two buildings were identified in the form of stone walls 30-80cm high associated with piles of stones likely to have been part of an animal fold (ibid., pp. 43-44). One archaeological feature still present and discernible in the harbour area, and clearly associated with the visiting trade ships is an iron ships mooring /hitching post (Figure 128). This would have been used in combination with a number of other moorings allowing the ship to be "hog-tied on both sides and from bow to stern...so they would not turn in the wind" (ibid., p. 33). There are evidently more of these mooring features still existing at the site, although they are now underwater (Mehler *et al.*, 2019, p. 266).

Aðils (1971, pp. 302-303) briefly outlined the number and function of buildings at a few of the other trade ports during this period and these are worth mentioning here to get a better sense of the changing scale and growth which occurred towards the end of the Trade Monopoly Period. In 1777, there were three houses at the Ólafsvík port connected to the trade but by 1787 this had increased to six buildings (ibid.), (Figure 126).



Figure 126. Ólafsvík trade port depicted in 1785. Six buildings related to the port are shown. B: Living house, C: Two storehouses, D: Under-merchants house, E&F. Warehouses, Q: Wooden Jetty. Source: Verslunarstaðurinn í Ólafsvík. S. M. Holm. Det Nationalhistoriske Museum, Frederiksborg Slot.

Similarly, the trade port at Akureyri developed from having two buildings (a general storehouse and a slaughterhouse) in the mid-17th century to four buildings by 1752 (Aðils, 1971, p. 302). The mid-17th century storehouse was re-used as a slaughterhouse when it became old and run down and a new storehouse was built to replace it (ibid.). Such repurposing and re-use of buildings at the trade ports was, Aðils suggested, a common occurrence. A buildings inspection report from the port in Akureyri compiled in 1774, referenced a storehouse built in 1747 with a bedroom, kitchen, storage room and a

warehouse (is. *pakkhús*) for storing wool. In addition, a separate slaughterhouse is mentioned as having been built in 1763. Another building defined as an oil/fat production house (is. *mörbúð*), was also recorded as having been built in 1770 and included a room for the under-merchant, an apartment for the trading servant and a small room referred to as a cooper's room (is. *beykisklefi*). The old storehouse built in the early 1700's is also referenced and it was apparently still being used in 1774 as a makeshift office by the visiting sheriff (is. *sýslumaður*) during his visits to the Akureyri trade station. By 1787, Aðils (1971, p. 302) noted the construction of a living house 19 álnir (11.97m long) by 14 álnir (8.82m) wide, with four rooms in addition to a downstairs kitchen, three loft rooms, a new warehouse (is. *pakkhús*) and various outhouses. At this time, the Akureyri trade station also included two 20 álnir (12.6m) long fish-work houses erected in Ólafsfjörður and Hrisey (ibid.).

Lastly, Aðils (ibid., p. 303) considered Eyrarbakki in his compendium on the monopoly ports, stating that by the later 18th century (1774) no other port had as many buildings as Eyrarbakki. The historical sources he referenced recorded:

“ten big and small houses there. A merchants' store built in 1755, 18 álnir (11.34m) long and 13 álnir (8.19m) wide with shelving for the goods, a shop counter and a merchant room with a storage room at one end. Nearby were two slaughterhouses, 29 álnir (18.27m) and 24 álnir (15.12m) long, one included a neat under-merchant apartment, a worker's room in the loft and a room downstairs for making butter. The other slaughterhouse contained a cooper's workshop (is. *beykisverkstofa*), a kitchen and a room for storing meat. Another house was for oil/fat production (is. *mörbúð*) which contained a large kettle for melting fat. There was a strongly built living house made from logs (is. *bjálkavið*) which was 18 álnir (11.34m) long, 14 álnir (8.82m) wide with six rooms, a kitchen and a storage shed which was used for winter trading and as living quarters for the trade servants over the winter. Finally, there was a smithy and a cow stall for eight cows in addition to sheds and outdoor cabins.”

According to Aðils (1971) the merchants wanted nicer houses by the latter decades of the 18th century and, in general, more comfort at the ports (ibid.). Their living rooms were being painted and decorated with wallpaper, tiled ovens (is. *bíleggjaraofnar*) were installed in their offices and day rooms and baking ovens in their kitchens. Porches were being added to their house fronts along with shuttered windows and fenced flower and food gardens. These

images Aðils conveyed of the comfortably furnished homes of the merchants at the monopoly trade ports forming a nucleated footprint along with a variety of other buildings, many of which were built for specific functions in the later 18th century, are a far cry from the simple turf-and-stone built booths and timber multi-functional timber storehouses from the early days of the monopoly period.

Buildings constructed at least from the mid-18th century onwards were customised for specific purposes and used either habitation, goods storage or processing prior to export. These were generally clustered together, with the whole port complex often enclosed by a boundary wall, embankment or fence that offered both privacy and protection. The boundaries may also have represented something less tangible in terms of how they might have been perceived by the Icelanders arriving to trade at the ports, as previously discussed in Chapter 5. The catalyst for the development of the trade ports seems to have been linked, in part, to the trade companies and merchants better establishing themselves in the Icelandic trade and relying less and less on foreign assistance, all of which seems to have happened after the latter decades of the 17th century. Lifting the ban on winter trade during the mid-18th century, evidently had the greatest impact in terms of investments in building infrastructure at the ports. The simple turf-and-stone vernacular structures, which would have been more common in the earlier days of the trade monopoly, were superseded by predominantly wooden structures built in a contemporary Norwegian/Danish style. Once winter trade became established, the merchants were more permanently based at these ports even raising families within them.

Overview of the archaeological dossier on the trade monopoly ports

The archaeological dossier on the trade monopoly ports (K. Martin, 2017a) was essentially a desk-based study of existing archaeological knowledge and an assessment of potential surviving remains at these sites associated or linked to activity from the Trade Monopoly Period. Establishing an archaeological baseline for the trade monopoly ports was an essential preliminary process for preparing to undertake the terrestrial element of this study and allowing an informed assessment of the further archaeological potential at these sites which this study could explore. Overall, including both permanent and temporary categories, there were 29 trade ports located around the Icelandic coastline, primarily on the western side of the country, which the Danish merchants used at various times during the monopoly period (Figure 117). Many of the former trade ports are today located within the confines of modern Icelandic cities, towns, and villages, and are themselves used as working harbours

mainly in relation to the fishing industry.³¹¹ There are also some examples of ports that were abandoned in the late 18th century and that never subsequently developed into larger permanent settlements during the 19th century. For obvious reasons, former trade ports in this category hold the most archaeological potential for retaining intact, undisturbed remains. However, many of these sites with intact remains received formal cultural heritage protection designations in the early part of the 20th century, which for this study added a layer of complexity for this study when selecting a site for further archaeological research. This protection designations effectively closed off access for archaeological excavations at most of these sites meaning that it was impossible to select a case study site based solely on its assessed archaeological potential.

Port Name	Date of use	Previous Hansa trade Site	Official No. Ships per year	Port Type	Arch Remains	Previous Arch Research/ Survey	Visit	Protected	Arch Potential
Vestmannaeyjar	1602-1787	Y	1-2	F	N	N	Y	Y	Low
Eyrbakkí	1602-1787	Y	1	F&S	Y	Y	Y	N	Medium
Grindavík	1602-1640 & 1664-1787	Y	1, After 1664 shared with Bäsendar	F	N	Y	Y	Y	Low
Bäsendar	1640-1787	Y	1, shared with Grindavík	F	Y	Y	Y	Y	High
Hafnarfjörður	1602-1787	Y	1, sometimes shared with Keflavík	F	N	N	Y	N	Low
Keflavík	1602-1787	Y	1, sometimes shared with Hafnarfjörður	F	N	N	Y	Y	Low
Hólmur/ Reykjavík	1602-1787	Y	1	F&S	N	Y	Y	N	Low
Straumfjörður*	1669-1672	N	1, shared with Búðir	F&S	N	N	Y	Y	Low
Arnarstapi	1602-1787	Y	1	F	Y	Y	Y	N	Medium
Búðir	1602-1641, 1662-1787	Y	1	F&S	N	Y	Y	N	Low
Olafsvík	1602-1787	Y	1, shared with Ríf	F	N	N	Y	N	Low
Ríf	1602-1750 ?	Y	1, shared with Olafsvík	F	N	N	Y	N	Low
Grundarfjörður	1602-1787	Y	1, shared with Kumbaravogur	F	Y	Y	Y	Y	High

³¹¹ Modernisation and development at many of these ports since the 1960's has resulted in much of their previous archaeological remains being removed without any record.

Kumbaravogur	1602-1662	Y	1, shared with Grundarfjörður	F	Y	Y	Y	Y	High
Stykkishólmur	1601-1787	N	1	F&S	N	N	Y	N	Low
Flatey	1777-1787	Y	1?	F	N	Y	Y	N	Low
Patreksfjörður	1602-1787	Y	1, shared with Bildudalur	F&S	N	N	Y	N	Low
Bildudalur	1602-1787	Y	1, shared with Patreksfjörður	F&S	N	Y	Y	N	Low
Þingeyri / Dýrafjörður	1602-1787	Y	1, shared with Ísafjörður	F&S	N	Y	Y	N	Low
Ísafjörður	1602-1787	Y	1, shared with Dýrafjörður	F&S	N	N	Y	Y	Low
Reykjarfjörður	1602-1787	N	1, shared with Skagaströnd	Shark Liver Oil	Y	Y	Y	N	Medium
Hrútafjörður*	1662-?	N	?	F&S	N	N	Y	N	Low
Skagaströnd	1602-1787	Y	1, shared with Reykjarfjörður	S	N	Y	Y	N	Low
Hofsós	1602-1787	Y	1	S	N	Y	Y	Y	Low
Akureyri	1602-1787	Y	1	S	N	Y	Y	N	Low
Husavík	1614-1787	Y	1	S	N	N	Y	N	Low
Vopnafjörður	1602-1787	Y	1	S	N	N	Y	N	Low
Reyðarfjörður	1602-1787	N	1	S	Y	N	Y	N	Medium
Djúpivogur	1602-1787	Y	1	S	N	Y	Y	N	Low

Table 11. Trade ports* used during the Danish Trade Monopoly Period in Iceland (1602-1787) with their accessed archaeological potential colour coded into red (low), orange (medium), green (high). *Two temporarily used ports Hrútafjörður and Straumfjörður are also included. The port type designations of F or S indicate Fish or Slaughter (Livestock). The archaeological remains category is marked with a Y if in-situ remains were visible on the ground or a structure from the monopoly period still stands at the site. The ? indicates where the information is unknown or uncertain. Source: (Gunnarsson, 1983, p. 59, Table 5.1) with some additional columns added by the author.

Archaeological remains at a number of the former trade monopoly ports have previously been investigated and surveyed. A brief overview of each of these investigations is outlined below. Table 11, also shows the high degree (more than 80%) of overlap at most of these ports with previous Hanseatic trade activity. Holterman (2020) has also produced an excellent timeline of the monopoly holders for the Hanseatic trade ports in Iceland which lists

licence holders (where known) for each of the ports in the period 1500-1604.³¹² Because of this overlap, archaeological excavation of any surviving physical remains is likely to be the only methodology that would allow a determination of which period specific surviving remains belonged to. This issue gets more complicated in situations where former Hanseatic structures were demolished, re-used, enlarged or modified by the Danes.

Básendar

In 2000, a non-invasive archaeological survey of the Miðnesheiði area in southwestern Iceland, where Básendar is located was conducted by Traustadóttir (2000). This included a visual assessment and interpretation of the surviving archaeological ruins within the Básendar harbour area, previously used as a Danish trade port and, before that, by English and German merchants (who also used the nearby anchorage of Þórshöfn during the 15th-16th centuries). The remains of up to 29 archaeological features were identified, with many likely relating to structures from the later 18th century trade activity at the site (*ibid.*), (Figure 127). Results of this assessment have been previously discussed within the section on the trade monopoly port infrastructural development. A recent underwater archaeological survey of the bay at Básendar referenced by (Mehler *et al.*, 2019, p. 266), uncovered remains of wooden piers and bollards but no further information on this is currently available. A site visit conducted by the author in 2015 confirmed the presence of visible above-ground archaeological ruins, including the dry-stone foundations of former structures and at least one iron mooring bollard visible at low tide in the harbour area (Figure 128).³¹³ It should be noted, though that, while these features are quite likely directly linked to the previous use of the site as a Danish trade port, they currently remain unexcavated, undated and unphased. Básendar is an example of one of the former trade ports that was abandoned in the late 18th century with no subsequent development taking place on top of it or around it. Because of this and the good preservation of archaeological remains at the site it was also initially considered as a potential terrestrial case study location for this study, but as its protection status ruled out any invasive archaeological research it was ultimately not selected for investigation.

³¹² A pdf of the timeline is available on this website:

<https://www.degruyter.com/document/doi/10.1515/9783110655575/html?lang=en>

³¹³ An iron mooring ring located on a rock further from the shore was also previously identified and is visible on a number of images on this website: <https://ferlir.is/portfolio-item/basendar/>



Figure 127. Ruins of structures in the foreground at Básendar. Image credit: Traustadóttir, 2000, p. 38, Image 11.



Figure 128. An iron mooring post for ships at Básendar harbour visible at low tide. (inset) close-up of the iron mooring post. Image credit: Kevin Martin.

Grundarfjörður (Grundarkampur)

In 1998, Bjarni F. Einarsson carried out an preliminary archaeological registration of the visible remains at Grundarkampur which extended over an area of 300m x 80m (1998). Grundarkampur is the local name for the area of the former location of the Danish trade monopoly port located approximately 5km east of the modern town of Grundarfjörður (Figure 129, 131). Einarsson (ibid.) noted that the visible ruins most likely represented evidence from several phases of activity at the site in addition to its use as a Danish trade port. During the mid-19th century, French immigrants built a saltfish processing plant, a church and a hospital at the site (Kristjánsdóttir, 2000). It is therefore highly likely that some of the remains visible today relate to this activity. Einarsson (ibid.) also noted an interesting reference in an unpublished history of Grundarfjörður by Ágúst Guðmundsson, which contained a reference to the merchant Jonas Trelund, who is said to have built a trading house at the site in 1650.

In 2001, prior to the installation of a visitor information panel, a survey was carried out by Guðmundur Ólafsson and Magnus A. Sigurðsson of the above-ground remains at the site (2001), (Figure 130). Most of the features recorded on the site clustered in the northern part of it. These consisted of rectangular and linear features, some up to 0.60m in height, which were interpreted to be the remains of walls and rooms from former structures at the site. An interpretation of the previous use and function of each structure by a local historian, Ingi Hans Jónsson, was also included on the panel. This interpretation is entirely conjectural and was not confirmed by any archaeological investigations. Additionally, the foundations of later built concrete structures were recorded in the southern parts of the site. In 2016, the site was resurveyed by Magnus A. Sigurðsson on behalf of The Cultural Heritage Agency of Iceland (Minjastofnun Íslands) and identified 14 features of archaeological interest were identified in the northern part of the site (Figure 132). Grundarkampur was considered to have been a high potential archaeological site for this study to target as its terrestrial case study since it had the possibility of having the least disturbed (by modern activity) archaeological potential of all the trade ports reviewed. Like Básendar, it is one of the former trade port sites that never had a later town develop directly over or around it, so the archaeological remains from the Trade Monopoly Period are likely to be preserved quite intact. However, as with Básendar, the site is subject to a special protection status so it was not considered a viable option to target as a case study.



Figure 131. A satellite view of the well-defined rectangular structural remains at Grundarkampur clearly visible in this aerial image. Source: Bing Maps. Public Domain.

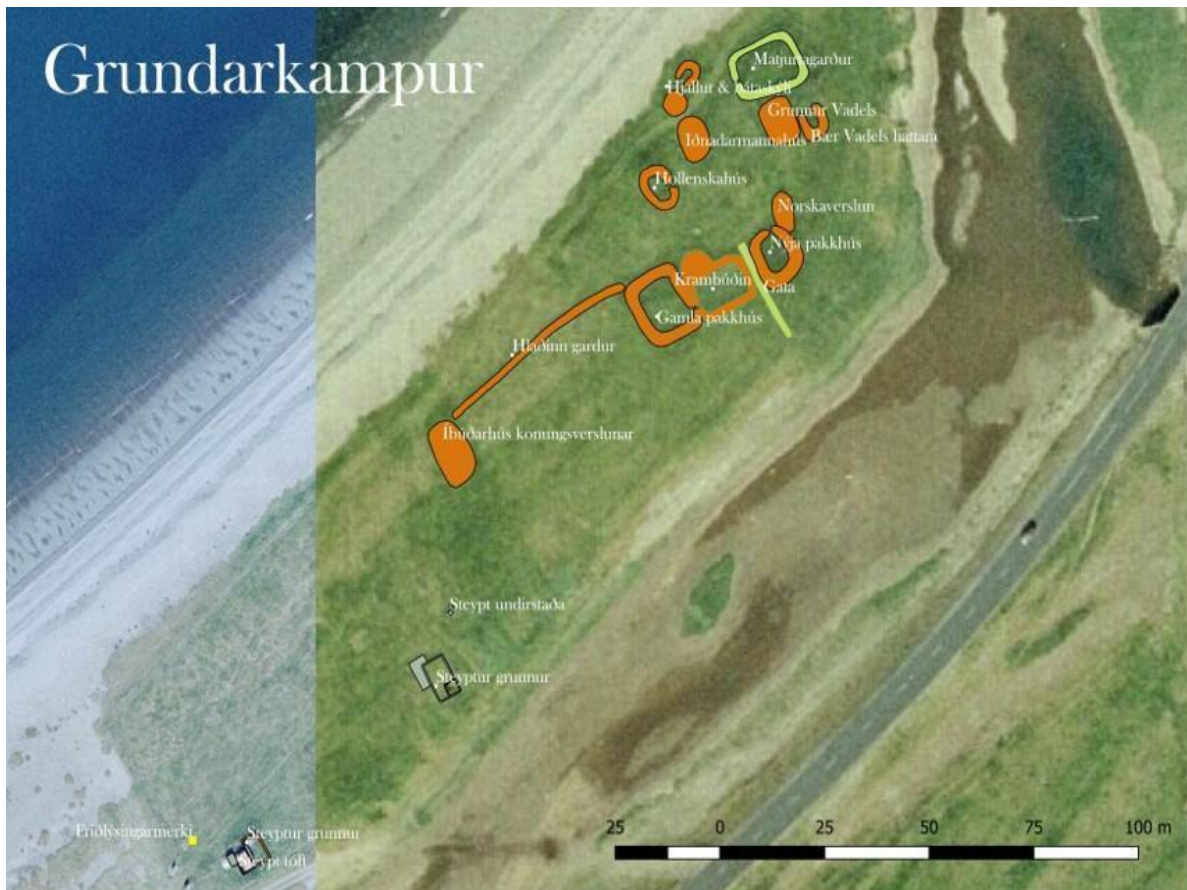


Figure 132. The 2016 survey of the remains at Grundarkampur by The Cultural Heritage Agency of Iceland (Minjastofnun Íslands) with features labelled. Source: Magnus A. Sigurðsson.

Reykjarfjörður (Kúvíkur)

In 2004, a small rescue excavation of an eroding midden deposit took place at Kúvíkur (Cow's cove) in Reykjarfjörður, north-western Iceland. This was the only port that operated during the Trade Monopoly Period which was specifically designated as a shark liver-oil port, as opposed to a fish or meat port, and its siting at Kúvíkur is thought to be directly linked to its proximity to the largest shark fishing station in Iceland at Gjögur, located directly across the fjord on the northern side of Reykjarfjörður (Líndall, 1982, p. 379). The rescue excavations identified a midden deposit 11m x 7.5m in extent, containing cultural material (up to 2m deep) dating mainly to the 19th & 20th centuries, although earlier and deeper organic-rich layers are thought to have provided evidence for 17th or 18th century activity (Lárusdóttir *et al.*, 2005, p. 116), (Figure 133). Four separate phases of activity were identified at the site. The oldest datable finds recovered from Phase 1 included a piece of glazed earthenware from the 17th or 18th century and a creamware plate from the late 18th century (*ibid.*). Other recovered finds included pottery, roof tiles, clay pipe fragments, nails, fragments of glass oil lamps, soda/beer bottles and tin cans which are all thought to date to the 19th and 20th century (*ibid.*, p. 113). The later phases identified produced significantly larger quantities of finds than the earlier two. In relation to accessing the potential for the

remains of structures relating to activities associated with the use of the site during the Trade Monopoly Period, the archaeologists felt that it was unlikely that permanent structures were erected there until the later 18th century due to the temporary nature of trading at the site. The name of the nearby river Búðará (Booth River), suggests the previous use of booths or tents by the visiting merchants (*ibid.*, p. 105) and research on the site indicates the previous existence of a timber house that is believed to have been a former trading house built in 1770 which was torn down in the early 1950's (*ibid.*, p. 106). Because of the previous disturbances to the potential 17th and 18th remains at Kúvíkur that were noted in the 2004 investigation and the likelihood of a significant amount of later phase material overlying the earlier remains it was not considered a viable case study option for this project.

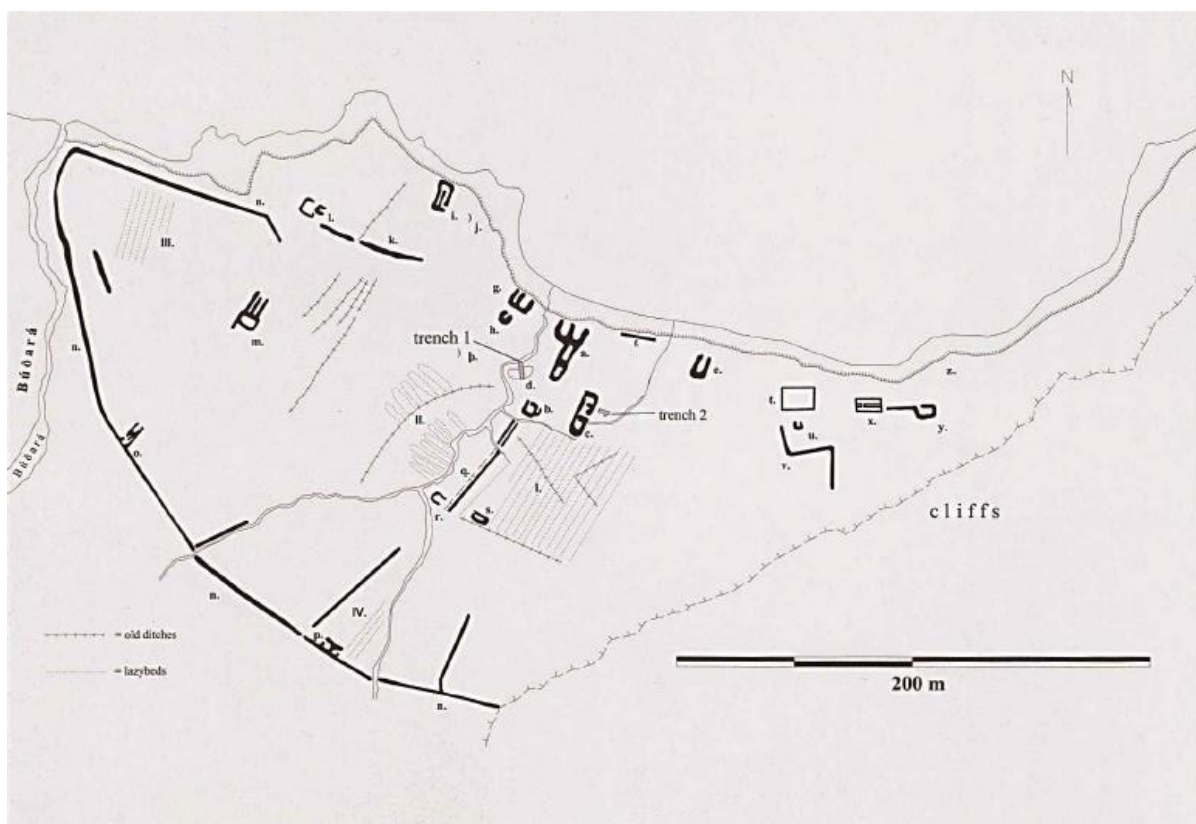


Figure 133. A plan of the homefield, structures and trenches at Kúvíkur: Source: (Lárusdóttir *et al.*, 2005, p. 107, Figure 4).

Kumbaravogur

In 2007, Mehler & Gardiner (2007) surveyed the ruins at Kumbaravogur located on the northern coast of the Snæfellsnes Peninsula at the farm of Bjarnahöfn, producing a digital terrain model and archaeological interpretation of the remains, which included potential nausts, boat landings, structure walls and an enclosure (Figure 134). They described the remains as including

“...one building with a width of about 2.2m and walls of turf faced with stone. The entrance in the side walls faces southeast to the bay. A short distance to the northeast is a square enclosure marked by three sides which are clear and a possible fourth side on the southwest which is less clear. There is a possible square annex to the enclosure on the northwest marked by an area without tussocks of grass. The enclosure is located just above a very small cove which could have been used for drawing up boats. We might speculate that the purpose of the enclosure was to store stockfish for exchange. To the northwest of the enclosure are two further adjoining buildings with stone and turf walls. The southeast ends of both buildings were open suggesting that they might have been nausts” (ibid., pp. 417-418), (Figure 134, 136).

Though only used for 60 years by Danish merchants, Kumbaravogur had previously been a well-established Hanseatic trading port in the 16th century with strong ties to merchants from Bremen and Oldenburg (Gardiner & Mehler, 2013, p. 5; Holterman, 2020). Kumbaravogur and the nearby trade port at Grundarfjörður (Grundarkampur) were both operated under the same trading licence by the Danes until 1662 when they ceased trading at Kumbaravogur to focus their trading activities entirely at Grundarfjörður (Aðils, 1971, p. 280). More recently, Gardiner and Mehler returned to the site in 2015 and attempted to record a 3D photogrammetric survey of the remains and a geophysical survey over the archaeological remains (Natascha Mehler, pers. comm. 2015). Attention was also focussed on additionally visible remains of two former structures at the nearby tidal island of Landey which had also been used as a trade site by German merchants in the late 16th century. Magnus A. Sigurðsson, the regional archaeologist (is. *Minjavörður vesturlands*) for western Iceland also conducted an archaeological survey of the remains at Kumbaravogur in 2015 (Figure 135).³¹⁴

³¹⁴(Magnus A. Sigurðsson, pers. comm. 2015)

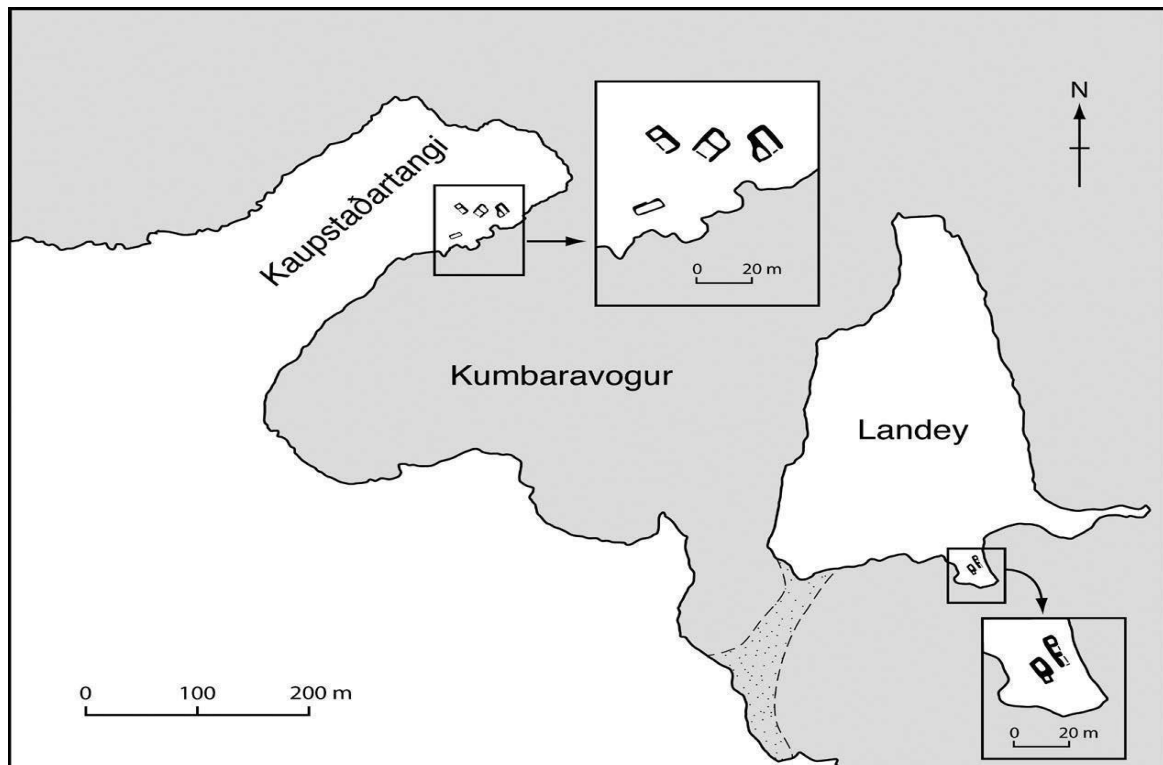


Figure 134. A location map showing the ruins of the Hanseatic trade sites of Kumbaravogur and Landey. Source: L. Mulqueeny M. Gardiner & N. Mehler, from Gardiner & Mehler, 2013, p. 5.

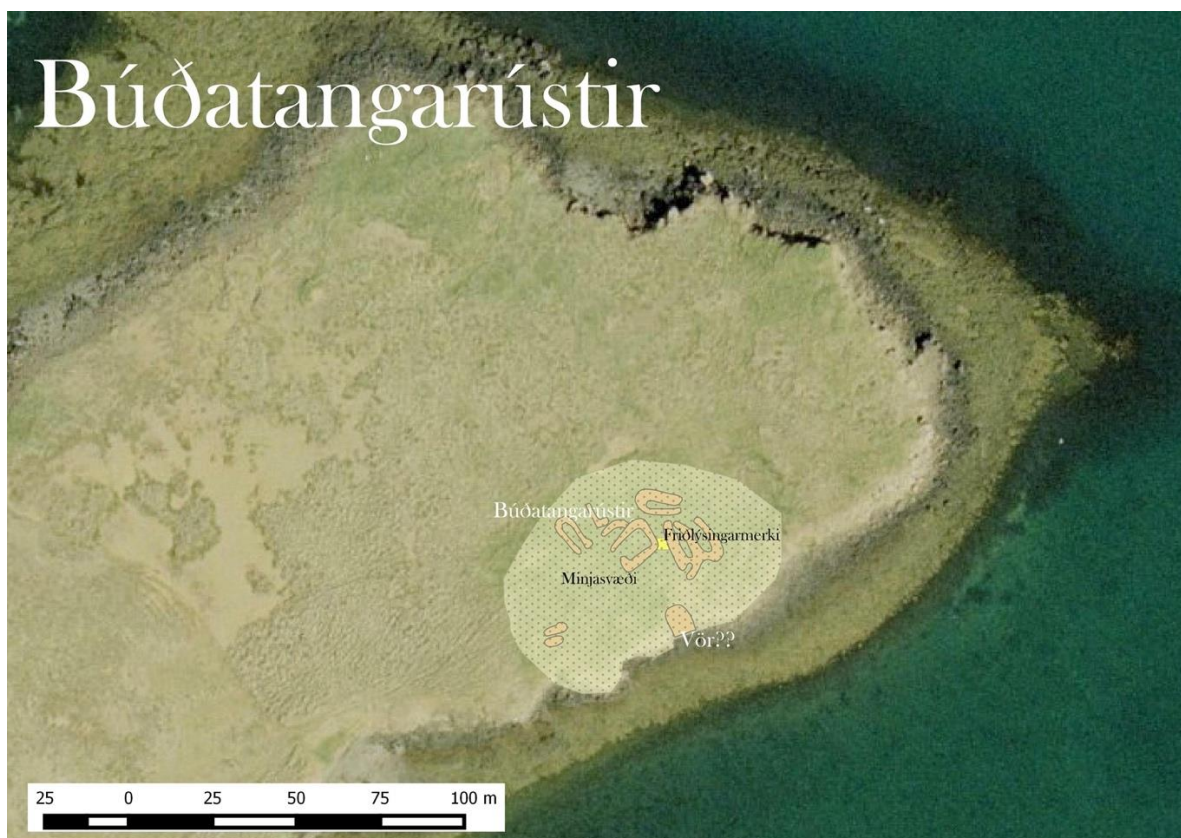


Figure 135. The archaeological survey of the ruins at Kumbaravogur by The Cultural Heritage Agency of Iceland (Minjastofnun Íslands). Source: Magnus A. Sigurðsson.



Figure 136. The earthworks of the enclosure at Kumbaravogur. Image credit: (Gardiner & Mehler, 2007, p. 418, Fig. 17).

It's fair to say that the former trade port had been subjected to quite a substantial concentration of non-invasive archaeological survey work in recent times. The next step for archaeological research at the site was planned trial excavations by Mehler and her team as part of a larger research project '*Between the North Sea and Norwegian Sea*' investigating Hanseatic trade in the North Atlantic.³¹⁵ However the protection status of the site prevented any excavations from being carried out and effectively closed off that avenue to the researchers.

The archaeological remains at the nearby tidal island of Landey were, however, not included in this special protection designation and in 2016 these were archaeologically investigated through test excavations conducted by Fornleifastofnun Íslands on behalf of Mehler's research project (Figure 137). The preliminary results published online confirmed the remains of two structures of vernacular type (turf-and-stone) construction.³¹⁶ One of the structures was evidently internally partitioned and was interpreted as a storage shed. The

³¹⁵More information about this project can be found here:

<https://www.dsm.museum/forschung/forschungsprojekte/zwischen-nordsee-und-nordmeer/>

³¹⁶These preliminary results were reported on the projects web blog and can be viewed in the following link: <https://fishandships.dsm.museum/?p=447>

other structure contained the remains of a fireplace along with ten fragments of red earthenware pottery, likely the remnants of a cooking pot. According to the preliminary results posted online, ICP analysis of the sherds by Torbjörn Brorsson provenanced the pot as originating in Bremen which confirms a documented association between Bremen/Oldenburg merchants and the site during the later 16th century. Mehler additionally noted that the rudimentary archaeological evidence excavated from Landey indicated a clear lack of investment by German merchants into solid infrastructure at these trade ports, which makes economic sense on their part given the uncertainty of whether the same merchant would return the following year and also the economic effects of the summer-only trading restrictions under which they were obliged to operate the Icelandic trade.³¹⁷ The excavation at Landey is an important one though, especially in regards to the archaeological evidence for the Hanseatic trade in Iceland, as it is the only example to date of a previous Hanseatic trade site from the 16th century that has been archaeologically investigated to date in Iceland. Kumbaravogur, although also considered of high archaeological potential for this study as a possible terrestrial case study site, was not further pursued any further due to its protected status.



Figure 137. The test trench through the western structure at Landey with the turf walls visible. Image credit: Vilmundur Pálmason.

³¹⁷<https://fishandships.dsm.museum/?p=447>

Akureyri

In recent years, a number of archaeological investigations have taken place in Akureyri, in or close to the area where the former trade monopoly port site was believed to have been located on the farmland of Naust (S. Ólafsson, 2009). Excavations by Fornleifastofnan Íslands have uncovered deposits containing a significant amount of material cultural remains dated to the 17th century (Gavin Lucas, pers. comm. 2015). Additionally, test trenches excavated by Ármann Guðmundsson in 2014 and 2015 along Aðalstræti and Hafnarstræti within the Akureyri town centre have uncovered charcoal, coal, bone, glass, and pottery, as well as the possible remains of an 18th century structure within one of these trenches (Ármann Guðmundsson, pers. comm. 2015), (Guðmundsson, 2015). Due to a lack of any upstanding archaeological remains and issues relating to the development of the urban centre of Akureyri directly over the area of the former monopoly station, it was not considered suitable to pursue further investigations as a case study site.

Eyrbakkí

In 2017, a geophysical survey (Graham, 2017) was conducted in an area of Eyrbakkí known locally as Vesturbúðarhóll, where the sub-surface remains of former buildings associated with the use of the site as a trade monopoly port were considered likely to have been located. At least one structure from the monopoly period still survives in Eyrbakkí and this is the former merchant house known as (is. *Húsið*) built in 1765 which is located about 200m east of Vesturbúðarhóll and is used today as a local museum. The geophysical survey confirmed the presence of the sub-surface remains of as many as six possible stone-built structures, and a test trench across the area was excavated by Ágústa E. Maxwell to investigate (Maxwell, 2017), (Figure 138, 139). It was known that a number of 19th century structures that stood here were demolished in 1950 so the underlying stratigraphy was found to be quite mixed.



Figure 138. A drone image of the excavation trench at Vesturbúðarhóll, Eyrarbakki. Note the close proximity to the shoreline in the upper part of the image. Image credit: Ágústa Edwald Maxwell, Rangheiður Gló Gylfadóttir.



Figure 139. The mid-19th century structural wall foundations uncovered in the test trench at Vesturbúðarhóll, Eyrarbakki. Image credit: Ágústa Edwald Maxwell.

The excavation revealed the lower stone wall foundations of a mid-19th century structure with also evidence beneath this building phase for an earlier structure dating to c. 1800 (ibid., p. 11), (Figure 139). Artefacts recovered included iron nails, pieces of window glass, brick, slate, 19th-20th century whiteware pottery and clay pipe bowl and stem fragments (ibid., p. 12). In 2019, a second archaeological test trench at Vesturbúðarhóll was excavated by Pálsdóttir & Gylfadóttir (2020) approximately 10m northeast from the 2017 trench. This revealed the stone foundations of a probable 19th century structure showing two phases of construction (Figure 140). Although the building's internal floors did not survive, the evidence suggested that they originally would have been wooden. Artefacts recovered were similar to those found in the 2017 project and included animal bone, glass, bricks, nails, 19th-20th century ceramics and clay pipe fragments (ibid.).



Figure 140. The 2019 test trench showing wall foundations at Vesturbúðarhóll, Eyrarbakki. Image credit: Pálsdóttir & Gyldadóttir, 2020.

From the evidence available, it is difficult to conclude how significantly construction activity in the 19th and 20th centuries at Eyrarbakki may have impacted earlier phases of archaeological remains from the 17th and 18th centuries. However, it is clear that a significant archaeological remains are still present at the site and potentially some of those features may pertain to earlier phases of the site's use as a Danish trade monopoly port.

Chapter 5.2: Case study Arnarstapi

Following the completion of the archaeological dossier on the trade monopoly ports and a ranking of the archaeological potentials at each of those ports, a list of possible terrestrial case study sites for this project was established. This list was further refined through a process of elimination, which included: re-visiting a number of the sites, conducting discussions with The Cultural Heritage Agency of Iceland (Minjastofnun Íslands) regarding those sites with special protection status that also contained visible remains, and factoring in logistical constraints given the project's available fieldwork budget. Ultimately, successfully securing an excavation permit as well as landowner permission were as important criteria to consider as the archaeological potential of the site. An undisturbed area adjacent to the former trade monopoly port of Arnarstapi was selected as a target site based on the criteria outlined above. Arnarstapi had operated as a trade port throughout both centuries of the Danish Trade Monopoly Period and, additionally, it was also used as a trading port by the Hanseatic merchants so could potentially contain earlier, although still relevant archaeological material.

Site location

Arnarstapi is located along the southern coast of the Snæfellsnes Peninsula in the western part of Iceland about 12km west from the trade port of Búðir (Figure 141). Today it is made up of a small rural community with a mixture of permanent and summer houses in the area. The harbour area has been significantly developed in the 20th century and today is a fully working harbour with an active fleet of small fishing boats. In 2001, an archaeological survey of the region was completed, indicating that the construction of the modern paved road to the harbour in the 20th century had significantly disturbed potential surviving remains from the former trade activity at the harbour, with two partial ruins/mounds still visible (Edvardsson, 2001). It was noted that "the trading site has been very damaged and has almost disappeared because of road works. Only two mounds or ruins are still visible there and it is important to protect these" (ibid., p. 59). Following an onsite visit by the author, it was further determined that the mounds were most likely too disturbed to excavate. It could also not be confirmed what period these ruins belonged to and indications suggested they could date to the 19th or 20th centuries. A further complication for any potential excavation in this area was that the coastline from Arnarstapi to Hellnar had been previously designated a protected area by The Environment Agency of Iceland (Umhverfisstofnun), meaning that securing an excavation permit would likely be significantly more difficult.³¹⁸

The identification of unregistered and unrecorded remains potentially related to the trade

³¹⁸<https://ust.is/nattura/naturuverndarsvaedi/fridlyst-svaedi/vesturland/strondin-vid-stapa-og-hellna/>

port and dating from the Danish monopoly period, and located approximately 150m southwest of the harbour was based on information provided to the author by the architect Hjörleifur Stefánsson in 2016. He had previously been involved in the reconstruction of the 18th century local governor's house (is *Amtmannshúsið*)³¹⁹ in Arnarstapi and while laying service pipes in the surrounding field, workers had discovered a number of 17th century artefacts including clay-pipes and ceramic fragments. This was, in essence, a prospection exercise for this study to embark upon as this area had never been previously archaeologically investigated and contained no above-ground remains or features. Based on the distance (150m) from the harbour it was anticipated that any remains uncovered were unlikely to be those of actual trade port structures but could still be structures connected in some way to the operation of the trade port. A geo-referenced and scaled overlay of John Baines 1789 sketch map of Arnarstapi, which contained an approximate location for the trade port at the time, suggested that the port's buildings in the late 18th century were located on the edge of the farmland of Bjarg farther southwest than the ruins identified from Edvardsson's (2001) survey (Figure 142). Due to heavy landscaping in the past, no visible up-standing ruins exist in this area today.

Figure 142 also shows the geo-referenced location of the case study site in relation the trade port.³²⁰ The target area for the excavation focussed on the southern edge of a sloping field directly adjacent to the boundary wall of the *Amtmannshúsið* (Figure 143). This was the area closest to the known original findspots for the artefacts previously collected by Hjörleifur Stefánsson. While it was considered likely that any above-ground remains were previously levelled/removed with machinery in the mid-20th century, no further developments or building works on the site had taken place aside from some water pipe/sewer and electric service installations during the late 20th century (Hjörleifur Stefánsson, pers. comm. 2016). It was therefore expected that if in-situ archaeological remains from the Danish Trade Monopoly Period existed at the site, there would be no modern overburden of material on top of them. The archaeological research excavations took place in 2016 and 2017 under licence permit 201607-0020 issued by The Cultural Heritage Agency of Iceland (Minjastofnun Íslands) and artefact number permit 2017-27 issued by the National Museum of Iceland (Þjóðminjasafn Íslands) (Martin, 2016, 2017b).

³¹⁹This was the former home of the late 18th century local governor based at Arnarstapi. <http://www.minjastofnun.is/hus-og-mannvirki/fridlyst-hus-og-mannvirki/vesturland/nr/491>

³²⁰ These are based on interpreted geo-referenced markers from John Banes sketch.

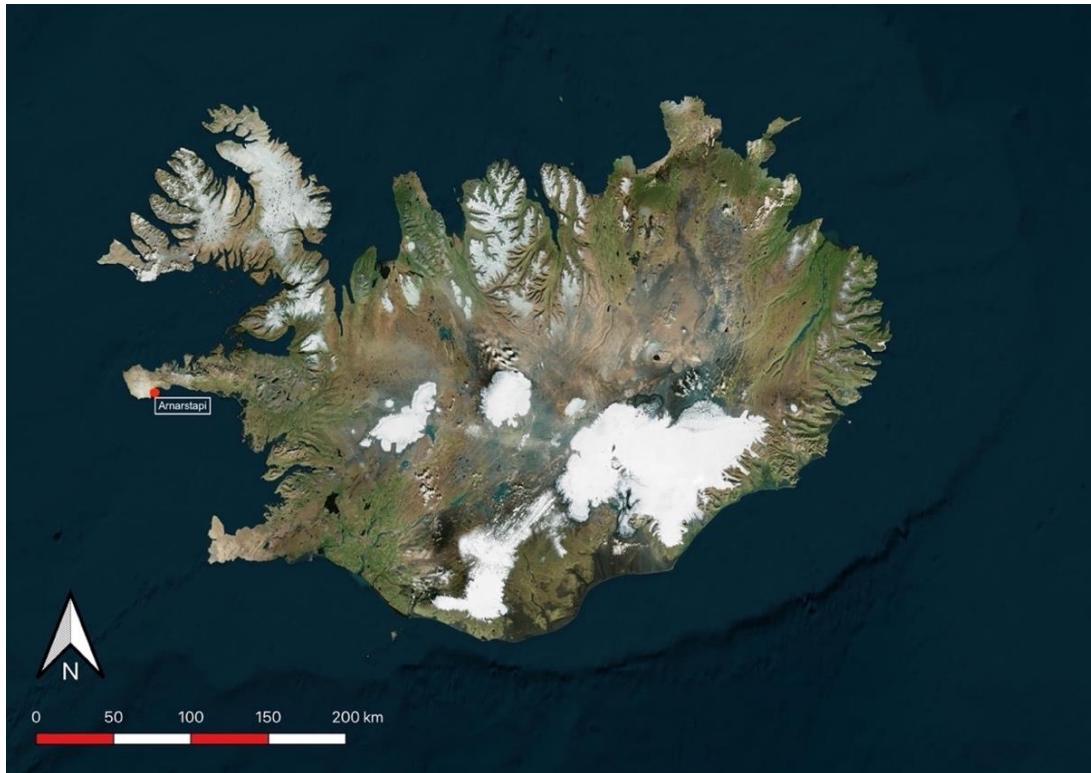


Figure 141. Location map of the Arnarstapi trade port. Source: Base map Bing Virtual Earth.



Figure 142. A geo-referenced and scaled overlay of John Baines 1789 sketch map of the Arnarstapi trade station and coastline on a Google Maps base layer. The overlay indicates an approximate location for buildings associated with the former trade station in the late 18th century (highlighted in red). The location of the case study excavation site of this project is marked with the blue triangle and is in the vicinity of a squared compound drawn on Baines

map. (Source: Base map Google Maps, John Baine, Ref. Lbs 890 I fol.1.17r. Public Domain.



Figure 143. Aerial view of Arnarstapi port looking north showing the case study location. Image credit: Kevin Martin.

Historical background to the Arnarstapi trade port

Before the Trade Monopoly Period, Arnarstapi had been referred to in the German sources as (*de. Schneuelsort, Arenestappen, Stapfe, Stappe and Stoppen*), (Aðils, 1971, p. 277; Holterman, 2020, p. 263). Vessel passage entries in the Danish Sound Toll Registers spelled the port's name in a variety of ways including (*dk. Stanneshavn, Stapelsholm, Stapenshaun, Stapenshavn, Stappersunds haun*), (Table 13).³²¹ Arnarstapi was always considered an exposed and difficult harbour to anchor at by the visiting merchant vessels, who were reputed to have needed to use at least three anchors when mooring in the harbour due to its exposed position (Aðils, 1971, p. 277). Despite these dangers associated with the port, the lure of the rich fishing grounds nearby kept the merchants returning year after year and justified their financial outlays to maintain the trade.³²² In 1659, the merchant ships of Jonas Trelund (which included the *Melckmeyt*), are recorded as having traded at Arnarstapi (Simon Thomas, 1935, p. 94). While the reference does not specifically record that the *Melckmeyt* visited the port, it is a plausible scenario given that his ships were based around the Snaefellsnes Peninsula that summer and no Danish ships had arrived to trade. The 18th century trade port was located in an area known as *Arnarstapaland* which was within the

³²¹ Source: www.soundtoll.nl

³²² According to Aðils (1971, p. 277) the licence for the port in 1706 cost 1,370 rdl. making it one of the most expensive harbours to rent in Iceland that year.

King's own farmland (Aðils, 1971, p. 277). Aðils (ibid.) outlined that the monopoly trading district (is. *kaupsviðið*) for the harbour included lands in Breiðuvík, Staphverfið, Hellnahverfi, Einarslón, Dritvík, Beruvík, Öndverðarnes and the area from Búðahrauni to Skarðsvík.³²³ Control over trade within the area of Öndverðarnes was frequently disputed between the merchants at Rif on the north side of Snæfellsnes and those that rented Arnarstapi (ibid.). In 1686, it was ruled that Öndverðarnes should belong to the trading district of Arnarstapi but the merchants in Rif and the people in Öndverðarnes were not content with this ruling as it was logistically easier for them to trade at Rif than Arnarstapi (ibid.). In 1703, a total of 155 families (more than 800 people) were registered as living within the Arnarstapi's trade district, comprising 107 farmers and 697 fishermen, who were resident all year round (ibid.). Figure 144, taken from Hoffgaards 1723 map of Iceland, depicts three large buildings at the port named Stappen and a vessel at anchor.

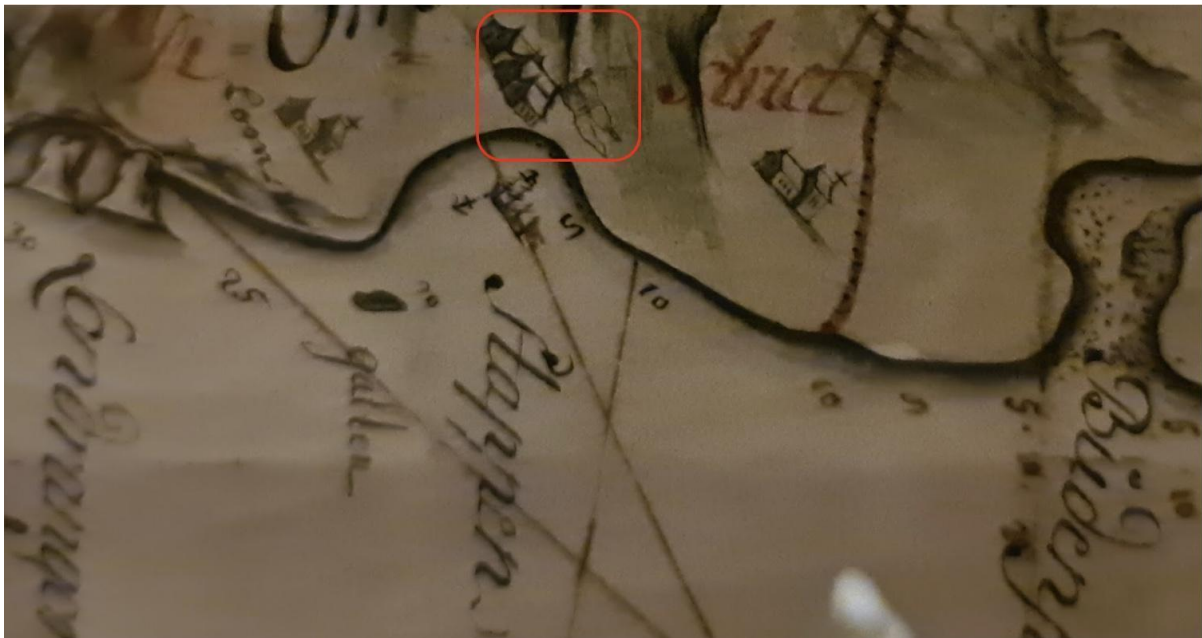


Figure 144. Arnarstapi trade port (outlined in red) depicted by Hans Hoffgaard in 1723. Source: Kort Hans Hoffgaard, National Museum of Iceland (Þjóðminjasafn Íslands), Catalogue ref. 11645/1934-113.

³²³ Two farms within this trade district were archaeologically tested by Jakob Orri Jónsson, who as part of his related doctoral study examined consumption habits during the Danish Trade Monopoly Period.



Figure 145. A sketch of the Arnarstapi coastline by John Baine from 1789 who travelled to Iceland as part of the Stanley Expedition. The port area is circled in red and the interpreted geo-referenced location of the case study excavation is circled in blue. Source: John Baine, Lbs 890 I fol.1.17r. Public Domain.

John Baine's sketch from 1789 is a little more detailed and labels the area of the merchants' houses and boat anchorage and landing places (circled in red on Figure 145). Geo-referencing the sketch suggested that the excavation area was within the direct vicinity of a large square walled compound most likely representing the late 18th century *Amtmannshúsið* (circled in blue on Figure 145). This proximity suggested that the excavation area potentially contained 18th century structural features. Diary entries from James Wright and Isaac S. Benners, who were part of the Stanley Expedition to Iceland in 1789, referenced a few interesting details about the port and the condition of the merchant's house. James Wright noted that "...Stappen is a small village consisting only of a few houses...The merchant conducted us into his house which is one of the best on the Island" (J. F. West, 1970). Isaac S. Benners was a little more colourful in his description and observed that

“The town of Stappon is so very small that it does not deserve the name, there is but one decent house, which our merchant inhabits, there are 5 or 6 miserable huts which is only sufficient to contain a few fishermen here, so that these compose the Town of Stappon: the people are very far from being bright, they appear the most stupid wretches I have seen...” (J. F. West, 1975, pp. 92,93).

Arnarstapi trade port in the Danish Sound Toll Registers

Table 12 lists the entries for the passages of merchant vessels in the Danish Sound Toll Registers which listed Arnarstapi as the port of a destination or origin during the Trade Monopoly Period. Undoubtedly more vessels than those listed would have traded at Arnarstapi and for those journeys, Iceland, itself, was included as the destination, rather than naming the specific port. The entries provide an insight into the timing of the trade ships' departures from Copenhagen with most vessels leaving in mid-to-late May, the size of vessels travelling to Arnarstapi in the early to mid-18th century which ranged between 48-97 lasts / 96-194 tonnes, as well as the types of goods being imported, which consisted primarily of rye-flour, bread, tobacco and corn-brandy. Only one entry from the 17th century was noted and this was for a ship arriving at Copenhagen from Arnarstapi in 1637 with Icelandic goods onboard, including a cargo of mixed fish, train oil and other Icelandic products, which were most likely woollen items.

The average size of the vessels sailing to Arnarstapi was 68 lasts/132 tonnes which makes them slightly larger than the overall average vessel size of 62 lasts/124 tonnes established for vessels in the Icelandic trade during the 18th century period (see Chapter 3), although the *Melckmeyt* – at 150 lasts/300 tonnes – would have been substantially larger than these examples listed in Table 13. Only one vessel type was listed – a 50 last/100 tonne galiot skippered by Niels Nielsen in May of 1714. This was larger than the typically sized galiots known to have been active in the Icelandic trade, which were an average size of 40,5 lasts/81 tonnes (see Chapter 3). The entries also suggested that the same skippers returned to the harbour over a number of years. This appears to represent a deliberate and logical choice by the merchant to employ the same skipper Jens Jurgensen in 1722, 1724 and 1729 to captain the vessel trading at Arnarstapi. As it was known to be a difficult anchorage, the merchant would obviously have preferred to use a skipper with experience at the port, when possible.

Date	Port of Origin	Port of Destination	Shipmaster	Lasts/ Tonnage	Cargo*
20/7/1637	Stapen	Copenhagen	Christen Pedersen from Copenhagen	Not recorded	Groefffisk (poor fish?) 42000 pieces, Thidtling (small dried cod) 4200 pieces, Klappfisk (dried or salted-fish) 4657 pieces, Train oil and other Icelandic products.
30/5/1714	Copenhagen	Stappersunds haun udi Island	Niels Nielsen from Copenhagen	Galiot, 50 lasts/ 100 tons.	Rye-flour (220bls), Rye (14bls)
11/7/1714	Copenhagen	Stappens haun udi Island	Zacharias Clausen Hoffman from Bergen	50 lasts/100 tons.	Rye (200bls)
20/5/1722	Copenhagen	Stapenshaun udi Island	Jens Jyrgensen	64 lasts / 128 tons.	Rye-flour and Icelandic company goods.
5/5/1723	Copenhagen	Stapelsholm udi Isl.	Peder Pedersen	48 lasts/96 tons.	Rye-flour (130bls), Skomrogenbrod (sour-bread?) (39 bls)
19/5/1724	Copenhagen	Stapelshafn udj Island	Jens Jurgensen	64 lasts / 128 tons	Flour (150bls), Bread and other goods (59bls)
12/5/1725	Copenhagen	Stapnashaun udi Island	Peder Clausen	92 lasts / 184 tons.	Rye-flour (272bls), Skoerogenbrød (sour-bread) (28bls)
11/5/1726	Copenhagen	Stannashaun	Hans Mouritzen	61 lasts/122 tons.	Rye (310 bls), Ships bread (90 bls)
14/5/1728	Copenhagen	Stappenshafn udi Island	Peder Claussen from Copenhagen	92 lasts/184 tons.	Flour (104bls), Bread and other goods (118bls)
26/5/1729	Copenhagen	Stappershafn i Island	Jens Jørgensen from Copenhagen	64 lasts / 128 tons	Rye-flour, wine, brandy (320bls)
17/5/1742	Copenhagen	Stappenshafun udj Island	Mathias Pechman from Sønderborg	67 lasts/134 tons.	Rye-flour (400bls), Corn-brandly (26bls), Tobacco (30 cases), other goods.
27/5/1744	Copenhagen	Stappenshaun udj. Island	Valentin Karbiery from Sonderborg	97 lasts/194 tons.	Rye-flour (380bls), Corn-brandly (17bls), Tobacco and other good (30 cases)
30/5/1748	Copenhagen	Stappens haun i Island	Michel Jansen from Sylt	58 lasts/116 tons.	Rye-flour (363 1/4 bls), Corn-brandly (8bls), Tobacco and salt

10/5/1749	Copenhagen	Stappenshavn i Island	Lenert Jantzen from Copenhagen	66 lasts/132 tons.	Rye-flour (435bls), Corn-brandy and other goods (20bls)
17/5/1752	Copenhagen	Stapenshavn i Ysland	Bendix Stegh from Copenhagen	81 lasts/162 tons.	Rye-flour (550bls), Corn-brandy and other goods.

Table 12. Merchant vessels with Arnarstapi listed as a destination/departure port recorded in the Danish Sound Toll Registers 1602-1787. *bls – barrels (163.2 litres), the ? indicates that the translation of the original term is uncertain. Source: www.soundtoll.nl

The merchant record books

To accurately assess how the trade port infrastructure at Arnarstapi was arranged during the Trade Monopoly Period, the merchant record books are the most informative primary documentary sources.³²⁴ These were essentially inventory books kept by the merchants for each of the licenced trade harbours in Iceland. In addition to the building and port inventories, the merchants also kept store books which detailed purchasing and sales transactions at the ports as well as the various commodities being imported as noted in Chapter 2. The record books listed and described everything of value that was associated with the operation of the trade port including unsold goods, port buildings and even in some examples listed the door locks and hinges for each structure. A short description of the buildings was occasionally included, using architectural style terms such as wood and plaster (dk. *bindingshús*), log cabin (dk. *stokkahús*), turf-walled (dk. *islandshús*), as well as their main dimensions and any internal structural divisions. The overall inventory valuation was later used to calculate the price of the trade licence for a particular port when it was later being sold or auctioned. Unfortunately, these books are only preserved for specific periods in the 18th century and none from the 17th century were kept or preserved. However, the entries often recorded the ages of certain buildings when they were listed, and a number of examples list 17th century dated structures still being used at the ports during the 18th century. Figure 146, shows the earliest known detailed sketch made by the Norwegian surveyors Ole Mentzen Aanum and Ole Ohlsen of the Arnarstapi trade port and its associated buildings from 1801.

³²⁴The merchant record books are listed under the archive folio *Rentekammeret: Rtk. 373.117. Taxations-og Vurderingsforretninger over Handelshus og Inventarier i Islands Havne 1774*, 303. The records relating to Arnarstapi exist for the years 1759-1763 & 1774. The 1774 period records the most detail regarding the structures at the trade station so these are primarily referenced in the text. Historian Hrefna Róbertsdóttir had previously researched these documents at the Danish National Archives in Copenhagen (*Rigsarkivet*) and generously shared some images of them with the author as well as assisting with translations of the entries.

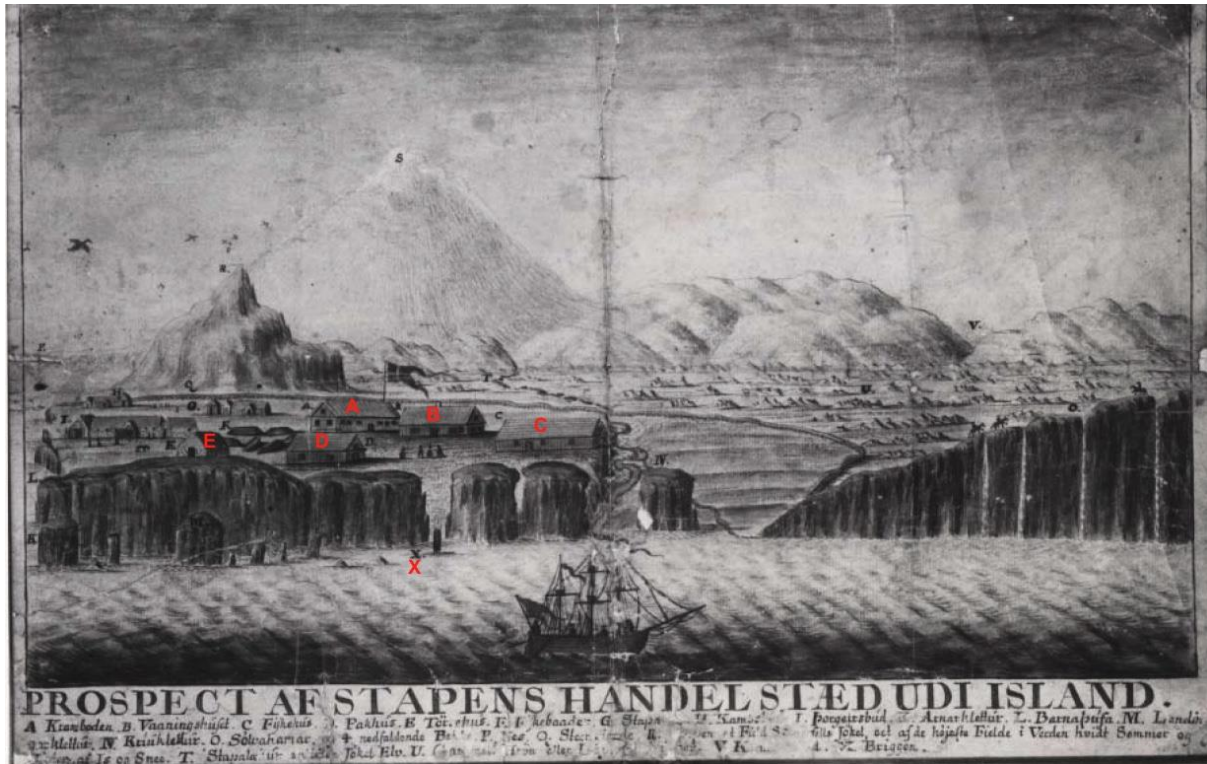


Figure 146. The earliest known detailed sketch of the Arnarstapi trade port by Ole Mentzen Aanum and Ole Ohlsen from 1801. A number of buildings directly connected to the trade port are labelled including. A. Kramboden (Merchants store), B. Vaaningshuset (Residential house), C. Fiskehus (Fish house), D. Pakhus (Store house), E. Törvehus (Turf-house), X. Briggen (Pier). Source: The Danish National Archives (*Rigsarkivet*). *Rentekammeret: Rtk.* 373.137. Dokumenter og breve vedr. landopmålingen på Island (1801 - 1804), VA XII, s. 226.

The 1774 merchant record books for Arnarstapi contained the most detailed architectural listings for the port's infrastructure arrangements and recorded six individual structures used for operating the trade. These included: the merchants store (dk. *handelsboden*), a kitchen/cook house (dk. *kokhus*), a tar house (dk. *tjorhus*), a chicken coop, fish house (dk. *fiskihus*) and the under-merchants house (dk. *underkaupmanshus*) (Figure 147). A number of these buildings such as the merchants store (A) and the fish house (C) appear on Aanum and Ohlsen's 1801 sketch of the port (Figure 146) but several others are not specifically listed. As almost 30 years separated these sources the use and function of the buildings likely changed over that time and new structures were built. However, the under-merchant's house may be the structure labelled (E) on Figure 146.



Figure 148. The salt-house (is *salthúsið*) built at Þingeyri trade port in 1778 is an example of a Norwegian *stokkahús* style building and one of the few surviving 18th century trade port buildings. (Inset) Close-up of interlocking wall timbers. Image credit: Kevin Martin.

At Arnarstapi, the merchant's store was recorded as being 16 $\frac{5}{8}$ alin (10.47m) long, 9 $\frac{1}{4}$ alin (5.99m) high under the roof's eaves, and 11.5 alin (7.24m) wide (Figure 147).³²⁵ The house was listed in the same entry along with three other nearby structures (tar house, kitchen/cook-house and the chicken coop) and was noted to have been built in 1697 in the Norwegian *stokkahús* style and along with the other three houses had a combined valuation of 400 rdl. and 10 schillings (Figure 148). The record book entry stated that within the merchant's store the merchant had kept a sleeping room on the ground floor that was approximately 2.10m long and a small dining room 2.50m long. The merchant's studio-style accommodation within the storehouse was likely based on his part-time occupancy in keeping with the legislation enforced within Iceland at that time, whereby merchants were forbidden from overwintering and trading year-round. However, in 1777 this law was abolished and it became obligatory for merchants to operate winter trade at all of the ports (Róbertsdóttir, 2018, p. 345). The merchant's storehouse listing provides clear evidence that structures built in the late 17th century continued to be utilised within the trading operations well into the 18th century. The buildings were evidently being constructed to a decent enough architectural standard that they were still usable over a period of almost 80 years. Hörður Ágústsson (2000, p. 105) noted that although the port buildings were constructed in a foreign

³²⁵In general unless otherwise specified the measurements for the port buildings and features recorded in the merchant record books are given in Danish alin which measured 63cm and differed by 6cm from the Icelandic álnir measured 57cm (Gestsson, 1968, p. 47; Ólsen, 1910, p. 5).

style, they were designed with Icelandic weather conditions in mind. The largest building recorded in the record books for Arnarstapi was the fish house which measured a staggering 22.10m long x 7.39m wide and 4.75m high. It's likely this was a warehouse for stockpiling fish for export, but it still would have represented a substantial investment of resources. The description of this building in the merchant's record book references the substantial weight of the house, which had been built with imported timbers in the Norwegian style. Its valuation of 391 rdl. attested to its formidable size, being almost the same value as four of the other buildings at Arnarstapi combined.



Figure 149. An example of a *'bindings'* style house from Árbæjarsafn. The *Smiðshús* or *Hansenshús* built in 1823. The exterior walls would likely have been covered with wooden panels to protect against the elements. Image credit: Mats Wibe. Public Domain.

There is finally a listing for an under-merchant's house, built in a style described as *'bindings'* indicating a Danish style of architecture (Figure 149). This house was stated to have been divided into three parts, presumably for sleeping, eating and working. It was stated that the house also included doors and windows which were no doubt considered a luxury in any house in Iceland at this time. The house measured 12 alin (7.56m) long and 10 ¼ alin (6.45m) wide.³²⁶ It was given a valuation of 40 rdl., which, based on its description, might be

³²⁶ No measurement for the width was included but it was described as "5 fag long" indicating five times the space between the main vertical wall beams as seen in Figure 149.

considered a rather low valuation. This suggests that the house may have been partially built in a cheaper Icelandic style with turf and stone walls (Hrefna Róbertsdóttir, pers. comm. 2020). The final entry in the buildings section of the record books noted the presence of a boundary fence around the trade port which was set up with the stated purpose to “keep the houses safe”.

The record books reveal some very interesting insights with regard to the personal living arrangements available to the merchant and his associates at Arnarstapi in the later 18th century. The entries suggest that the accommodations available to the under-merchant afforded more comfort and privacy than that which was available to the merchant himself. This suggests that for much of the time, it was the under-merchant who was living at Arnarstapi for the majority of the trading season and running the day-to-day operations, with the merchant visiting only periodically if at all and perhaps only at the start or end of each trading season.

The under-merchant or one of his subordinates could have over-wintered at the trade port, which would normally still have contained unsold valuable non-perishable trade goods (timber, ceramics, iron) after the summer trading seasons, which had to be stored for the next trade season. In addition he would have been responsible for maintaining the properties and keeping watch on things on behalf of the merchant. There is evidence also that the merchants had local tenants acting in this ‘caretaker’ role through the winter months, who in turn lived rent-free and received supplies of wood for their household as a payment-in-kind, as was the case for the tenant Árne Þorgilsson at Básendar in 1703 (Traustadóttir, 2000, p. 35). Róbertsdóttir (2018, p. 346), examining this issue previously, noted that in the summer months there were usually seven to ten foreigners living at the trade stations and up to 100 hired locals involved in fish and meat processing, while in the winter months this was reduced to one or two people staying to oversee the properties, and even sometimes no one stayed there at all.

The merchant record books also provide interesting insights into how the trade station at Arnarstapi would have appeared in the later 18th century. It is apparent that the scale of some of the buildings constructed there by the merchants were substantial, such as the enormous fish house, and that they were far from being temporary or casual. Substantial investments of resources were being made by the merchants at the trade stations even though the trade licences they held may have only been for four years’ duration. The incumbent merchants would usually have anticipated making their investments back by selling on the houses and assets at the trade ports to the incoming merchant taking over the trade. The record books attest to this periodic investment, noting for example that the

merchant's storehouse at Arnarstapi had been built in 1697, was evidently still being used 77 years later, and was considered valuable enough to keep it maintained and functional. The upkeep and use of older buildings also indicated a pragmatic approach to the management of resources on the merchant's behalf. Older buildings could be kept in use for longer periods and later sold on, rather than tearing them down and rebuilding during each season or licence handover. This would have reduced the costs of construction which – with the exception of the Icelandic style turf-walled structures – would have required importing all the necessary raw materials for the buildings as well as an outlay for labour costs. .

Arnarstapi archaeological excavation results 2016 and 2017

Two seasons of fieldwork at Arnarstapi for this study resulted in the excavation of a total area of 55m². The first season comprised a seven-day period in 2016 with a team of two, which included the author and fellow doctoral candidate Jakob Orri Jónsson. In 2017, a ten-day season took place with a larger field crew that included, in addition to the 2016 crew: Gavin Lucas, (University of Iceland, doctoral supervisor), Hulda Björk Guðmundsdóttir and Gylfi Björn Helgason (Fornleifastofnun Íslands). An overview of the archaeological results from both seasons (K. Martin, 2016; 2017b), will be presented in the following narrative and a subsequent discussion will offer an interpretation of the remains and examine their potential relationship to trading activities at Arnarstapi during the Trade Monopoly Period.

Coring and test trenching the site

Initially, the area was archaeologically cored at 1m intervals to identify and better define any subsurface archaeological remains and provide an indication of the underlying soil stratigraphy.³²⁷ It was quickly established from coring that the underlying archaeological remains were concentrated along the southern edge of the field, adjacent to the garden wall of the reconstructed *Amtmannshúsið* (Figure 150). Traces of charcoal and peat ash were evident in the core samples taken in this area, along with several fragments of animal bone and ceramics. It was subsequently decided, based on these findings to excavate five test-pits in this area (Figure 150).



Figure 150. Aerial view of the location of test-pits 1-5 from the 2016 excavations at Arnarstapi. Image credit: Kevin Martin.

Test-pits 1, 2 and 4 contained no evidence for any subsurface archaeological features, although they produced artefacts in their upper layers, mostly within the topsoil. Test-pits 3 and 5 contained a stone layer interpreted as a stone floor surface with possible structural associations (Figure 151), (Table 12). The deliberate placement of the large angular stones together and against each other indicated an attempt to create a flat stone pavement to walk on and would have also made cleaning the surface easier (equivalent essentially to a modern stone patio). No evidence of any associated structure was observed in the test-pits, but the stone platform suggested that the remains of one could be present in the vicinity and that a larger excavation area was required to determine that. At this point, it wasn't possible to interpret whether the stone surface was an internal or external feature. A total of 181

³²⁷ The corer used had a 5cm diameter bore and was 20cm in length.

artefacts were recovered which included: brick, glass, clay-pipe fragments, stone, iron, copper, and a piece of textile. The majority of the artefacts were typical of higher-end imported commodities during the Trade Monopoly Period and were interpreted to have mostly had a Dutch/German/North European origin (particularly the brick and clay-pipe objects), (Figure 152, 153). Amongst the clay-pipe fragments was a pipe foot with the initials 'WH' which represented the makers' mark of either Willem Hansen 1677 or Willem Heijndrickse 1698 (Gavin Lucas, pers. comm. 2016), (Figure 152). The textile piece displayed plied warp yarns of 2/2 twill which are characteristic of early modern homespun Icelandic cloth from the period 1600-1800 (Hayeur Smith, 2016). Very little modern material was recovered amongst the artefactual assemblage, indicating that the area had had little disturbance in the 19th and 20th centuries. Overall, the artefacts suggested a late 17th to early 18th century date for activity associated with the stone surface and importantly justified a return to the site in 2017 for a larger excavation.

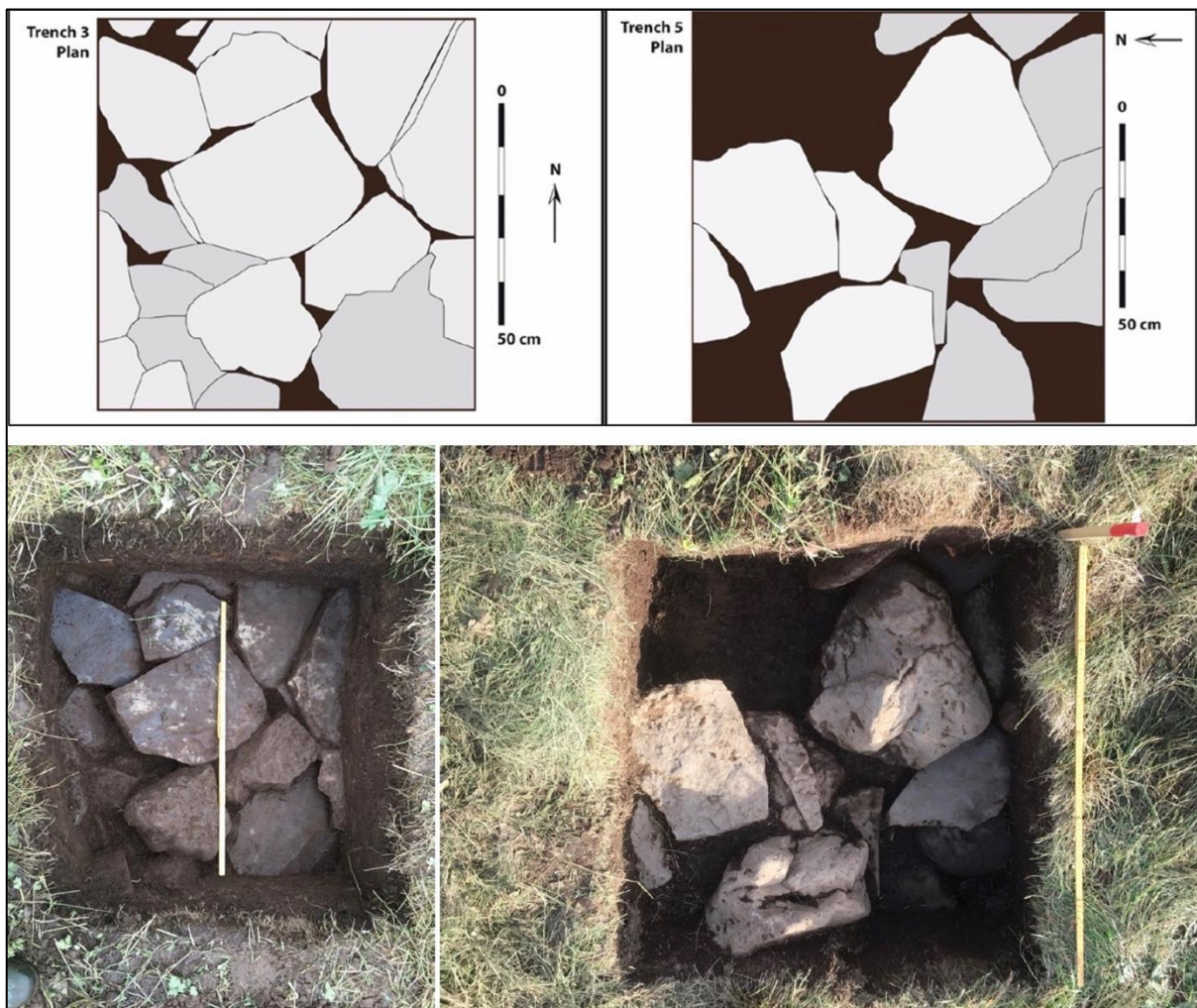


Figure 151. Test-pit 3 (upper/bottom left) & test-pit 5 (upper/bottom right showing the flagstone layer identified). Image credit: Kevin Martin.

Test-Pit	Dimensions	Layers	Artefacts
1	1.10m, 1.10m, 1m deep	Grey brown silty clay.	Glass, red earthenware ceramics, charcoal
2	2m x 1.50m, 0.85m deep	Grey brown mottled silt, dark brown turfy layer.	Glass, red earthenware, clay pipe, brick, textile.
3	0.9m x 0.90m, 44cm deep	Brown silty clay, stone layer.	Clay pipe, red earthenware.
4	40cm x 40cm, 1m deep	Black burnt turfy rich layer, gravelly silt.	Glass, Westerwald stoneware, clay pipe, brick.
5	1.10m x 1.10m, 45cm deep	Dark brown silt, stone layer.	Red earthenware, flint, iron fragments.

Table 12. Summary of Arnarstapi 2016 archaeological results from test-pits 1-5.



Figure 152. (left) Clay-pipe foot fragment showing the makers' mark 'WH'. (Right) Additional clay-pipe fragments recovered. Image credit: Jakob Orri Jónsson.

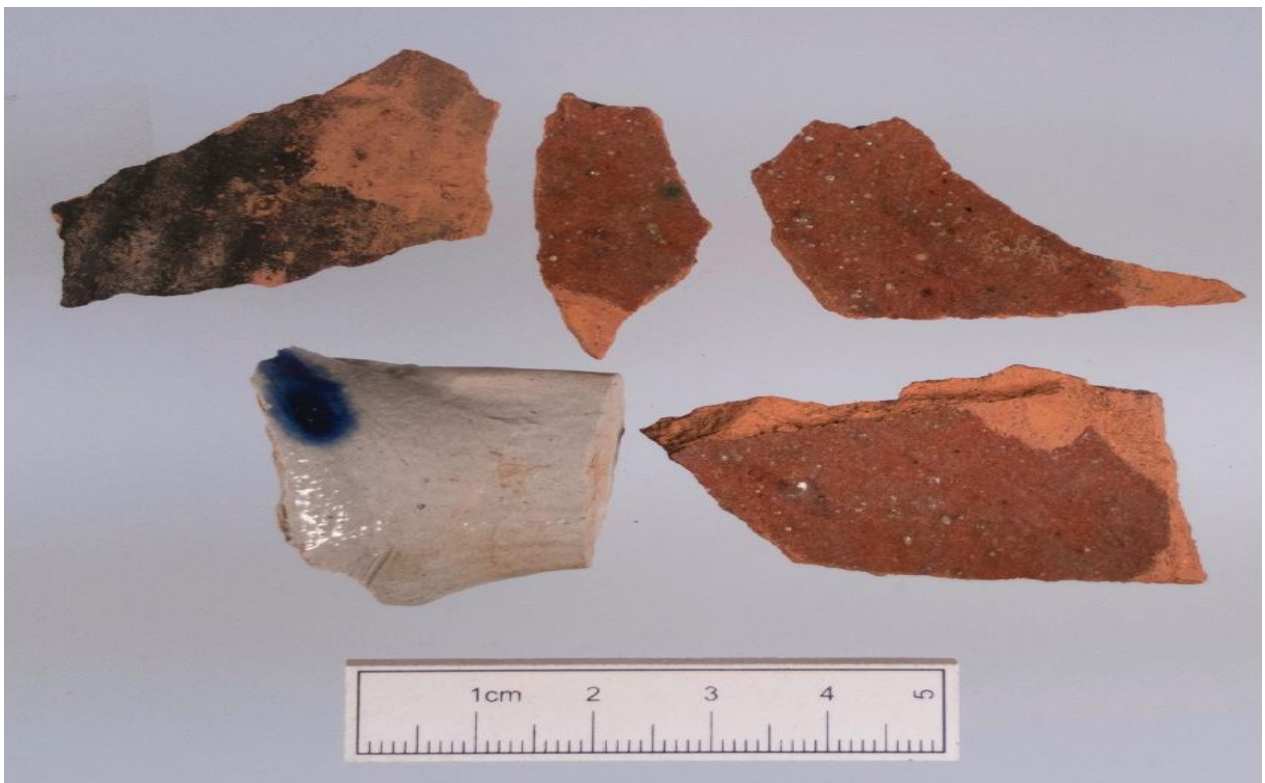


Figure 153. Westerwald jug handle fragment (white with blue dot) and four red earthenware fragments recovered during the 2016 Arnarstapi excavation. Image credit: Jakob Orri Jónsson.

2017 excavation results

Four test trenches (T6-T9) were excavated and recorded at Arnarstapi during the 2017 field season (Figure 154, 155). A larger field crew allowed for a more substantial investigation of the case study target area than had been possible in 2016. A summary of the archaeological results from each excavation trench follows.



Figure 154. Layout of the test trenches (T6-T9) within the 2017 excavation area at Arnarstapi. Image credit: Kevin Martin.

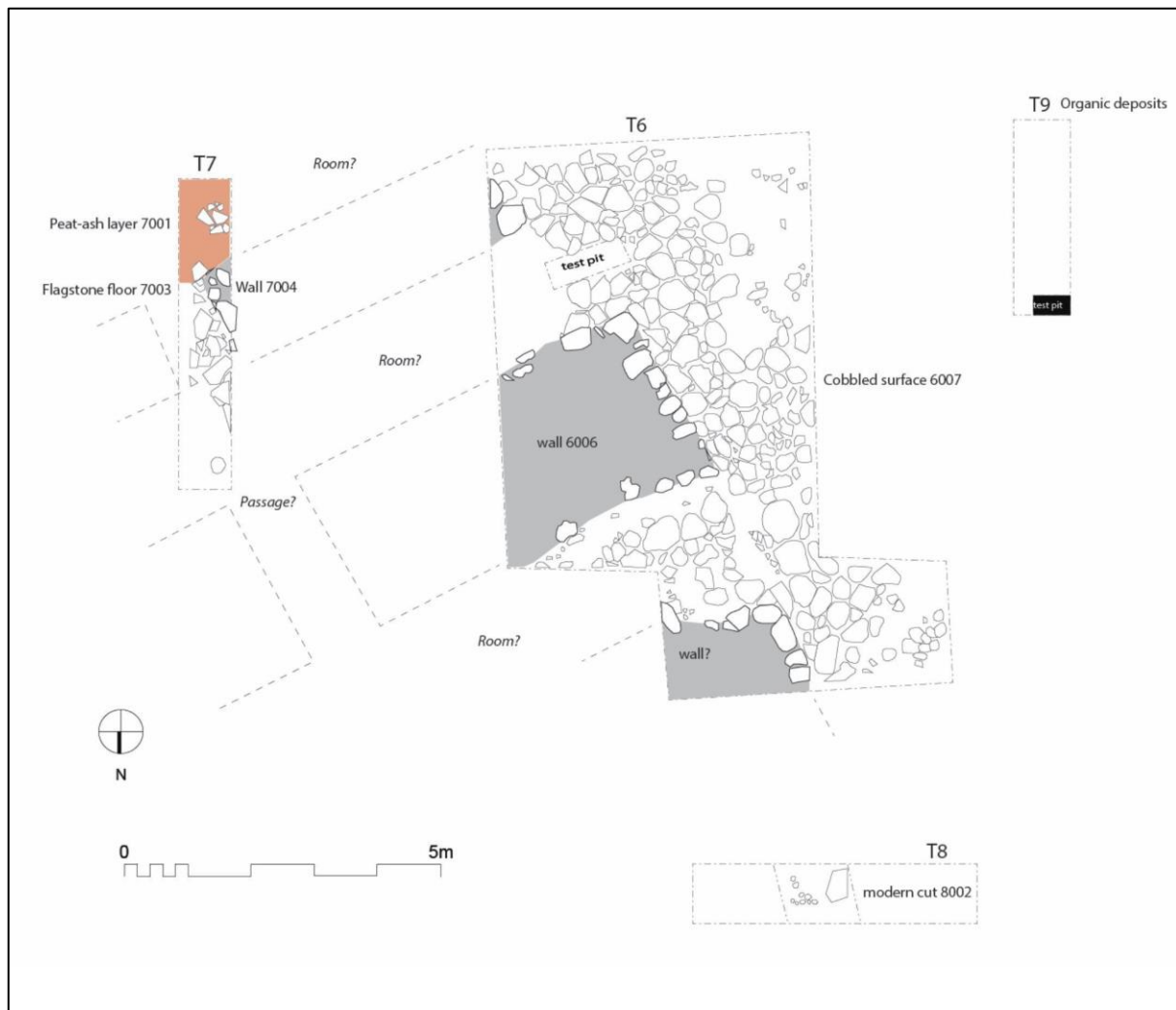


Figure 155. Plan of the 2017 excavations at Arnarstapi showing the test trench layout and main features identified.

Trench 6

Trench 6 was positioned directly over the previous location of test-pits 3 & 5 in order to further expose the previously identified stone surface feature and any associated remains. The trench measured 5m x 6.40m and varied in depth 20-90cm. A small extension of 2m x 4.40m was added on its northern side towards the end of the fieldwork to expose more of the flagstone surface. A total of 14 deposits, layers and features were identified within Trench 6 and a large number of artefacts (480) were recovered from deposits within the trench. These included ceramics, glass, wood pieces, brick fragments, clay-pipe fragments, part of a stone fish-hammer, a copper-alloy shoe buckle (Figure 168) and part of a leather shoe sole.



Figure 156. Looking southeast over the remains of the turf and stone wall which directly abutted the stone pavement in Trench 6. Image credit: Kevin Martin.

The complete lower levels of an internal turf and stone-built wall from a building were uncovered and part of a second wall in the western half of the trench orientated northeast to southwest (Figure 156). The wall measured 3.60m long (west side), 2.15m wide (south side) and was defined by a single course of angular to subangular stones. The fill of the wall was a mid-brown turf with patches of lighter and reddish turfy material. Several associated artefacts were recovered and included a yellow brick fragment and pieces of glass. Two separate rooms were identified on either side of this wall (Figure 155). The room to the south of the wall had internal dimensions of 1.40m x 1.30m, although its area is likely to have been bigger as our excavation area did not uncover the original full extent of the room. The room to the north had a measured floor area of 2.50m x 2.50m. The floor surface of the southern room was interpreted to have originally been made of wooden planks long since eroded (though small remnants of these planks were noticed during the removal of the fill layers in this area. The northern room had a stone/cobbled floor.



Figure 157. Looking northeast along the flagstone pavement uncovered in Trench 6. Note the slot trench excavated through this layer in the middle of the image. Image credit: Kevin Martin.

The flagstone pavement first identified in 2016 was exposed in Trench 6 and measured 9.10m long and 1.15-1.60m wide. It was composed of flat flagstones of various sizes laid horizontally and orientated to northeast to southwest (Figure 156, 157, 158). The stones ranged in shapes and sizes but most were flat and angular and laid deliberately to form a flat walking surface. A mid brown silty clay filled the gaps between each of the stones. Associated artefacts recovered included brick fragments, ceramics, clay-pipe fragments and glass. A small slot trench/box section was excavated to 68cm depth across the stone layer to investigate any evidence for underlying activity or earlier phases (Figure 157). This slot

trench revealed that 20-40cm directly below the flagstone layer was a thin horizon of small flat stones set on top of brown clayey silt. This may represent an attempt by the builders to level the ground surface before setting the flagstone surface layer down or potentially itself represents an earlier stone surface or pathway. No associated artefacts were found with this layer so it was not possible to interpret whether it represents an earlier phase of activity at the site or just a concentration of flat stones. Apart from this layer, no evidence of a deeper horizon or earlier phase of archaeological activity was recorded and would suggest the turf-walled structure and stone surface belong to the earliest phase of activity at the site. However, further excavation at the site is necessary to explore this issue more thoroughly. The flagstones were interpreted to represent an exterior pavement of a turf-walled structure known in Icelandic as a *hlað*.³²⁸



Figure 158. Looking southwest across Trench 6 showing the stone surface, turf-wall and the proximity of the excavation to the boundary wall of the *Amtmannshúsið*. Image credit: Kevin Martin.

³²⁸ The *hlað* was a flagstone pavement that often was laid outside the front wall of a turf-walled structure, extending 1-2 meters in front of the structure's facade (Kevin P. Smith, pers. comm. 2021).

Trench 7



Figure 159. A mid-excavation image of Trench 7 showing dark peat ash charcoal rich layer in the foreground. Image credit: Kevin Martin.

Trench 7 measured 5m long x 1m wide and was located 4m east of Trench 6. The uppermost layer comprised a mixture of turf and topsoil and contained quite a variety of artefact types including leather, textile, ceramics, glass, stone and bone. A peat-ash/charcoal rich layer was localised at the southern end of Trench 7 and likely represented a floor layer (Figure 159). It was an irregular in shape, approximately 1m in diameter and 1-6cm thick. Fragments of pottery, glass and flint were recovered from it and a possible bone-handled iron knife. A layer of flat flagstones was recorded on the bottom of the trench measuring approximately 0.80m wide, was interpreted to be part of an internal stone corridor. The flagstones, similar to those seen in Trench 6, were 4-5cm in size and were laid horizontally, with the axis of the flagged corridor orientated northwest to southeast. The flagstone layer abutted a wall/kerb line on its southern side, which was interpreted as

representing either part of a beam slot foundation or a drain for a larger structure. A variety of artefacts were recovered from this deposits within this trench and included pottery, glass, brick fragments, part of a stone fish-hammer, bone, iron and possibly worked wood. A small section of dry-stone wall foundations (two courses high / 24cm) was orientated northwest to southeast and abutted the flagstone floor (Figure 160). The wall foundation and pavement appear to have been contemporary with one another. Since, the wall's foundation had the same orientation as the wall recorded in Trench 6, both were interpreted as representing the lower courses of internal walls in a single turf-walled structure.



Figure 160. The flagstone floor and stone wall in Trench 7. Image credit: Kevin Martin.

Trench 8

This trench measured 4.30m x 1m and was 1m deep. It was located 2.50m north of Trench 6 and was the most northerly area of the site investigated. The upper layers were quite disturbed, and a cut potentially related to modern pipelaying activity in the area was recorded. At the waterlogged base of the trench a sandy layer with a notable inclusion of pebbles and large stones was recorded (Figure 161). This may indicate some activity contemporary with the flagstone-surfaced construction seen in Trench 6 and could suggest an effort by the previous occupants to raise the ground level at this point above the water table line.



Figure 161. The stone layer at the base of Trench 8. Image credit: Kevin Martin.

Trench 9

Trench 9 was situated 3m west of Trench 6 in an area that was identified as the most waterlogged part of the site. It measured 3.50m long x 1m wide and was excavated down to a depth of 0.90m (Figure 162). The upper layers contained a noticeably high quantity of artefacts including ceramics, clay-pipe fragments, glass, brick, animal bone, iron, worked stone and bits of wood including an oak barrel lid (Figure 167). The lower stratigraphic layers were dark, organic-rich waterlogged layers and contained fish bones, wood and leather and textile pieces. A fragment of a glazed ceramic oven tile was recovered halfway down in the section and suggests the nearby structure once featured a ceramic tiled oven (Figure 165). It was evident that the organic deposits continued deeper, but the rising water table prevented further excavation. Based on the amount of organic material in the deposits this area was interpreted as being a dumping area for domestic rubbish connected to the settlement during the later 17th and early 18th centuries.



Figure 162. The south facing section of Trench 9 with the dark organic-rich deposits visible at the base of section. Image credit: Kevin Martin.

Specialist analysis

Artefactual analysis

A total of 1,231 artefacts were recovered during the 2017 season of fieldwork at Arnarstapi which when combined with the artefacts recovered during the 2016 season resulted in a total of 1,329 objects (See Table 13). The artefact types included brick, ceramics, worked-wood, leather, textile, bone, glass, lead, copper and iron (Figures 154-160). Ceramics were the largest category of artefacts recovered and the assemblage was dominated by red-fired, lead-glazed earthenwares (Figure 163). An analysis of the ceramics and clay-pipe assemblage indicated the presence of a range of imported ceramics including Frechen, Rhenish and Westerwald stonewares, lead- and tin-glazed earthenwares (faience) and porcelain (Jónsson, 2017). Moreover, the ceramic analysis identified a minimum number of 29 individual vessels within the assemblage, representing everyday items expected within a higher status household from the late 17th to 18th centuries, ranging from domestic cooking pots and storage jugs to more prestigious hand-painted tablewares (ibid.). ICP analysis

carried out on four ceramic sherds (three redware and one faience) indicated that they originated from workshops in Bremen, Copenhagen and Zealand/Bornholm illustrating the trade connections that Arnarstapi would have had through the ships arriving during the trading seasons (Brorsson, 2019).

The clay pipe assemblage represented at least 22 individual pipes, the majority of which were of types that can be dated between 1600-1750 (Jónsson, 2017), (Figure 164). All of the various component parts of clay-pipes were recovered, including bowls, stems, shanks, and mouthpieces. The main types identified were the Dubbelconisch and the Jonas pipe. Identifiable stamps were noted on several of the pipe bowls which included the Melkmeid (1660-1898), the Posthoorn (1674-1782) and a likely Krigsman (1732-1865) / David (1682-1945). The majority of pipe fragments were recovered from the upper stratigraphic layers of Trench 6.

Artefact/Material Type	2017	2016	Totals
Clay Pipe	142	52	194
Pottery	280	49	329
Glass	110	21	131
Iron	47	3	50
Copper	4	1	5
Stone	160	5	165
Brick	339	49	388
Leather	4		4
Lead	2		2
Textile	60	1	61
Combined Total			1329

Table 13. An overview of the artefacts, material types* and quantities recovered during the 2016 and 2017 fieldwork seasons at Arnarstapi. *Note that wood and bone artefacts are not included on this list but are detailed in a separate section below. Source: (Jakob Orri Jónsson 2017)

The artefactual assemblage from Arnarstapi can broadly be dated to c. 1650-1730 based on the clay pipes and ceramics. Pipe bowls and stamps where datable, mostly tended to be from the latter half of the 17th century with one early 18th century bowl. The pottery was mostly Rhenish stonewares (Frechen and Westerwald) and glazed redwares (both tablewares and cooking vessels), with smaller amounts of tin-glazed (all faience) and one

Chinese porcelain vessel. Glass vessels were rarer but included some bottles and at least one stemware. Considered as a whole, the assemblage sits comfortably in the latter half of the 17th century but clearly extending into at least the first quarter of the 18th century but probably not much later (Gavin Lucas. pers. comm. 2021).

The textiles recovered were analysed and were estimated to represent 20-30 individual fragments, most of which may have originally been part of the same larger piece of cloth (Hayeur Smith, 2017), (Figure 169). One possible knitted piece was evident as well as numerous fragments of cut-off hems, which were most likely the cast off waste from sewing activities and garment repair. One example of a possible imported textile piece, most likely produced on a flat loom, was also noted in the collection. Overall, the textile quality was considered to be representative of antiquated or poorer production practices when compared against equivalent pieces recovered from known high-status Icelandic sites such as Skálholt. The weave type identified was typical of early modern homespun Icelandic cloth and can be dated between the 17th & 19th centuries (ibid.).



Figure 163. A selection of the various ceramics recovered from the 2017 excavations at Arnarstapi. Image. Jakob Orri Jónsson.



Figure 164. A selection of clay-pipe bowls and stems from the 2017 excavations at Arnarstapi. Image credit: Jakob Orri Jónsson.



Figure 165. A fragment of a glazed ceramic oven tile recovered in 2017. Image credit: Jakob Orri Jónsson.



Figure 166. Part of a conifer barrel stave recovered from topsoil. Image credit: Kevin Martin.



Figure 167. Part of an oak barrel lid recovered from the organic-rich layers in Trench 9. Image credit: Kevin Martin.



Figure 168. Copper-alloy shoe buckle recovered from topsoil in 2017 at Arnarstapi. Image credit: Jakob Orri Jónsson.



Figure 169. Some conserved textile pieces recovered from the 2017 excavations at Arnarstapi. Image credit: Jakob Orri Jónsson.

Faunal remains analysis

The small quantity of animal bone recovered from the 2016 and 2017 fieldwork seasons at Arnarstapi was also analysed by (Cesario, 2019). The total number of fragments (TNF) was 123 with 91 of these being identifiable to species (NISP), (ibid.). Fish bones were the most numerous and were all gadid species, mostly cod (*Gadus morhua*) with two from ling (*Molva molva*). The bones were predominantly from the skull which is suggestive of a producer signature for dried fish production, although it was noted that the quantities of fish bones found were too low to suggest this activity (ibid.). The fish bones recovered were more likely related to consumption on-site rather than to the production of export products, and the recovery of several stone fish-hammers (which were used to soften up the dried fish before eating) during the excavations lends some support to this. The stone fish-hammers were multi-functional so could also have been used for other activities. Faunal evidence for domesticates in the form of cattle and sheep remains were also identified. This may indicate the dietary preferences of the previous occupants of the structure, although it was not possible to understand or interrogate this further due to the small sample size.

Wood analysis

A total of 198 wood samples were analysed from Arnarstapi and included worked pieces and charcoal (Eggertson, 2019). The analysis revealed the presence of numerous wood species including birch, oak, willow, beech, juniper and conifer (ibid.). Of these, only the birch and willow are native to Iceland so all the rest would likely have been imported through the nearby port at Arnarstapi. Part of an oak and conifer barrel stave and an oak barrel lid were recovered during the 2017 season (Figure 157, 158). Of note amongst the wooden samples was the identification of three tropical hardwoods (taxa not specified) which suggested the presence of furniture or floors made from tropical hardwood within the structure, which aligns with a higher-status interpretation of the household whose members had access and the means to acquire what would have been luxury items during the period.

Discussion and interpretation

The excavations confirmed the presence of previously unknown remains of a late 17th to early 18th century turf-walled house at Arnarstapi. The house was orientated northeast to southwest and would have featured a central paved corridor, part of which was uncovered in Trench 7, with adjoining rooms divided by internal turf walls on opposite sides of the corridor (Figure 170). Based on analysis of the associated artefactual assemblage recovered from deposits within and around the structure, this would have been a high-status household. Material evidence supporting this interpretation included the presence of high-quality

imported ceramics including Rhenish stonewares, Danish faience and redware skillets from Bremen and Copenhagen, glass, metalwork and the evidence of tropical hardwoods within the house, either as a floor layer or furniture (K. Martin, 2017b). Several internal rooms within the structure were identified and partially excavated and the remains suggested the presence of a peat-ash, wooden and paved stone floor. An exterior flagstone pavement (is. *hlað*) was recorded on the west side of the structure and an area farther to the west of this contained organic deposits, which included fish bones and scraps of textiles, suggesting this was a dumping area for domestic refuse from the house. The excavation area was not large enough to determine the overall size of the structure nor which part of the structure was exposed during the case study excavations. However, it was evident that further archaeological remains of the building continued both to the southeast and to the northeast of the exposed areas. Any future return to the site should concentrate on exposing remains in these areas.

Turning to the question of how this structure may have related to the operation of the trade port during the Trade Monopoly Period, the evidence suggested that the building itself was not directly part of the port infrastructure owned by the merchant. The presence on John Baines 1789 sketch map of a large square enclosed compound in the vicinity of the excavation area and the absence of any significant late-18th century component in the excavated assemblage makes the case that that late 18th century compound most likely had 17th-early 18th century antecedents but had moved somewhat away from the excavation area by the end of the Trade Monopoly Period. However, the artefactual assemblage, rich in imported material culture, testifies to direct connections between the two areas. The 1774 merchant record books, referred to earlier, do not specifically list a stand-alone turf-walled building as part of the recorded trade port inventory: however, these inventories recorded only those buildings which the merchant or the trade port owned, so the excavated structure appears to have been the home of a high-status individual set back approximately 150m from the port area. The proximity of the structure to the location of the later 18th century local governors house (*Amtmannshúsið*) and the quantities of imported artefacts identified particularly ceramics would suggest that it was the home of another high-ranking and wealthy official and was most likely that of the Kings agent (is. *umboðsmaður*) or sheriff (is. *sýslumaður*). The *umboðsmaður* would have acted directly as an agent of the Danish King, and liaising closely with the local governor and the merchants at the nearby Arnarstapi port, while also administering to tenant farms belonging to the Crown within their jurisdiction (Lucas *et al.*, 2021). The Icelandic census (is. *manntal*) of 1703 recorded that 35 year old Magnús Björnsson performed the dual roles of sheriff and Kings agent at Arnarstapi and lived there along with his wife Þórunn Einarsdóttir and their new-born infant son Eínar

(Brynjarsson, 2021, p. 23; Manntal á Íslandi, 1703, p. 105). Moreover, it also listed a number of people in the same locality described as servants, some of whom we can presume may have been in the service of the sheriff and his household, with perhaps some even living within his household. Sadly, it appears that Magnús Björnsson's time in Arnarstapi was short-lived as it is recorded that both he and his wife died from disease (likely small-pox) in 1707 (Benediktsson, 1905-1908, p. 186). Magnús Björnsson and his family may very likely have been the former occupants (albeit short-term) of the turf-walled house excavated during this study. Although the building excavated was not directly part of the Arnarstapi port's infrastructure established by the merchants, its discovery and excavation nevertheless still connects us into that world and to the trading activities at the port. The outlined results clearly support the position that archaeological approaches to investigating the trade monopoly ports and their surroundings can be rewarded with new evidence and insights which in-turn can enrich our understanding of these places in the past.



Figure 170. A conjectural interpretation of the turf-walled building layout at Arnarstapi based on the results of the archaeological excavations. The green squares represent the internal turf-walls divided with a central paved corridor. The internal ash, wooden, and paved floors are highlighted as well as the external flagstone pavement.

Exploring the social space at the trade ports

As the monopoly trade progressed from the early 17th century to the end of the 18th century there was not only just a perceivable change in the infrastructural footprint of the trade ports themselves but also an accompanying perhaps inevitable change in the hierarchy of the social space within the ports. It's important to define when using the term social space what is being projected and, in this regard, Delle's definition is well-suited. Dell (1998, p. 38) described social space as "the complex set of relations that define a person's spatial relationship with other people and with material space". Eriksson (2014) examined this issue in relation to the internal divisions of social space on board flute ships from the 17th century and one can project those findings to some degree onto the arrangement of the living space at the trade ports in Iceland during the same period, which in some respects were likely similar to those on the merchant ships like the *Melckmeyt*. If anything, the low-ceilinged flutes may have offered more 'luxury' and 'privacy' to the visiting crew of a merchant ship than the facilities which greeted them on their arrival at a trade station in Iceland in the early 17th century. Eriksson (2014, p. 118) proposed that a flute ship moored in a town more or less became a townhouse, just a mobile version of one essentially. The crews would have also used the facilities of their ship while in port as additional living/sleeping quarters. This was at least the documented practise observed by visiting Hanseatic merchants and their larger crews in the later 16th century (Holterman, 2020, p. 150). There is no reason to suspect the Danish would not have followed similar arrangements. Concerning the hierarchy of space on the flute ships, Eriksson (2014, pp. 112, 114), concluded that though the majority of everyday concerns onboard were carried out together in a shared space with other people, that did not make them 'co-equal' or prove that an egalitarian power structure existed on board. There were indeed some benefits from the merchants' and skippers' perspectives to be 'embedded' with their crews whether on board or at the trade ports. It "may have been a way of keeping an eye on them and ensuring good behaviour. Being away from the crew was unwise, as it would offer opportunities for cultivating displeasure with conditions on board" and additionally, on land (ibid., p. 118).

Control of the movement space within the trade port boundaries could often be more complicated than on board the ships, especially when the movement of Icelanders and their accompanying horses and livestock arriving at the ports to trade is factored into the picture. There is frequent mention in the historical sources of the farmer at Arnarstapi making complaints about the impact on his grazing lands from trampling and grazing horses belonging to locals coming to trade at the harbour (Aðils, 1971, p. 277). Their impacts affected the farm so much that people couldn't bring sheep to graze in the summer and there was no hay in the winter (ibid.). In the 18th century when records get more detailed as to the

specific types and functions of buildings at the trade harbours, we can begin to identify more formal designations of possession spaces within the material spaces (buildings) that were constructed there. The ports were often depicted with physical barriers such as boundary walls and fences surrounding a cluster of buildings which suggested a deliberate attempt on the merchants' part to control the access and egress of patrons visiting the trade houses.

The description of the trade houses at Rif in 1719, showed a division of the social space particularly in relation to specific lodgings or quarters for those who worked and lived at the port. The buildings by that point were said to be 50 years old so this arrangement was one which had likely been in place long before 1719. Another interesting reference to the division and control of social space is from the map of the Patreksfjörður from 1766 (Figure 165), which specified the position of the Icelander's seat within the merchant's store, presumably where any locals visiting were expected to sit and wait their turn before being served. This shows a formality of movement within these buildings had been established and was practised. The formalisation of the material space was likely also due to changes in the merchants' own involvement with the trade which at this point was becoming a year-round enterprise requiring more capital and time investments. As the ports expanded so too it seems did their social hierarchies, which became more formal and regimented and represented itself within the divisions of everyday social space.

Archaeology of the everyday

In contrast to the historical narrative, archaeology allows us to ask different questions of the evidence for this period, questions that up to now have not been asked or could not be asked. A good example of this is the consideration of social hierarchies and how they likely influenced the design and use of space on trading vessels and at the trading ports and how that space was manifested within the archaeological record. These issues were often considered trivial matters which the written sources did not record or pay much attention to, but which were acted out every day within these settings. Regarding the buildings at the trade ports the following description from Eriksson (2014, p. 36) seems appropriate, "the building is inherent in all those seemingly trivial routines and practices of the everyday. The location of walls, doors and similar, set the limits for our behavioural action". These were ordinary, often unconscious actions to those performing them and were not deemed important enough or of interest to record. In examining these issues, to paraphrase the title from Price & Carr's (2018) book and article, archaeology allows us to investigate the ordinary and show why the archaeology of the everyday matters. Eriksson previously argued that "abstract notions such as hierarchy or other social relations may be expressed through spatiality but still there are a thousand other ways – activities, procedures, routines and acts

– carried out continually in order to reproduce and to uphold such relations” (2014, p. 114). Evidence for these expressions of social relations are archaeologically inaccessible to us today, but they were nonetheless important aspects of the daily lives of those who lived at the ports.

A more in-depth assessment of the divisions of social space and social hierarchies in relation to the trade ports is unfortunately beyond the scope of this project's remit. It is nevertheless worth identifying and highlighting in relation to our understanding of this period and is perhaps best left to a future research study to address properly. Understanding the social hierarchies which existed at these places will help to better interpret why specific structures were built and selectively partitioned.

Chapter 6: Maritime potentials and impacts

Maritime archaeological potentials around the trade ports

Up to this point, the discussion of this study has focussed on either specifically maritime or terrestrially situated archaeological remains in the form of shipwrecks or trade ports. But what about the area in-between? Any discussion about the potential archaeological remains associated with the trade ports should also include reference to the littoral zone and harbour areas of these ports which were essentially the *in-between* spaces where the terrestrial and maritime components of the trade connected. A recently published article (Lucas *et al.*, 2021) by researchers (including the author) involved in the larger trade monopoly study (*Commodity Entanglement. The Archaeology of the Trade Monopoly*) acknowledges this issue of “the longstanding separation of maritime and terrestrial archaeology” which when considering trade especially as it relates to an island like Iceland in the middle of the North Atlantic, is inherently problematic. It’s perhaps time to start thinking of these places in a different way and to incorporate into the methodology of future archaeological surveys of the trade monopoly ports and their coastal surroundings that these represent an example of a connected maritime cultural landscape as defined by Westerdahl (1992, p. 5), where the remains on land and below the water are inextricably linked.³²⁹ Examples of previous maritime investigations of historic ports and former coastal trading sites in Norway presented below, offer some approaches which could be adopted in future archaeological surveys of the Icelandic trade ports.

Elvestad & Opedal’s (2019) maritime archaeological investigations of the former Hanseatic harbour at Avaldsnes, Norway, though from a slightly earlier period than the Danish trade monopoly, offer a useful survey methodology and insight into the variety and types of cultural remains that could be expected to uncover at the trade ports in Iceland should we interrogate the surrounding waters and seabed more thoroughly in the future. In many ways, the Avaldsnes project is an example of a methodology that treated the harbour area and its surrounding waters as part of a wider connected maritime cultural landscape. The investigations at Avaldsnes revealed land-based remains in the form of structural ruins, mooring cairns and stones, boathouses, loading cliffs and landing places and underwater cultural material which was spread out over an area of 7,000m². Accumulated depositions of cultural remains, up to 1.40m deep, consisting of animal bones, cut wood and pottery fragments were identified underwater and their distant location far from the shore suggested

³²⁹ Westerdahl defined the maritime cultural landscape as the unity of remnants of maritime culture on land as well as underwater (1992, p. 5).

that this represented domestic rubbish “loaded onto barges and dumped in deeper areas where it would not reduce the depth for sailing vessels” (Elvestad & Opedal, 2019, p. 225). In addition to the cultural deposits, a late 14th- or early-15th century shipwreck, ballast heaps and substantial jetty foundations were identified (ibid.).

In relation to the archaeological evidence of small ports in Norway from the period (800-1800), Nymoén (2009) focussed on the problems inherent in interpreting these sites by considering the terrestrial and maritime archaeological evidence separately rather than together. Many of the natural ports or loading places Nymoén examined were only seasonally active, leaving little to no terrestrial evidence of their former trade activities; yet underwater the evidence uncovered in the form of ceramics, cultural layers, ballast, cargo barges and shipwrecks pointed to these areas being utilised for trade and exchange in the past. He (2009, p. 122) termed these locations “*invisible ports*”, which the documentary sources often failed to even acknowledge and which he felt should be viewed as part of a larger network of ports along waterway transport and trade routes rather than as stand-alone, non-connected natural anchorages. Could we view these “*invisible ports*” as potential models for the trade ports and unlicensed ports in Iceland from the trade monopoly era that no longer have any identifiable upstanding archaeological remains on land (or that may never have had any permanent structures such as the temporary ports such as Straumfjörður or Hrítafjörður), but which may reveal an entirely different story of activity underwater? Nymoén’s (2009, p. 122) main argument was to highlight the potential that marine archaeological research can play as a “method for seeing landscapes, harbours and places from another angle” which the traditional sources (documentary/historical) have tended to overlook because such places did not later become towns or urbanised ports.

The case study investigations at Arnarstapi were originally planned to include an underwater survey of the harbour and surrounding coastline area to identify archaeological remains relating to the use of the port during the Trade Monopoly Period. Logistical issues prevented this from taking place but considering the potential for underwater archaeological remains at these places should be considered as much a factor of their archaeological potential as their terrestrial remains. The main features one initially thinks of when considering underwater archaeological remains are shipwrecks. The wreck of the *Melckmeyt* showed that even where the ships were anchored in the protection of harbours and bays they were still prone to sinking. The historical sources indicated that as many as 56 vessels per year in the period 1600-1900 sank around the Icelandic coastline, suggesting that there is a good potential that their remains could be uncovered (Grassel, 2017, p. 165), (see Chapter 4).

Anchorage conditions at many of Iceland’s trade ports were known to be problematic and a

review of the shipwreck references recorded in the Icelandic annals for the neighbouring harbours of Arnarstapi and Búðir suggest that at least 15 vessels wrecked at, or near, these ports during the period 1600-1800, (Table 14). It's likely that not all these references resulted in actual shipwrecks that could be investigated archaeologically as damaged ships were often salvaged, repaired, and re-floated, even though the annal entry may have used the term wrecked or broken. Additionally, the records do not always distinguish between merchant vessels and other types of ships such as fishing boats or whalers which may have also been seeking the 'safety' of these harbours before getting into difficulty. Despite these issues, the references provide a good indication of the expected risks and uncertainties faced by the merchant ships involved in the trade and their crews. Tragedy in the form of the human lives lost at the ports did not only occur as a result of shipwrecks, however. Two references from the Grímsstaðaannáll in 1705 illustrate this. One stated that a man died after falling off the sea cliffs at Arnarstapi during the night (Annálar 1400-1800, Vol. 3, 1933-1938, p. 530).³³⁰ The second stated in what can only be described as a truly bizarre incident, that the sous-chef (is. *kokksmátid*) onboard a ship arriving at Arnarstapi, threw himself out of the window into the sea and died (ibid.)³³¹

³³⁰ The original entry in Icelandic stated - "Maður datt ofan fyrir sjávarkletta á Stapa um nótt"

³³¹ The original entry in Icelandic stated - "Kokksmátið á Stapanum í hingaðsiglingunni kastaði sér út um glugga og dó"

Port	Date	Description	Source
Arnarstapi	1645	A ship wrecked at Arnarstapi	Vatnfjarðarannáll Elzti, Book II, p. 63
	1645	A ship wrecked at Arnarstapi	Ballarárannáll, Book III, p. 204
	1659	One Dutch ship wrecked at Arnarstapi	Ballarárannáll, Book III, p. 215
	1685	Two ships wrecked south of the Glacier (most likely referring to Snæfellsjökull)	Grímmstaðaanáll, Book III, p. 482
	1753	One ship wrecked at Arnarstapi	Grímmstaðaanáll, Book III, p. 621
Búðir	1607	A Danish ship wrecked at Búðir	Ballarárannáll, Book III, p. 190
	1666	A ship wrecked at Búðir	Fíjtaannáll, Book II, p. 208
	1724	Five ships broke in Breiðafjörður and Búðir	Hrafnagilsannáll, Book IV, p. 656
	1728	Danish layover at Búðir as their ship broke when sailing from harbour	Hrafnagilsannáll, Book IV, p. 662
	1754	One ship wrecked at Búðir	Grímmstaðaanáll, Book III, p. 623

Table 14. Shipwreck references relating to Arnarstapi and Búðir from the Icelandic Annals.

In what can be interpreted as a response by the Danish admiralty to reduce the frequency of shipping losses at the Icelandic trade ports, ships pilots/marine sightings (*Beskrivelse Over Den Ilandske Kyst og Alle Havne*) were published for the harbours from 1788-1822 (Løvenørn, 1821). Detailed maps with depth soundings and marked anchorages at each port were made which accompanied the pilot descriptions (Figure 171).

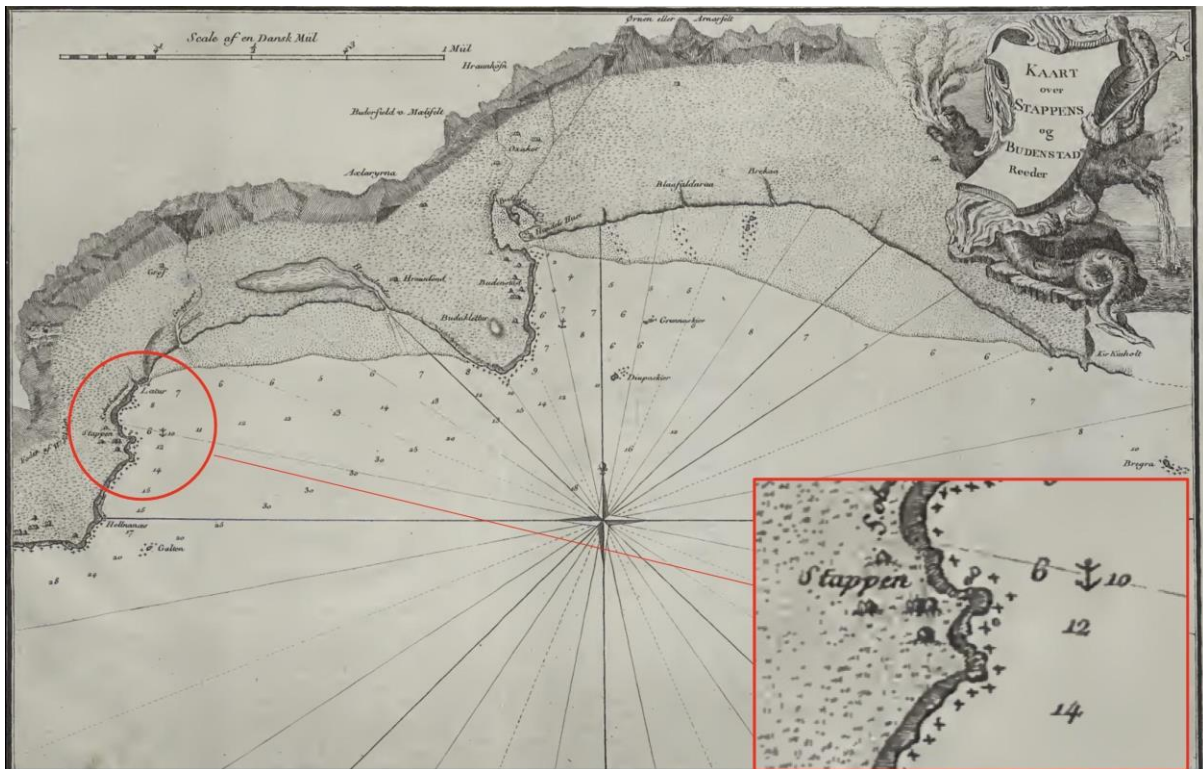


Figure 171. Detailed map of Arnarstapi (Stappen) harbour (circled in red) and Búðir harbours published in 1788 to accompany the ships pilots. (Inset) close-up view of Arnarstapi harbour. Source: Lbs. Poul Løvenørn, 1788-1822, p. 38, Plate K.

Búðir wreck

In 1998, during unmonitored excavations for the laying of underground electrical lines across the Búðarós estuary at Búðir harbour, worked ship timbers, bricks and rounded ballast stones were uncovered by employees of the power company RARIK (Stefánsson, 1998), (Figure 172). The disturbed remains were later examined and recovered by archaeologists from the National Museum of Iceland (Þjóðminjasafn Íslands), but incredibly no further excavation work took place at the original findspot to check if any more timbers were still in-situ.



Figure 172. Ship timbers recovered from Búðir harbour shoreline in 1998, now stored in the National Museum of Iceland (Þjóðminjasafn Íslands). Image credit: Kevin Martin.

In 2017, a sample of the recovered Búðir ship timbers was selected for C-14 analysis by The Cultural Heritage Agency of Iceland (Minjastofnun Íslands) and returned a calibrated age indicating that the timber dated to between 1485-1656 [1 sigma, 95.4% probability] , (Dunbar, 2017).³³² The internal probabilities within the 1-sigma range suggested that the most likely dating period is 1521-1577, (45.5%) indicating that the timber could possibly be from a Hanseatic ship (ibid.). These dates should only be seen as approximate given their probability ranges and uncertainties regarding what part of the original tree the dated samples represent. Dendro-chronological dating is recognised as being far more accurate when dating ship timbers in cases where the sample contains enough rings. There are

³³²Suerc-70948 (GU42686) C-14 sample submitted by Rúnar Leifsson/ The Cultural Heritage Agency of Iceland (Minjastofnun Íslands) in 2017.

numerous reasons for this, including whether the C-14 sample was from the lignified heartwood of a large oak tree or whether marine water infiltration could have impacted the sample. Also only having one C-14 date from a single ship's timber is somewhat problematic, since many ship's timbers were often reused and repurposed from older ships. Therefore, obtaining several samples for dating from a variety of ship timbers provides more accuracy, where possible. To date, however, the single AMS date on the Buðir ship's timbers implies a post-medieval date for at least one wreck there. The ballast stone associated with the timbers was identified as feldspar with suggested provenances of Greenland, Norway, and Britain. The ballast stone was identified as feldspar with suggested provenances of Greenland, Norway, and Britain (Stefánsson, 1998). As the trade ships did not visit Greenland until the 18th century it's unlikely to have been picked up there if the ballast was associated with the Búðir wreck's timbers and Stefánsson (*ibid.*, p. 4) noted that since Búðir was an active harbour for centuries the ballast may not have come specifically from this one known wreck. The bricks recovered were suggested by the investigating archaeologists as likely remnants of a previously standing brick-built house (*is. tígulsteinshús*) that stood at Búðir in 1800 and, if so would not have been associated with the ship (*ibid.*). However, the bricks could also have been used as ballast which was common in this period. Examples of this practice were previously identified in archaeological deposits investigated at the Hanseatic harbour of Avaldsnes in Norway (Elvestad & Opedal, 2019, p. 227).

When the author visited the National Museum of Iceland (Þjóðminjasafn Íslands) in 2018 to inspect the timbers, they comprised five individual pieces (Figure 172). A preliminary examination indicated that they represented floor timbers and V-shaped frames of a wooden vessel where wooden nails, some still preserved in the frames, had been used for attaching them to the ship's keel. Several V-cut outs into the frames indicated that these were timbers from the bilge area (lower hull) with the cut-outs made to allow the bilge water to travel to the lowest point on the ship where the bilge pumps would have been located. It has also recently been suggested that the cable trench excavated in 1998 may have hit the ship's remains in the bow section potentially leaving much of the lower aft part of the ship still in-situ in Búðir's harbour.³³³

Wooden jetties and cranes

Documentary sources, maps, images, and currently available archaeological evidence suggests that the trade ports did not normally have any major built-up harbour facilities such as wharves or quays for arriving merchant ships. However, from the surviving documentary

³³³ See the following web blog post for a detailed discussion of this issue by the author and Bart Holterman: <https://fishandships.dsm.museum/?p=573>

and historical evidence, there are indications of the existence of small wooden jetties and cranes or derricks on the shoreline being employed at some of the ports at least from the early to mid-18th century (Figure 174). The trade ships would have anchored offshore, sometimes requiring as many as three anchors, as shown below in Figures 173 and 175. The goods would have been transferred to the port by means of lighters or small skiffs. Figure 174 shows this practise of using skiffs from shore to load a ship with timber in Norway in the early 17th century.



Figure 173. Húsavík trade port as depicted on the map of Iceland by Hans Hoffgaard from 1723. The wooden jetty and likely harbour crane are highlighted within the red circle. Source: Húsavík Hluti af korti Hans Hoffgaard, National Museum of Iceland (Þjóðminjasafn Íslands), Catalogue ref. 11645/1934-113.



Figure 174. Painting by Andries van Eertvelt showing Dutch ships collecting timber in Norway during the 17th century approximately 1610-1620. Note the use of small boats/skiffs to ferry goods to and from the ship anchored away from the shore which was also practised at the trade monopoly ports. Source: National Maritime Museum, Greenwich, London, Caird Collection, Catalogue Ref. BHC0750. Public Domain.

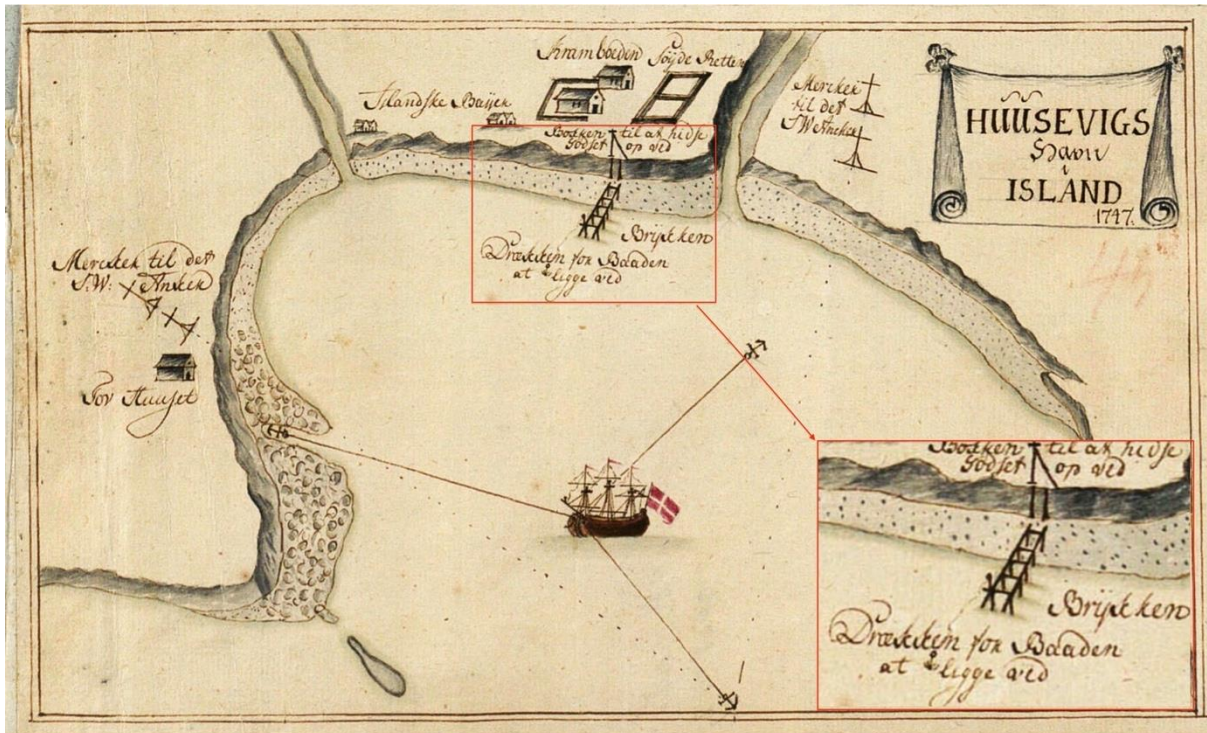


Figure 175. Map of the Húsavík trade port from 1747 by Christian Möller showing a three-masted Danish vessel (possibly a merchant flute or frigate) secured with three anchors in the bay. (Inset) Close-up of the wooden jetty and derrick. The wooden jetty is labelled (dk. *brykken*). Source: Royal Danish Library, ID KBK 1115,42-0-1747/1, Public Domain.

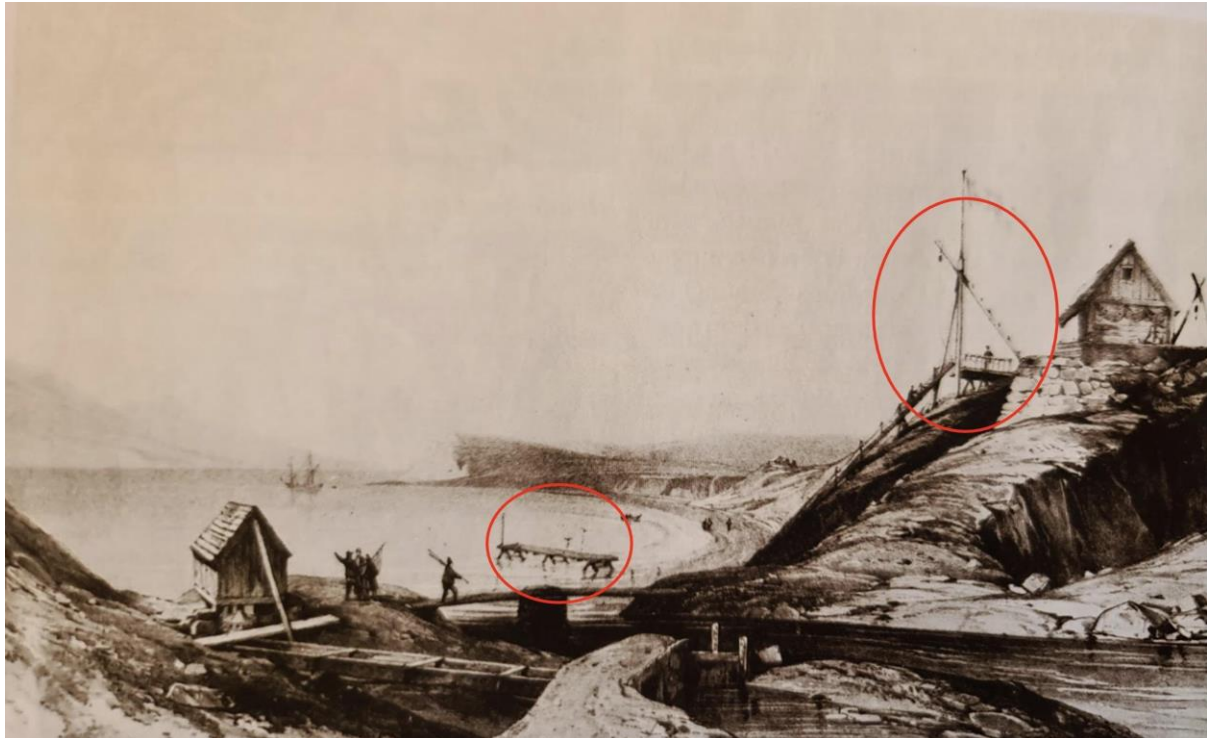


Figure 176. Húsavík trade port depicted in 1836. The wooden jetty and crane/derrick are circled in red. Their positions correspond to those shown in the earlier depiction of the harbour from 1747 in Figure 175. Source: Gamlar Þjóðlífsmyndir, nr. 67.

A map of Húsavík harbour from 1747 shown in Figure 175, and a sketch of the harbour from 1836 shown in Figure 176, indicate the presence of a small wooden jetty in the harbour area as well as a crane or derrick set further back from the shore closer. A more detailed depiction of a harbour crane from the later 18th century which is likely to have been similar to the one in Húsavík is shown in Figure 177. This was the crane or (fo. *Vippa*) used for winching goods at the port in Tórshavn in the Faroe Islands. Four further examples of jetty structures from other Icelandic ports are identifiable in the known documentary sources, with some dating to the early decades of the 19th century. These include the Ólafsvík port in 1785 (Figure 126), Djúpivogur in 1791 (Figure 178), Hólmur (Reykjavík) port in 1783 (Figure 179) and Vopnafjörður trade port from around 1800 (Figure 124). It is possible that many of the ports previously used similar-sized wooden jetties but perhaps they were not thought important enough to record on the harbour maps and sketches. It should be noted though that the presence of a wooden jetty and harbour crane was not recorded or listed in the merchant's record books for Arnarstapi from 1774, which may indicate that there were none present there or that an existing jetty and crane were not considered part of the merchant's personal inventory but belonged to the harbour which they were licenced to trade from. The remains of such wooden jetties, if they still remain today, are likely to be in the form of a series of wooden piles driven into the seabed to hold the jetty's upper structure in place. Stones piled around the posts to provide support might also be present in recognisable patterns even if the wood has long since decayed. Aside from human impacts in the form of harbour expansion and dredging, the survival of organic archaeological material in the waters around the former trade ports is also largely dependent on a variety of environmental factors including seabed composition and the presence of wood-eating sea organisms such as the sea-gribble or shipworm.

Other archaeological remains which may still exist in the harbour areas and be connected to the trade port activities from the Trade Monopoly Period would include discarded domestic waste from the occupants of the ports and the visiting ships, iron mooring posts such as the example seen at Básendar, ships anchors and large quantities of ballast (stones, bricks, sand) thrown overboard prior to the ships loading cargo onboard. The deposition of cultural remains into the harbours would certainly have increased as a direct result of the overwintering of the merchants and year-round trade activity at the ports. Figure 180 shows granite ballast stones collected from the shoreline at the Kumbaravogur port. Its discovery makes a strong case for the use of a simple, durable material like ballast stones as a marker to help identify former "*invisible ports*", as well as to gain a sense of individual ports' intensity of use. One may also have to include the possibility that discarded ballast stones may have been re-used in the past as stone facings on Icelandic turf-walled structures.

Discoveries of underwater archaeological remains at former trade monopoly ports should not be that surprising or unexpected given the previous activities at these ports and the numerous documented examples of ships wrecking there over the centuries. As many of these trade ports later developed into modern Icelandic towns their harbours have also undergone expansion and redevelopment, which is certainly likely to have impacted and disturbed any previously in-situ archaeological deposits. It would therefore be advisable before more of this material is lost to carry out maritime archaeological assessments at these places and, where possible on-site archaeological monitoring should be considered prior to any future harbour developments given their potential for submerged archaeological remains. This issue was also previously highlighted by Stéfansson (1998, p. 5) in relation to the wreck remains discovered in Búðir.

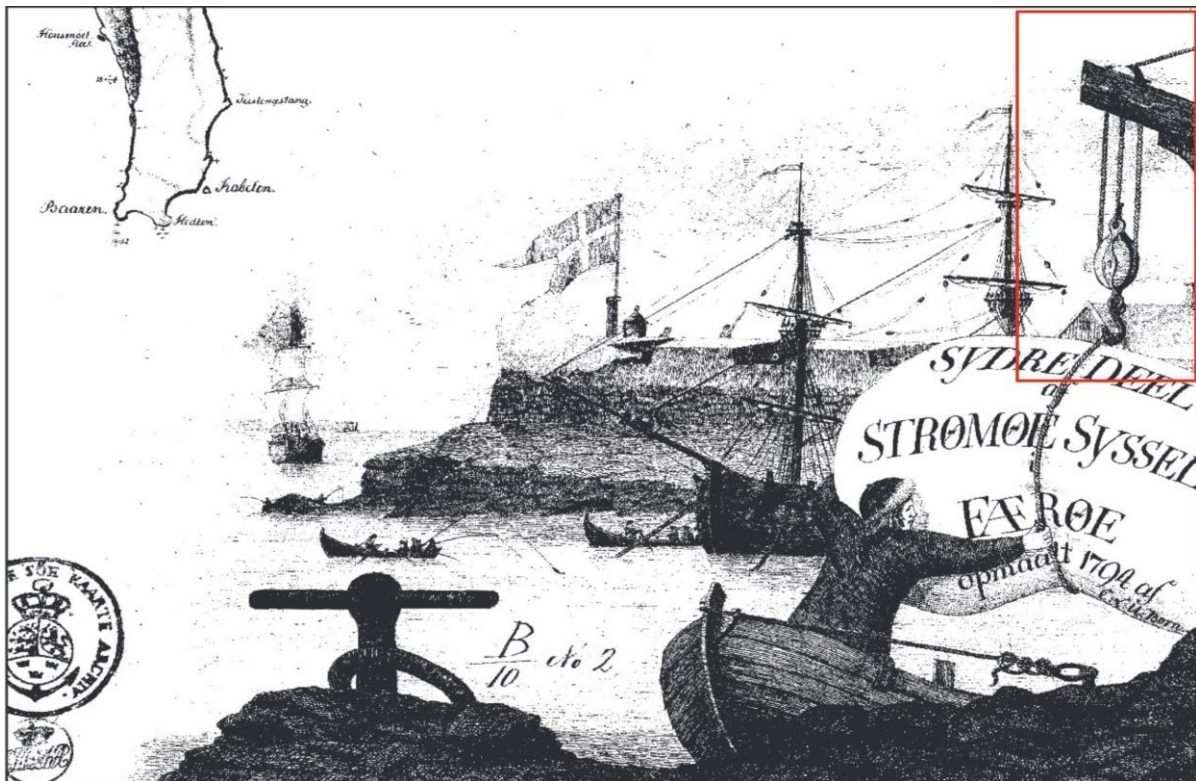


Figure 177. Tórshavn in the Faroe Islands depicted by Captain L. Born in 1794 showing the harbour crane or 'Vippa' (Seesaw) as locals referred to it highlighted in red. An iron boat mooring post is also visible in the foreground. Source: Farvandsdirektoratet, København. (Debes, 2000, p. 153).



Figure 178. Painting of Djúpivogur trade harbour from 1791. The wooden jetty is circled in red. Note also the presence of a high boundary wall/fence around the merchant's buildings. Source: Skótskífur, sýningarskrá, National Museum of Iceland (Þjóðminjasafn Íslands), 2001.9.



Figure 179. Hólmur (Reykjavík) port sketched in 1785 by Sæmundur Hólm. The wooden jetty/bryggen V is highlighted in red. Note the clearly defined boundary wall and stone courtyard around the merchant's buildings. Source: Sæmundur Hólm, 1785, Prospect af Reykjavík hand-elstaed udi Island. Lbs.



Figure 180. Granite ballast stones collected from the shoreline of the Kumbaravogur trade port by the farmer Hildibrandur Bjarnason from the nearby farm Bjarnahöfn. As granite is not a native stone type to Iceland, these stones were likely dumped from ships arriving at the Kumbaravogur port. Image credit: Kevin Martin.

Identifying potential impacts

As suggested earlier, the littoral zone around these ports should also form part of any future archaeological studies particularly given the fact that many of the former ports are today used as working harbours and have never been subject to any previous targeted marine archaeological assessments. Port enlargements, harbour dredging, expanding fisheries, aquaculture developments, offshore spoil dumping, gravel extractions, maintenance of shipping channels are all recognised and ever-increasing threats to Iceland's unknown and unrecorded maritime archaeological remains. These actions can also indirectly impact archaeological remains through alteration of currents and erosion patterns (O'Sullivan & Breen, 2007, p. 244). Tyas (2016) previously summarised some of the main threats to coastal and underwater cultural heritage sites in Iceland including erosion, anthropogenic agents, mining, dredging, salvage, and treasure hunting. Given the importance of the fisheries sector to the Icelandic economy and its intensification and diversification in the

years to come (we already have examples of this in the last decade with the development of fish farms particularly in the northwest of Iceland) it's pertinent that we recognise these potential impacts on submerged heritage and work with the fisheries industry to mitigate them. Recent studies such as Brennan *et al.* (2016) have examined and quantified the impacts of bottom trawl fishing on ancient shipwrecks in the Aegean and Black seas and proposed heritage management strategies including the designation of Marine Protected Areas (MPA's), more considerate marine spatial planning and coordinated management of fishing activities as some solutions to this previously overlooked issue. Perhaps Iceland could adopt a similar approach once more of these threatened sites have been identified. To illustrate that this is a relevant issue for Iceland to engage with, a well preserved 4m wooden section of a 17th-19th century ship's rudder was recently recovered by a fishing trawler in Fáskrúðsfjörður, East Iceland.³³⁴

The *Melckmeyt* investigations revealed that many of the exposed ship timbers of the wreck had been damaged and eaten away by marine organisms most likely sea-gribble. Whilst the impacts of marine organisms such as shipworm (*teredo navilis*) on wooden shipwrecks have long been recognised in warmer waters, their impacts on historical wrecks in the North Atlantic and Arctic regions have only recently been highlighted (Irwin, 2016; Kintisch, 2016a, 2016b; Halliday, 2020). They have also been identified in the Baltic Sea within the last decade where they pose a serious threat on upwards of 100,000 well-preserved wrecks (Gregory, 2010, p. 431). Their presence in the far North was never previously considered a serious threat to wreck sites, as it was assumed the waters were too cold and that the shipworm could not reproduce in temperatures below 10°C. However, the discovery in 2016 of a driftwood-log infested with shipworm in the waters around Svalbard, which can have water temperatures as low as -1.8°C, is a major cause for concern in terms of cultural heritage impacts on submerged remains. They may potentially represent “a new species or variant able to thrive near the freezing point of saltwater” (Kintisch 2016a, p. 901). Halliday (2020) suggested that their discovery in Svalbard raises “new questions about the role that ocean currents and climate change may be playing in bringing warm water masses into the Arctic and subarctic”.

Moreover, considering impacts from climate change to submerged and coastal sites on a larger scale, Iceland's geographical position (Figure 181), though so often in the past considered peripheral in terms of trade and shipping, is presently coming to be regarded as central in relation to developments of the foreseeable Transpolar Sea Route (TSR) linking

³³⁴https://www.mbl.is/200milur/frettir/2020/10/26/drogu_upp_minjar_i_faskrudsfirdi/?fbclid=IwAR1XldMeLVcVQAV6Z5HHrUbeFD5n7g-rTzod7Ouh5bXmBiTba6hB4otDp9o

the Atlantic and Pacific Oceans. Based on recent studies (Smith & Stephenson, 2013) of Arctic Sea ice decline and climate model projections, it has been suggested that by the mid-century (2040-2059) the Pan-Arctic regions navigation potential will increase substantially. Humpert and Raspotnik (2012, p. 298) highlighted this issue a decade ago stating that “Iceland already serves as an important hub in air transport and the opening of the Arctic will enhance Iceland’s strategic location at the entrance and exit to the Arctic Ocean. Iceland’s geographical position could make it a convenient hub for cargo ships, become a port of trans-shipment, and would allow it to become a key provider of icebreaker services”.

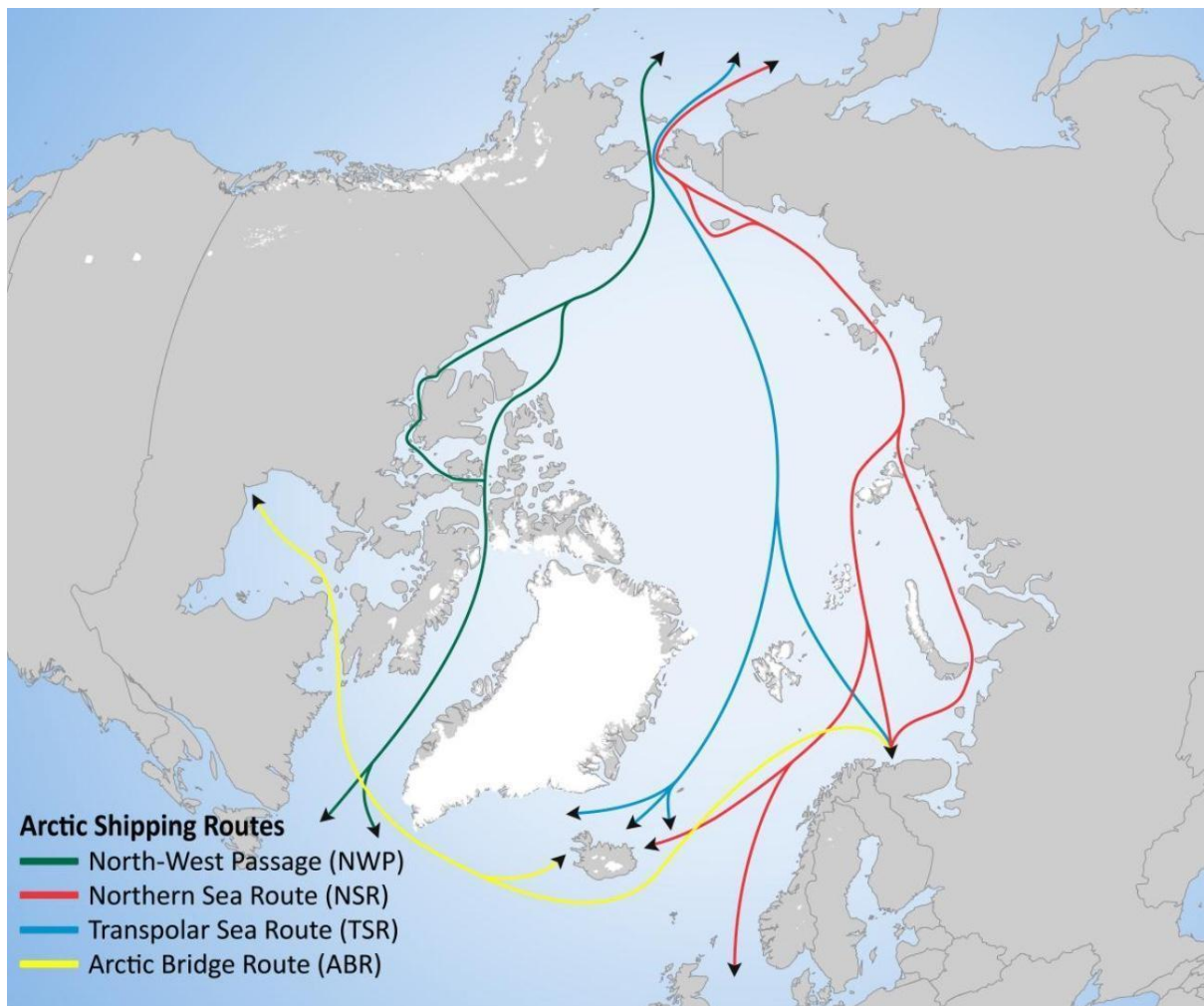


Figure 181. Iceland's central geographical position within the major Arctic shipping routes and the planned Transpolar Sea Route. Source: (Humpert & Raspotnik, 2012, p. 282, Figure 4).

The planned new deep seaport development at Finnaþjörður (northeast Iceland) which is being promoted by its developers as a future major trans-shipment hub in the North Atlantic ideal for “cargo, oil and gas storage, oil refinery, gas liquidation as well as other industrial

activity where a harbour is needed with deep water at the quay” is an example where potential maritime archaeological impacts need to be factored in, right from the planning stage with mitigation and monitoring during the construction phase given the scale of the proposed development (Anonymous, 2012, p. 32). The new harbour facility has a projected area of 650 hectares with quays of 6.3km in length planned to depths of over 50m. Although in relation to this study its location is approximately 40km from the nearest location of a former monopoly trade port at Vopnafjörður, the ports own developers have highlighted the maritime heritage of the area in their prospectus noting that “The unique offshore situation in the Finnfjörður is well known by ship operators in the area since hundreds of years back” (ibid., p. 2). Considering the project is currently in its Environmental Impact Assessment stage (EIA) but will soon enter its construction phase during 2021-2023, this could be seen as a potential watershed moment for the heritage authorities in Iceland to ensure that maritime archaeological considerations are part of such a massive coastal developments. Highlighting these issues at a pre-development stage would certainly bring more awareness to other developers involved in future coastal and maritime development projects in Iceland. Projecting that the Transpolar Sea Route is likely to become an increasingly busier shipping route in the future, it is unlikely that Finnfjörður port will be the only port development project started along the 4,970km Icelandic coastline.

Maritime heritage management: some suggestions

“In finding it, we have assumed responsibility for its well-being” (Cohn, 2000, p. 21), referring to the discovery of a 221-year-old Revolutionary War gunboat in Lake Champlain.

Staying with the issue of underwater heritage management, Iceland is currently in an excellent position to draw on the decades of built-up experience from several other countries in Europe such as the Netherlands, Sweden, UK, and Ireland in managing their submerged cultural heritage sites. However, not all experiences in other jurisdictions will be relevant to an Icelandic context. If we are thinking about long-term approaches to this issue rather than short term ones, MacKintosh (2019, p. 391) argued for the creation of strategies to develop capacity in maritime archaeology and underwater cultural heritage protection that were tailored to each state’s unique amalgam of framework conditions and situative contexts. He identified three major systemic framework conditions including cognitive-informational, political-institutional and economic-technological as being fundamental to a country’s capacity; these in turn provide limits on the successes of any capacity development efforts (ibid., p. 396).

The development of a national database of wrecks and submerged archaeological remains is one example of a management tool that would greatly inform decision-makers right from the planning stages of potential impacts to the maritime and coastal archaeological record from any future maritime developments. The author was involved in the creation of such a database for the Irish state in 2003, which resulted in wreck density maps being generated for the regions researched (Brady, 2008). Although the project focussed exclusively on shipwrecks, such a database can be adapted to include other submerged archaeological remains such as quay structures, jetties, ballast piles and boat moorings. A predictive modelling methodology for establishing probability zones of maritime remains could also be developed in tandem with the database.

Predictive modelling is a survey tool used for the identification of probable locations of archaeological sites and secondly as an anthropological tool to understand the past in ways that were important to people at that time. The models can identify the geographical, physical, social, and cognitive factors which were important to the communities of the past and which allow us to understand why these sites are where they are today (Ben Ford, pers. comm. 2014). Predictive modelling has been used mostly in identifying terrestrial archaeological sites but more recently is being used by heritage management agencies as a tool directed at locating maritime archaeology including submerged prehistoric landscapes and shipwrecks in Denmark, Holland, Australia and the United States (Canning, 2006; Deeben, Hallewas, & Maarleveld, 2002; Estrud, 2005; Ford, 2007; Judge & Sebastian, 1988; Maarleveld, 2003; P. Verhagen, Kamermans, Van Leusen, & Ducke, 2010; P. Verhagen & Whitley, 2012). The modelling could work by defining critical variables/data sets affecting wreck site distribution within the proposed study areas and attaching predictive weights to these variables. Areas within the study area can then be characterized/ranked as having a high-low predictive quality. Where particular zones score high and overlap across a number of variables, they are deemed areas of high potential. These areas could then be mapped in a GIS and compared with the geographic distribution of wrecking events reported in documentary sources to assess the reliability of the model in areas with documented wreck histories. In the context of a maritime model, variables can be environmental and cultural and include seabed geology, bathymetry, sedimentation, oxygen concentration, water salinity, presence/absence of shipworm (*teredo navalis*), tidal currents, topography, historical trade/sailing routes, the proximity of known historic harbours/coastal sites, ethnohistoric fishing/whaling/seal grounds, sea erosion, sea-level change, weather, and presence/absence of reefs/skerries/hazards. Many of these data sets already currently exist and have previously been collected by state research agencies, university departments and commercial marine companies. Primary/secondary documentary sources including Icelandic

sagas/annals, historic newspapers, parliamentary registers, Jarðabók, Icelandic marine charts, information collected from local landowners, sports-divers, and fisherman as well as from existing state organisations including The Cultural Heritage Agency of Iceland (Minjastofnun Íslands), the Marine and Freshwater Research Institute (Hafrannsóknastofnun) and the Icelandic Maritime Administration (Siglingastofnun) among others could all contribute towards the model's accuracy. An important factor to consider is the overall quality of data sets as they directly influence the reliability of the models generated. It will also be important to account for existing biases.

Lastly, O'Sullivan and Breen (2011, p. 244) have previously suggested the concept of using Integrated Coastal Zone Management (ICZM) as an approach to managing coastal heritage that Iceland could adopt and in practice "encourages all the institutions and stakeholders involved in the coast to manage the sea and the land in an integrated way". Active engagement, promotion, and implementation of a directed underwater cultural heritage management strategy with elements like those suggested above from a state heritage institution such as The Cultural Heritage Agency of Iceland (Minjastofnun Íslands) would show top-down leadership in this field where it is currently lacking.

Chapter 7: Conclusions

What have we learnt from this study?

This study set out to explore maritime trade during Iceland's Danish Trade Monopoly Period (1602-1787) for the first time through an archaeological lens and to view the period in a way that it had not been examined previously. Archaeological knowledge of this period has, until recently, been severely limited and studies of trade and trading ports, in particular, were based heavily on documentary sources without confirmation or expansion through archaeological investigations. Although several small-scale excavations and surveys had already taken place over the previous decades at some of the trade ports and on the *Melckmeyt* shipwreck itself, these were conducted separately and in isolation from one another, as the investigations were stand-alone small-scale projects and not part of any larger targeted holistic approach. This study has acted as the link connecting these stand-alone projects and has in turn established a baseline perspective on the current state of archaeological knowledge for this period, which can be used as a platform for the development of some potential research avenues and future investigations into this period.

In the Introduction chapter, I put forward the simple but quite general research question which lies behind this thesis: *What can archaeology bring to the study of trade during this period?* It was never the original plan of this study to write the definitive archaeological compendium of the Danish Trade Monopoly Period in Iceland. A more realistic goal was, perhaps, to begin part of that process by showing the ways in which the archaeological evidence could be used to explore trade in this period and to advance the existing levels of archaeological knowledge and public awareness beyond previous, pioneering studies and even my own. There was an obvious effort not to focus too much on inherited historical biases and past issues surrounding the trade monopoly, but to try and let the archaeological remains guide the narrative along its own path. This can sometimes be a difficult process particularly in a period where the documentary sources are more substantial and dominant than in earlier periods such as the Viking Age. Eriksson acknowledged this issue, noting, "the relationship between the material remains of archaeology on the one hand, and the written sources of history on the other, is quite commonly described as that between servant and master" (2014, p. 31). There has hitherto been a significant dominance of the historical narrative over any archaeological discussion for this period. This project sought to address this imbalance to an extent that the archaeological evidence could form its own separate narrative – one grounded in the concrete materiality of the life and infrastructure of trade.

Specifically, this thesis sought to forge an archaeological approach to two specific dimensions of more general questions about the trade monopoly by understanding the materiality of the places and conduits through which trade was conducted, i.e. trade stations and trade ships. The case study sites investigated for this purpose represented essentially invisible and overlooked core elements of the trade infrastructure of this period. Shining a spotlight on the merchant vessels and ports of trade has allowed an opportunity to explore more general issues of this period and to flesh out and define the *in-between* space of the trade operation which previous discussions had incompletely identified, highlighted or addressed. The microscale of the merchant enterprise was interrogated through an exploration of the ships used in the trade, the *Melckmeyt's* biography, its construction, and life aboard. Similarly, developments at the trade ports over time and the life ashore for the visiting merchant crews were examined through archaeological evidence present at a range of former trade ports, and specifically at Arnarstapi. We have seen that the merchant ships were not only cargo transporters to be defined and considered relevant to this discussion solely by their tonnage capacities; they were also vessels of cultural exchange and temporary 'wooden worlds' where the lives of ordinary people were played out, and in the case of the *Melckmeyt* as well as many others, sometimes lost. Examination of the social space on board and on shore brings us a new perspective to understanding this period and makes the archaeological and historical evidence much more relatable.

This study also employed the two case studies as a means to bridge the gap between the terrestrial and the maritime fields in archaeology where the results from both investigations could be used supportively together as part of one narrative rather than individually as so often occurs. Finally, this study was seen as an opportunity to highlight the potential of maritime archaeological research within Iceland and establish its value as a critical component for promoting Iceland's rich cultural heritage. The '*Melckmeyt 1659*' exhibition (Appendix A) played a large part in addressing this goal and the process of how this was developed is detailed later on.

In addition to the actual thesis itself the study has produced a number of important tangible and intangible deliverables which are listed below:

- The production of a comprehensive digital archaeological survey record of Iceland's oldest known and identified merchant shipwreck *Melckmeyt*. The case study has also established a viable working methodology for underwater archaeological survey in Icelandic conditions that can be adopted, adapted and employed by future researchers and heritage authorities.

- The identification and archaeological recording of a previously unknown turf-walled structure from the 17th and 18th centuries at Arnarstapi.
- The creation of an archaeological dossier of the trade monopoly ports through a desk-based analysis and on-site inspection which future researchers and heritage authorities can utilise.
- The design, development and creation of the ‘*Melckmeyt 1659*’ exhibition at the Reykjavík Maritime Museum.

Vessel archetypes and the effectiveness of digital methodologies

In relation to the above list of deliverables, it is worth elaborating more specifically on the first issue, surrounding the study of the *Melckmeyt* as this is perhaps one of the most significant empirical contributions made by this thesis. The results of the *Melckmeyt* investigations have challenged the view that merchant ships, particularly in the 17th century, rigidly conformed to standardised archetypes and specific roles. Many did of course, particularly the larger built ones, but other smaller ocean-going ships like the *Melckmeyt* were multi-purpose “typological outliers that fall between well-known archetypes such as warship, East Indiaman, slave ship, flute and fregat” (McCarthy, 2020, p. 274). Ships like *Melckmeyt* were adaptable and could be used for a variety of tasks over the course of their working lives. Over a ten-year period (1649-1659) the *Melckmeyt* switched from operating as a whaler in the North Atlantic, to a cargo transporter on routes to Portugal and the Baltic Sea, and finally as a merchant ship in the Icelandic trade. Although never specified or described as being a flute ship in the archival records, its adaptability for a variety of purposes over its lifetime would certainly point to that identification, a type which Eriksson (2014, p. 125) described as a ‘*multi-purpose*’ ship which could be used as a merchant ship, whaler or even a warship when required.

This study has also demonstrated the effectiveness of using digital methodologies for underwater archaeological survey and 3D visualisation. For the first time in Iceland, these techniques were employed to document submerged cultural heritage remains and have set a useful precedent for future investigations. Iceland’s challenging marine conditions are evidently well suited to these techniques. The raw image data captured for shipwreck photogrammetry took place over two dives and required one diver, whereas a hand-measured survey would have taken several weeks and required at least two divers in the water. McCarthy (2020, p. 275) summarised the value of the *Melckmeyt* research in relation to his own 3D analysis of the ship, developed through a collaboration with the author, and his views are worth repeating here:

“These smaller ocean-going merchant ships were often hired, with a large ship rental market that operated between industries to smooth out the fluctuations in the market, particularly those caused by geopolitical events such as the Anglo-Dutch wars. The *Melckmeyt* seems to have been such a vessel and its archaeological remains can only be understood in this context. This vast variation within the resource suggests that instead of trying to place vessels into distinct categories, they should be understood as a point within a spectrum of design choices that reflect prevailing cultural, economic, and military trends over time. Narrative and descriptive analyses are confounded by this type of variation, but quantitative 3D workflows are ideally suited to engaging with it.”

Limitations of the study

The biggest limiting factor of this study was undoubtedly the sample size which resulted in a lack of existing comparative sites for the archaeological results. Arnarstapi represented one port of at least 29 operated by the Danish during the Trade Monopoly Period and was neither the largest nor the smallest one, falling somewhere in the middle in terms of its scale. Due to the sample size, this study did not seek to critically assess how significant the port was compared to the others within this period or to place much importance on this issue. The focus at Arnarstapi was primarily to use it as a gateway for exploring the archaeology of trade ports during this period. The same could be said for the *Melckmeyt*. It was just one of many thousands of ships that were used in the trade with Iceland throughout this period and therefore, the question of how representative it was within the overall context of merchant shipping could be asked. Where relevant in terms of known tonnages for the period I have tried to answer this question, but primarily the focus on the ship was as a means to better understand, interpret and explore merchant vessels of this period.

As traditionally archaeological research in Iceland has focussed almost exclusively on the Viking Age until recent times, there was a very limited amount of relevant archaeological data for this project to base itself on. Fundamentally, archaeology is itself a process of going from what you know to uncover what you don't know. This study began from a position where this concept was essentially reversed – going largely from what we don't know to what we can start to know. I'm reminded here again of the term '*Rumsfeldian archaeology*' previously employed in Chapter 5. The creation of the archaeological dossier was a way to correct this imbalance, taking all the known archaeological elements of this period to

synthesise a direction which the project could follow in terms of target sites for the archaeological fieldwork case studies (K. Martin, 2017a).

Project logistical constraints: time and budget

Every research project must operate within temporal and budgetary constraints and this one was no different. However, did these constraints hinder the archaeological investigations and limit their results? This is a difficult question to accurately answer. From the perspective of the case-studies, it surely would have been welcome to devote more time and resources to uncovering more of the sites themselves. Whether this would have changed the interpretations or results dramatically is unlikely. From a certain perspective, time and budgetary constraints were a positive influence on the fieldwork as they ensured a more resourceful and targeted approach to the efforts.

Reliance on and the reliability of the documentary sources

Despite being an archaeological research project, the historical sources have played a significant supportive role throughout this study. Many of the documentary sources both primary and secondary were interrogated and utilised in a way that they were never originally intended to be used. In many instances, archaeological questions were being asked of the written sources, which itself can introduce a selective bias. What informed the archaeological narrative I created was highlighted, while that which was seen as being less relevant to that narrative was given less attention. I have also chosen not to question the accuracy or the veracity of the primary source documents, such as the merchant record books and the notary archives, to any intense degree and that is a recognisable limitation. No source can be totally free of its author's bias, so it is an important factor that these biases are identified, and their effects measured on any future use of them to make a strong argument or interpretation should ideally be measured. However, in contrast to the later secondary sources such as Aðils (1919, 1971) and Gunnarsson (1983, 1987), the primary sources such as the merchant record books and *Lovsamling for Island* should be viewed as more clinical and unburdened administrative documents similar to the Danish Sound Toll Registers rather than as documents saturated with nationalistic rhetoric. Still, that does not exclude the primary documentary sources from being inaccurate. The example of the two contemporary though differing references to the quantity of and type of fish cargo aboard the *Melckmeyt*, documented in Chapter 4, clearly shows that even documents which were purporting to record factual numerical data of the exact same cargo inventory on the same ship could contain discrepancies, whether in this specific case those variances were either accidentally or deliberately introduced. I have suggested in a preceding chapter that this was a deliberate error in the witness statement intended for a later financial gain.

The primary documentary sources detailing the trade ports' buildings are themselves notoriously scant for most of the Trade Monopoly Period. No detailed sources are known for the 17th century that describe the Arnarstapi port to the degree that the merchant record books of 1774 do. I have therefore relied heavily on a later 18th century source that refers to existing or known 17th century buildings within the merchant's inventory books. Yet that begs an important question: How much of the archaeological record was omitted from or not included in these ledgers? The record books only recorded what items of value the merchant owned, not everything existing or built at the ports as the discussion about the wooden jetties and harbour infrastructure has previously suggested, and as the excavation of a contemporary turf-walled house from this period demonstrated. These records were not originally intended to be used later as archaeological inventories, but their details are important in establishing an informed suggestive archaeological footprint at the ports. I think what's most important is that we acknowledge these issues as being relevant and include them as part of the discussion.

Future directions

Although only two case study sites formed the basis for the fieldwork element of this study, the potential for further archaeological investigations, both terrestrial and maritime in nature, has been clearly established and this work should be viewed as a first step in the archaeological discussion of the Danish Trade Monopoly Period rather than any final word on it. Much of the potential for future research in the inter-tidal zones around the ports and the directions for maritime archaeological research, such as predictive modelling have been suggested in the previous chapter. In relation to the trade ports, one avenue of future research might be to explore and interrogate archaeologically the suggestion by the author of a tri-phased infrastructural development of the ports themselves. This phasing comprised the Early Transition Period (1602-1680) when the Danish were essentially taking over the German merchants monopolised position in the Icelandic trade but were still heavily reliant on foreign vessels and merchants, the Consolidation Period (1680-1759) in which the trade logistics were more or less being met from Danish resources and the Final Period (1759-1787) where more permanent structures were being erected at the ports and the merchants began to over-winter in Iceland. Future archaeological research may even be able to refine the suggested phasing further and even examine regional variations within the trade ports' set up and their architectural footprints over time. Were the ports in the west and northwest, which primarily focussed on the fish trade over livestock or wool, perhaps arranged differently because of this specialisation or expanded at earlier times than in the other regions, where other products were more important as exports? Archaeological research can begin to answer these questions. This will however require more extensive and larger-scale excavations at the former port sites, done in tandem with historical research.

Another potential line of future enquiry might also seek to compare the layout and form of the trade ports in Iceland with archaeological evidence from other contemporary peripherally located trade ports within the Danish-Norwegian realm; particularly those referenced in the harbour chapter of this study, including some of the former coastal towns/port sites in Greenland and northern Norway. Did the ports in Iceland perhaps represent their own specific form based on local environmental, geographical, economical and administrative conditions they operated in? Or do all of these “peripheral ports” share some commonalities in physical form and setup?

Collaboration and dissemination

"Excavating on land is hard enough, but some people like to make things extra tricky for themselves, and working underwater is the archaeological equivalent of standing up in a hammock." (Bahn, 2004, p. 49).

I'm thankful that I'm not alone in enjoying the challenge and seeing the potential of doing archaeology underwater. There are other like-minded individuals and institutions out there and this study has benefited enormously from their involvement, resulting in a number of successful domestic and international collaborations particularly in relation to the *Melckmeyt* investigations. Prior to the 2016 survey of the wreck, two potential key stakeholders/collaborators were identified in the Maritime Programme of the Cultural Heritage Agency of the Netherlands (RCE) & the Reykjavik Maritime Museum, whom I considered could a) enhance greatly the research capabilities of the project and b) raise public awareness of the study and develop an aspect of the projects public outreach. These collaborations were to prove extremely successful and productive with tangible benefits realised for the study.

The collaboration established with the (RCE) allowed me, at their invitation, to be directly involved in their underwater survey of a 17th century shipwreck in the Wadden Sea in 2015. This provided me with invaluable hands-on underwater archaeological experience working directly with a dedicated maritime heritage management agency on the well-preserved remains of a 17th century shipwreck and importantly allowed me to establish a working relationship with the agency and, in particular, with two of the future team members (Thijs Coenen & Johan Opdebeeck) on the 2016 *Melckmeyt* fieldwork project. Better teamwork, problem-solving above and below the water, and all-around efficiency on that project were raised to higher levels as a result of our previous positive experiences working together.

At approximately the same time as the collaboration with the (RCE) began, I also made what can be best described as a 'sales pitch' about my project to the Reykjavík Maritime Museum. I essentially argued for an exhibition about the *Melckmeyt* shipwreck that would explore the question of "What do marine archaeologists do?", through a data-focussed examination of some of the methodologies and results from the survey. I considered that a shipwreck exhibition could also function as a way to draw the attention of the wider public not only to maritime archaeology but also into the less-known world of the Trade Monopoly Period in the same way that the wreck became a vehicle for me to explore the wider archaeology of the trade monopoly itself. A selection of artefacts, mainly ceramics recovered from the wreck, would feature as the exhibition's centrepiece. The pitch seemed to make its points and was received well by the museum. Some months later it was officially approved and with that knowledge in mind, much of the digital aerial imagery and underwater footage captured as part of the wreck survey was also collected with the later exhibition specifically in mind (particularly content which I felt could later provide an audience with a better context of what they were witnessing, also known as the 'B-roll') captured as part of the wreck survey was collected with the later exhibition specifically in mind. Overall, within two and a half years the plan had grown from an idea into a reality, and in June 2018, I had the pleasure to officially launch the exhibition I authored entitled '*Melckmeyt 1659*' in the ground floor exhibition room of the Reykjavík Maritime Museum (Figure 182). Although only planned initially as a temporary exhibition, at the time of writing (September 2021), the exhibition is still on-going and is now in its third year, perhaps an indication of how well received it has been by the museum's visitors to date. The reader is referred to Appendix A which summarises the exhibition content.



Figure 182. The ‘*Melckmeyt 1659*’ exhibition at the Reykjavík Maritime Museum. Image credit: Kevin Martin.

The collaboration with my compatriot and fellow maritime archaeologist John McCarthy (then a doctoral candidate based at Flinders University in Adelaide) brought an additional digital 3D-reconstruction element to the *Melckmeyt* research, which I originally had not envisaged or contemplated as a project output but with hindsight now recognise as being a hugely significant contribution to the study, particularly in terms of accurately establishing the vessel’s hull shape and greatly enhancing the public dissemination of the research through the creation of a 360-degree virtual dive experience. The technical results of the 3D survey of the ship in 2018 have already been presented and discussed in Chapter 4.1, but here I would like to highlight the outreach impact of the virtual dive element that was created from it. As outlined in our co-authored journal article in 2019 about the virtual dive, the original “aim of the project was to create an immersive and realistic virtual dive experience, while at

the same time exploiting the capabilities of 3D modelling to convey as much information as possible in the time available” (McCarthy & Martin, 2019, p. 106). The virtual dive had been a feature of the ‘*Melckmeyt 1659*’ exhibition since it opened in June 2018, but its audience was limited to those who attended the museum’s exhibition in person. On the 360th anniversary of the sinking of the *Melckmeyt* on the 16th of October 2019, we released the 360-degree virtual reality (VR) video online to the video-sharing platform YouTube³³⁵, which allowed it to be viewed by any member of the public using a VR headset or smartphone. Fuelled by the media interest in the story, this resulted in more than 30,000 views of the video within ten days. A press release³³⁶ was circulated “to all the institutional partners and stakeholders, resulting in a wide print and web media coverage of the virtual dive, including *Fox News* and *The Smithsonian* (USA), *BBC* and *The Daily Mail* (UK), *The Senior* and *9 News* (Australia), *The Journal.ie* (Ireland), *Fréttablaðið* (Iceland’s largest daily newspaper) as well as various special interest publications such as *Live Science* and *DiverNet* (McCarthy, 2020, p. 272).³³⁷

Perhaps one of the most satisfying outreach aspects for me was enabling the five permanent residents of Flatey, all of whom were familiar since childhood with the story of the shipwreck, to take a virtual dive and explore the wreck from the comfort of their kitchen tables and places of work including the island’s slaughterhouse (Figure 183). Their subsequent positive reactions clearly demonstrated the effectiveness of presenting our survey results in the VR format. It allowed for the audience to engage with the material in a different way and brought a new experience to people, even those already familiar with the story of the wreck.

³³⁵<https://youtu.be/hovKu1bi7kA>

³³⁶Dropbox link for press release

<https://www.dropbox.com/sh/zs1xankw7bpnse9/AADJPeMLH7imvejOiJkikhqYa?dl=0>

³³⁷BBC <https://www.bbc.com/news/uk-scotland-highlands-islands-50040805>

Fox News https://www.foxnews.com/tech/390-year-old-shipwreck-revealed-vr-technology?fbclid=IwAR3xyonyca4HWcxIYo6c2x06cix2vx3iR38_hywzIO2Sdfx2BZGRYiVIH5w

Live Science <https://www.livescience.com/virtual-dive-milkmaid-shipwreck.html>

The Senior <https://www.thesenior.com.au/story/6443889/dive-into-icelandic-shipwreck-from-your-loungeroom/>

9 News <https://www.9news.com.au/world/virtual-reality-dive-brings-360-year-old-smuggling-ship-sunk-off-iceland-to-life-world-news/0ee7704a-08f9-46b9-8e19-c47c215e755a>

The Journal

<https://www.thejournal.ie/virtual-reality-of-iceland-shipwreck-irish-archaeologists-4856683-Oct2019/>

Daily Mail <https://www.dailymail.co.uk/sciencetech/article-7581115/Users-partake-three-minute-virtual-dive-360-year-old-shipwreck.html>

Smithsonian <https://www.smithsonianmag.com/smart-news/take-virtual-tour-17th-century-shipwreck-180973373/>

Fréttablaðið <https://www.frettabladid.is/frettir/mjaltastulkan-gerd-fyrir-syndarveruleika/>

National Geographic Russia <https://nat-geo.ru/science/history/kak-vyglyadel-korabl-gollandskih-kontrabandistov-xvii-veka-vizualizaciya/>

Atlas Obscura <https://www.atlasobscura.com/articles/dutch-shipwreck-virtual-reality>



Figure 183. One of the highlights of the 2018 wreck fieldwork was allowing the Flatey residents a chance to virtually dive on the *Melckmeyt* from the 'comfort' of the island's slaughterhouse. Image credit: John McCarthy, 2018.

In addition to 'Melckmeyt 1659' exhibition, the public dissemination of the results from the study also included a Facebook group called '*The Archaeology of the Danish Trade Monopoly in Iceland*'³³⁸ which was set up and has been maintained by the author since 2016. Currently, the group has a membership of more than 500 people. This was found to be a very useful platform where regular updates from the study, including live videos from the fieldwork, were shared with the group's members who comprised both professional archaeologists and interested members of the public. The online group forum format also allowed not only for one way dissemination of results but an ability to discuss these results with the audience who regularly posted questions about what they were observing.

A deliberate pro-active public relations approach from the outset of this study involved reaching out to various media outlets in Iceland during each of the fieldwork campaigns which ensured that the archaeological fieldwork efforts from both Arnarstapi and Flatey were frequently featured and reported in the national print and online media in Iceland.³³⁹ Two

³³⁸<https://www.facebook.com/trademonopoly>

³³⁹https://www.mbl.is/frettir/innlent/2016/05/21/mjaltastulkan_sem_forst_vid_flatey/
https://icelandmonitor.mbl.is/news/culture_and_living/2016/06/19/divers_explore_17th_century_dutch_shipwreck_in_icel/
http://www.reykholar.is/frettir/Mjaltastulkan_sem_forst_vid_Flatey/
<http://www.visir.is/g/2017170909141>

notable highlights of these media features were 1) a story on page one of Frettablaðið newspaper on September 7, 2017, with a headline feature on the Arnarstapi excavations (Figure 184) and 2) a 20-minute segment where the author presented the results of the 2016 *Melckmeyt* investigations on the Christmas special of *Landinn*, the hugely popular Icelandic television show.³⁴⁰



Figure 184. Fréttablaðið (Iceland's largest circulated daily newspaper), 7 September, 2017. Front page headline feature of the Arnarstapi excavations. Image credit: Kevin Martin.

Making history news again

Through this study, a baseline for the archaeology of maritime trade and trade ports in the Danish Trade Monopoly Period has now been established and can be built upon through further research. Importantly also, the rich potential of Iceland's underwater heritage has been established domestically and highlighted internationally for the first time through public dissemination using innovative technologies such as 3D modelling, virtual reality, and on-

<http://www.visir.is/paper/fbl/170907.pdf>

https://www.hi.is/visindin/arnarstapi_nyjar_vorur_en_ekki_daglega

<https://www.frettabladid.is/frettir/mjaltastulkan-gerd-fyrir-syndarveruleika/?fbclid=IwAR1R410Zfk357aLvBdor-9-SG62n355JUoDNCjoGoyQwiWNNp7QMoUE2wvE>

³⁴⁰<http://www.ruv.is/frett/mjaltastulkan-a-hafsbotni>

going museum exhibition. This study has in addition measured and realised the strong public appetite for asking different questions of the evidence from this period and presenting the answers in a different formats more engaging than academic papers alone. Its outcomes could be viewed to align well with Arthur B. Cohn's (2000, p. 18) predictions from 20 years ago, that technology, public interpretation, and cultural resource management will make or break the field of maritime archaeology, predictions which still hold true moving forward in my opinion.

At the time of writing (September, 2021) the uploaded VR dive video on the *Melckmeyt* has been viewed more than 57,000 times on YouTube. When we consider that before this study only five people had dived on the wreck site, it puts the scale of this new audience we have engaged into perspective. McCarthy (2020, p. 272) acknowledged this in relation to our collaboration:

“The success of the virtual dive demonstrates the power that a spatial approach and a digital library can bring to the dissemination of authentic and accurate cultural heritage and how disparate datasets such as models locked away in museum storage, photogrammetric surveys of underwater archaeological sites and drone aerial surveys can be combined to engage the public with otherwise inaccessible cultural heritage.”

This notion of an inaccessible cultural heritage within a peripheral geographical location could well describe the subject matter of this study. By engaging with the archaeological evidence through the methodologies outlined throughout this project it has been shown that this cultural heritage can be made more accessible and the peripheral can be brought closer to us and made more familiar. This study has been an example of coordinated terrestrial and maritime archaeological investigations, conducted in tandem, to complement one another and not to be entirely exclusive pursuits as they often tend to be in archaeological research. Archaeological research in Iceland has traditionally tended to restrict and limit itself to the boundary of the seashore and has not ventured beyond that even when confronted with obvious potentials such as Einarsson's work showed on the in 1993, regarding the *Melckmeyt*. Although a number of additional small-scale underwater archaeological surveys have been completed in the 28 years since then, the investigation carried out through this study on the *Melckmeyt*, represents the largest and most comprehensive maritime archaeological project in Iceland's history to date. So now, once again as in 1993, *Melckmeyt* offers an example of the potential for archaeological research in Iceland to take a

new direction, to explore uncharted waters and take an already interested and engaged public audience along for the ride.

The viral reach and extensive media coverage of the *Melckmeyt* VR reminds us that archaeology can take the known history and make it news once again (Ludlow Collective, 2001, p. 96). The unprecedented scale of the public exposure and awareness generated was perhaps the biggest unexpected tangible deliverable from this study. Future archaeological investigations into this period can hopefully benefit from this and contribute new elements to this existing dialogue with the public. "*What's past is prologue.*"³⁴¹

³⁴¹ From *The Tempest*, Act 2, Scene 1 by William Shakespeare.

BIBLIOGRAPHY

Un-published Primary Sources

The Danish National Archives (Rigsarkivet), Copenhagen (DRA)

Rentekammeret: Rtk. 373.117. Taxations-og Vurderingsforretninger over Handelshus og Inventarier i Islands Havne 1774, 303.

Rentekammeret: Rtk. 373.137. Dokumenter og breve vedr. landopmålingen på Island (1801 - 1804), VA XII, s. 226.

Reviderede regnskaber (Rev.Regn.) 571. Handelsregnskaber for de enkelte havne, 1759-1763.

Direktionen for den kongelige handel. (Dir.Kgl.Hand.) 455. Diverse sager vedr. Island og Finmarken 1766–1801, nr. 243.

Amsterdam City Archives, Amsterdam

SA, NA, notary Pieter Capoen, 1589, 15 April 1649, folio 330.

SA, NA, notary J. van Loosdrecht, 1989, 2 August 1650, folio 369.

SA, NA, notary J. van Loosdrecht, 1989, 6 December 1652, folio 583

SA, NA, notary Jan Volkaertsz. Oli, 1537, 10 October 1654, folio 152.

SA, NA, notary J. van Loosdrecht, 1989, 5 June 1655, folio 680.

SA, NA, notary Pieter van Buijtene, 2747, 23 February 1658, folio 265-266.

SA, NA, notary Pieter van Buijtene, 2749, film 2842, 21 April 1658, folio 1029-1033.

SA, NA, notary Pieter van Buijtene, 2748, 9 November 1658, folio 495.

SA, NA, notary Pieter van Buijtene, 2754, 20 July 1660, folio 72.

Published Primary Sources

Annálar 1400-1800, Annales Islandici Posteriorum Sæculorum, Vols. 1-8. (1933-1938). Reykjavík: Felagsprentsmiðjan.

Lovsamling for Island, Vol I-VI indeholdende Udvalg af de vigtigste ældre og nyere Love og Anordninger, Resolutioner, Instruktioner og Reglementer, Althingsdomme og Vedtægter, Kollegial-Breve, Fundatser og Gavebreve, samt andre Aktstykker til Oplysning om Islands Retsforhold og Administration i ældre og nyere Tider. (1853-1889). (Ó. Halldórsson, H. Stephensen, J. Sigurðsson, & O. Stephensen Eds.). Copenhagen: Höst & Son.

Manntal á Íslandi árið 1703, (1924-1947). Tekið að tilhlutun Árna Magnússonar og Páls Vídalín, ásamt manntali 1729 í þrem sýslum. Reykjavík: Hagstofa Íslands. Retrieved from: [https://baekur.is/bok/000258095/Manntal a Islandi arid](https://baekur.is/bok/000258095/Manntal_a_Islandi_arið)

Electronic Sources, <http://>

These are the main online web sources used. Additional web sources used are noted in the footnote references throughout the thesis.

<https://www.archaeology.ie/underwater-archaeology/wreck-viewer> Online GIS database of wreck sites within the territorial waters of the Republic of Ireland.

www.manntal.is Icelandic census records from 1703 in a searchable database kept by the National Archives of Iceland.

www.sarpur.is Iceland's online cultural and historical database.

www.soundtoll.nl. An electronic database of the complete Øresund Sound Toll Registers.

<https://witsenscheepsbouw.nl/encyclo/>. Witsen Scheepsbouw, A digital encyclopaedia and 3D-model of a 17th century Pinas.

Published Secondary Sources

- Adams, J. (2003). *Ships, Innovation and Social Change. Aspects of Carvel Shipbuilding in Northern Europe 1450–1850*. Unpublished Doctor of Philosophy thesis, Stockholm University, Stockholm.
- Adams, J. (2013). *A Maritime Archaeology of Ships: Innovation and Social Change in Medieval And Early Modern Europe*. Exeter: Short Run Press.
- Adams, J. R., & Rönnby, J. (2013). Landscapes, seascapes and shipsapes. In J. Adams & J. Rönnby (Eds.), *Interpreting Shipwrecks: Maritime Archaeological Approaches*. Southampton: The Highfield Press, pp. 1-8.
- Adams, R. M. (1974). Anthropological Perspectives on Ancient Trade. *Current Anthropology*, 15, pp. 141-151.
- Aðils, J. J. (1895). Den danske regering og den islandske monopolhandel, nærmest i det 18. århundrede. *Historisk Tidsskrift*, 6(6), pp. 535-610. Retrieved from <https://tidsskrift.dk/historisktidskrift/article/view/54647/73746>
- Aðils, J. J. (1911). *Skúli Magnússon, landfógeti*. Reykjavík: Sigurður Kristjánsson
- Aðils, J. J. (1919). *Einokunarverzlun Dana á Íslandi 1602-1787*. Reykjavík: Heimskringla.
- Aðils, J. J. (1971). *Einokunarverzlun Dana á Íslandi 1602-1787 (2nd Edition)*. Reykjavík Heimskringla.
- Agbe-Davies, A. S., & Bauer, A. A. (2010a). Rethinking trade as a Social Activity: An Introduction. In A. S. Agbe-Davies & A. A. Bauer (Eds.), *Social Archaeologies of Trade and Exchange: Exploring Relationships among People, Places, and Things*. California: Left Coast Press Inc.
- Agbe-Davies, A. S., & Bauer, A. A. (2010b). Trade and Interaction in Archaeology. In A. S. Agbe-Davies & A. A. Bauer (Eds.), *Social Archaeologies of Trade and Exchange: Exploring Relationships among People, Places, and Things*. California: Left Coast Press Inc, pp. 29-48.
- Agnarsdóttir, A. (2012). The urbanization of Iceland in the 18th and early 19th century. In T. Riis (Ed.), *Urbanization in the Oldenburg monarchy, 1500-1800*. Kiel: Verlag Ludwig, pp. 115-140.
- Agnarsdóttir, A. (2017). Utanlandverslun Íslands 1788-1830. In S. R. Ísleifsson (Ed.), *Líftaug landsins: saga íslenskrar utanlandsverslunar 900-2010* Vol. 1. Reykjavík: Sagfræðistofnun Háskóli Íslands og Skrudda, pp. 285-342.
- Agnarsdóttir, A., & Róbertsdóttir, H. (2016). The Historiography of Early Modern Iceland. L'historiographie islandaise et l'époque moderne. In *Nordic History Review/Review d'histoire nordique*, 20:1, pp. 57-82.
- Ágústsson, H. (2000). *Íslensk byggingararfleifð I Ágrip af húsagerðarsögu 1750-1940 (2nd Edition)*. Reykjavík Húsafríðunarnefnd.
- Akveld, L. M. (1977). Noordzeevisserij. In F. J. A. Broeze, J. R. Bruijn, & F. S. Gaastra (Eds.), *Maritieme geschiedenis der Nederlanden: Deel 3. Achttiende en eerste helft*

- negentiende eeuw, van ca. 1680 tot 1850-1870*. Bussum: De Boer Maritiem, pp. 318-334.
- Ambrosiani, B. (2008). Birka. In S. Brink & N. Price (Eds.), *The Viking World*. London and New York: Routledge, pp. 94-100.
- Andersen, A. B. (1974a). A Dutch galliot which struck a rock in 1677. *The International Journal of Nautical Archaeology and Underwater Exploration* 3.1, pp. 91-100.
- Andersen, A. B. (1974b). Et Vrakfunn På Tau fra 1500-Tallet. *Stavanger Museum Årbok 1974*, pp. 25-43.
- Andersson, H. (2016). Urban or Urbanization? *Norwegian Archaeological Review*, 49:1, pp. 62-64.
- Andr sson, H. S. (1988). *Verzlunarsaga  slands, 1774–1807: upphaf fr h ndlunar og almenna b narskr in*. Reykjav k: Fj ls yn Forlag.
- Andr sson, S. H. (1997). Tilskipun um auki  verslunarfrelsi fyrir  sland  ri  1816 og tildr g hennar. *Saga*, 35, pp. 95-135.
- Andr sson, S. H. (2001). Endursko un fr h ndlunarlaganna    runum 1834–36 og a dragandihennar. *Saga*, 39, pp. 109-137.
- Anonymous. (2012). *The Finnafjord Harbour Project*. EFLA Consulting Engineers, Reykjav k. Retrieved from https://www.efla.is/media/utgefid-efni/finnajord_bkl_juni_13.pdf
- Appel, L., & Linaa, J. (2020). The townscape of Elsinore. Reconstructing the street layout, plot structure and population profile of a demolished part of town. In J. Linaa (Ed.), *URBAN DIASPORA. The Rise and Fall of Diaspora Communities in Early Modern Denmark and Sweden Archaeology – History – Science*. Jutland Archaeological Society: Aarhus University Press, pp. 119-150.
- Arge, S. V. (2019). Aspects of Hanse archaeology in the Faroe Islands. German Trade in the North Atlantic c. 1400-1700. In N. Mehler, M. Gardiner, & E. Elvestad (Eds.), *German Trade in the North Atlantic c. 1400–1700. Interdisciplinary Perspectives* Vol. No. 27. Stavanger AmS-Skrifter, pp. 277-289.
- Asaert, G. (1976). Scheepsbezit en havens. In G. Asaert, J. van Beylen, & H. P. H. Jansen (Eds.), *Maritieme Geschiedenis der Nederlanden, Vol.1: Prehistorie, romeinse tijd, middeleeuwen, vijftiende en zestiende eeuw*. Bussum, pp. 180-205.
- Auer, J. (2004). Fregatten Mynden: a 17th-century Danish Frigate Found in Northern Germany. *IJNA*, 33 (2), pp. 264-280.
- Auer, J. (2008). *Fregat and Snau: Small Cruisers in the Danish Navy 1650-1750*: Unpublished Doctoral Thesis, University of Southern Denmark, Esbjerg.
- Baasch, E. (1889). *Die Islandfahrt der Deutschen: namentlich der Hamburger, vom 15. bis 17. Jahrhundert. Forschungen zur hamburgischen Handelsgeschichte 1*. Hamburg.
- Bahn, P. (2004). *The Bluffer’s Guide to Archaeology (3rd ed.)*. London: Oval Books.
- Bair, J. (2009). *Frontiers on Commodity Chain Research*. California: Stanford University Press.

- Barnhart, R. K., & Steinmetz, S. (1988). *The Barnhart dictionary of etymology*. Bronx, N.Y: H.W. Wilson Co.
- Bass, G. (1966). *Archaeology Under Water*. London: Thames and Hudson.
- Bass, G. (1967). Cape Gelidonya: a bronze age shipwreck. *Trans Am Philos Soc New Series*, 57.8, pp. 1-177.
- Bax, A., & Martin, C. J. M. (1974). A Dutch East Indiaman lost on the Out Skerries, Shetland, in 1711. *IJNA*, 3.1, pp. 81-90.
- Belasus, M. (2019). The ships that headed north - an archaeological perspective In N. Mehler, M. Gardiner, & E. Elvestad (Eds.), *German Trade in the North Atlantic, c. 1400–1700. Interdisciplinary Perspectives* Vol. 27. Stavanger: AmS-Skrifter, pp. 175-186.
- Bellamy, M. (1997). *Danish Naval Administration and Shipbuilding in the Reign of Christian IV (1596-1649)*: Unpublished Doctor of Philosophy thesis, University of Glasgow, Glasgow.
- Benediktsson, B. (1905-1908). *Sýslumannaæfir* (III. Bindi). Reyjavík: Þjóðólfs og Gutenberg.
- Birch, S., & McElvogue, D. M. (1999). La Lavia, La Juliana and the Santa Maria de Vision: three Spanish Armada transports lost off Stredagh Strand, Co. Sligo: an interim report. *IJNA*, 28, pp. 265-276.
- Birgisdóttir, B. B. (2013). *Skýrsla um stjórnýslu fornleifarannsóknna og fornleifaverndar á Íslandi 1990-2010*.
- Bjarnadóttir, H. H. (2014). *Þarflegir hlutir og þarfilitir (Ó)hófsemi Húnavetninga 1770–1787 og íslensk neyslusaga á 18. öld*: Unpublished Masters thesis, Háskóli Íslands, Reykjavík.
- Bjarnason, H. (2001). *The Foreign trade in Iceland, 1870–1914: An analysis of trade statistics and a survey of its implications for the Icelandic economy*: Unpublished Doctor of Philosophy thesis, University of Glasgow, Glasgow.
- Björnsson, L. (1974). Ágrip af sögu Innrétinganna. In H. Þorláksson (Ed.), *Reykjavík í 1100 ár*. Reykjavík: Sögufélag, pp. 117-145.
- Björnsson, L. (1998). *Íslands hlutafélag: Rekstrarsaga Innrétinganna*. Reykjavík: Hið íslenska bókmenntafélag.
- Blakemore, R. J. (2017). Pieces of Eight: seafarers' earnings and the venture economy of early modern seafaring. *Economic History Review* 70(4), pp. 1153-1184.
- Blanning, T. (2007). *The Pursuit of Glory: Europe, 1648-1815*. London: Penguin Books.
- Blussé, L., & Gaastra, F. (1981). *Companies and Trade*. Leiden: Leiden University Press.
- Bollnow, O. F. (1994). Vara-i-rum och ha-rum. Swedish translation by William Fovet and Björn Sandmark, chapter 1 in part V. In W. Fovet & S. B. (Eds.), *Mench und Raum, Nordisk Arkitekturforskning* Vol. 1, pp. 111-120.

- Bound, M., & Sharpe, T. (1995). The wreck of the Danish man-of-war Wrangels Palais (1687) off Bound Skerry in the Out Skerries (Shetland Islands). In M. Bound (Ed.), *The Archaeology of Ships of War*. Oswestry, pp. 45-51.
- Bowens, A. (2009). *Underwater Archaeology: The NAS Guide to Principles and Practice. 2nd Edition*. Chichester: Blackwell Publishing.
- Brady, K. (2008). *Shipwreck inventory of Ireland. Louth, Meath, Dublin, and Wicklow*. Dublin: Stationery Office.
- Breen, C., & Forsythe, W. (2004). *Boats & Shipwrecks of Ireland* Gloucestershire: Tempus Publishing Ltd.
- Brennan, M. L., Davis, D., Ballard, R. D., Trembanis, A. C., Vaughn, I., Krumholz, J. S. J. P., DuVal, C. (2016). Quantification of bottom trawl fishing damage to ancient shipwreck sites. *Marine Geology* 371, pp. 82-88.
- Brorsson, T. (2019). *ICP-Analyses of 17th and 18th century pottery found at Arnarstapi, Flatey, Hólahólar and Skálholt, Iceland*. Unpublished Report.
- Brynjarsson, A. (2021). Konungsjarðir og umboðsmenn þeirra í byrjum 18. aldar. Unpublished Bachelors thesis. Háskóli Íslands.
- Buchinger, B. (2013). *Zu den Funden der Stat Haarlem – Überlegungen zum niederländisch-baltischen Handel*: Unpublished Masters thesis, University of Vienna.
- Cahill, P., & Sigurðsson, H. (1978). *Kortasaga Íslands: Frá lokum 16. aldar til 1848*. (Vol. II). Reykjavík: Menningarsjóður.
- Canning, S. (2006). 'BELIEF' in the Past: Dempster-Shafer theory, GIS, and archaeological predictive modeling. *Australian Archaeology* 60, pp. 6-15.
- Capelle, T. (1982). *Untersuchungen auf dem mittelalterlichen Handelsplatz Gautavík, Island*. Köln: Rheinland-Verlag.
- Cesario, G. M. (2019). *Report on the Archaeofauna from Arnarstapi 2016 and 2017 Excavations*. Unpublished Report. NABO.
- Childe, V. G. (1950). The Urban Revolution. *The Town Planning Review*, 21, pp. 3-17.
- Christaller, W. (1933 [1968]). *Die zentralen Orte in Süddeutschland*. Darmstadt: Wissenschaftliche Buchgesellschaft.
- Christensen, S. R. (1979). Det Kgl. oktroyerede Handelskompagni 1743-1758. *Erhvervshistorisk årbog : meddelelser fra Erhvervsarkivet*.
- Cipolla, C. M. (1974). "Introduction" to *The Fontana Economic History of Europe, IV: The Sixteenth and Seventeenth Centuries*. Glasgow: Collins.
- Clarke, D. L. (1968). *Analytical Archaeology*. London: Methuen.
- Clausen, O. (1971). Innréttingar Skúla fógeta. In *Aftur í Aldir* (Vol. 3). Hafnarfjörður: Skuggsjá, pp. 197-210.

- Cobb, C. R. (2000). *From quarry to cornfield: the political economy of Mississippian hoe production*. Tuscaloosa: University of Alabama Press.
- Cohn, A. B. (2000). A Perspective on the Future of Underwater Archaeology. *Historical Archaeology*, 34(4), pp. 18-21.
- Collins, T. (2001). From Hoekers to Hookers: A Survey of the Literature and Annotated Bibliography on the Origins of the Galway Hooker. *Journal of the Galway Archaeological and Historical Society*, 53, pp. 66-83.
- Crowley, J., Smyth, W. J., & Murphy, M. (2012). *Atlas of the great Irish famine, 1845-52*. Cork: Cork University Press.
- Crumlin-Pedersen, O. (2000). To be or not to be a cog: the Bremen cog in perspective. *IJNA*, 29(2), pp. 230-246.
- Cunliffe, B. W. (1988). *Greeks, Romans and Barbarians: Spheres of Interaction*. London: Batsford.
- Daalder, R. (2005). *Schepen van de Gouden Eeuw. Zutphen*. Zutphen: Walburg Pers.
- Daly, A. (2018). *Dendrochronological analysis of ship's timbers at Sandavágur Eyðanstovuskipið, Faroe Islands. dendro.dk report 2018:65*. Unpublished Report. Copenhagen.
- Daly, A. (2019). Ships and their timber source as indicators of connections between regions. In N. Mehler, M. Gardiner, & E. Elvestad (Eds.), *German Trade in the North Atlantic, c. 1400–1700. Interdisciplinary Perspectives Vol. 27*. Stavanger: AmS-Skrifter, pp. 133-143.
- Damme, T. V. (2015). *Computer Vision Photogrammetry for Underwater Archaeological Site Recording: A Critical Assessment*. Unpublished Masters thesis, University of Southern Denmark, Esbjerg.
- Daniels, P. W. (2017). Central Place Theory. In D. Richardson, N. Castree, M. I. F. Goodchild, A. Kobayashi, L. Weidong, & R. A. Marston (Eds.), *The International Encyclopaedia of Geography*. John Wiley & Sons, Ltd, pp. 1-3. DOI: 10.1002/9781118786352.wbieg0747
- Dash, M. (2003). *Batavia's Graveyard: The True Story of the Mad heretic who led History's Bloodiest mutiny (2nd Edition)*. London: Phoenix.
- Davies, D. W. (1961). *A Primer of Dutch Seventeenth Century Overseas Trade*. The Hague: Martinus Nijhoff.
- De Gelder, J., & Ramakers, G. (1824). *Allereerste Gronden der Cijferkunst* Amsterdam: Bij de Gebroeders van Cleef.
- De Vries, J. (1976). *The Economy of Europe in an Age of Crisis, 1600-1750*. Cambridge: Cambridge University Press.
- Dear, I. C. B., & Kemp, P. (2006). *The Oxford Companion to Ships and the Sea (2nd Edition)*. Oxford: Oxford University Press.

- Debes, H. J. (2000). *Føroya Søga. Frá kongligum einahandli til embætisveldi*, Vol 3. Tórshavn: Føroya Skúlabókagrunnur.
- Deeben, J., Hallewas, D. P., & Maarleveld, T. J. (2002). Predictive modelling in Archaeological Heritage Management of the Netherlands: the Indicative Map of Archaeological Values (2nd Generation). *Berichten van de Rijksdienst voor het Oudheidkundig Bodemonderzoek (Proceedings of the National Service for Archaeological Heritage in the Netherlands)*. 45, pp. 9-56.
- Delle, J. A. (1998). *An Archaeology of Social Space: Analyzing Coffee Plantations in Jamaica's Blue Mountains*. New York: Plenum.
- Degn, O., & Gøbel, E. (1997). *Dansk Sjøfarts Historie Vol 2. 1588-1720. Skuder og kompagnier*. Copenhagen Gyldendal.
- Dillian, C. D., & White, C. L. (2010). *Trade and Exchange: Archaeological Studies from History and Prehistory* (C. D. Dillian & C. L. White Eds.). New York: Springer.
- DiPaolo Loren, D. (2010). The Exotic in Daily Life: Trade and Exchange in Historical Archaeology. In C. D. Dillian & C. L. White (Eds.), *Trade and Exchange: Archaeological Studies from History and Prehistory*. New York: Springer, pp. 195-204.
- Dobbs, C., & Price, R. (1991). The Kennermerland site, the Sixth and Seventh Seasons, 1984 and 1987, and the identification of five golf clubs. *IJNA*, 20.2, pp. 111-122.
- Dogan, B. (2008). Trade and Exchange in Prehistory. A Theoretical Evaluation. In E. M. Doksanalti & E. Aslan (Eds.), *Proceedings of the International Symposium "Trade and Production Through the Ages"*. United States Selçuk University Faculty of Letters Department of Archaeology, pp. 33- 50.
- Dollinger, P. (1970). *The German Hansa*. Translated by D. S. Ault and S. H. Steinberg. Stanford, CA: Stanford University Press.
- Dunbar, E. (2017). *Radiocarbon Dating Certificate - SUERC-70946 (GU42684)*. Unpublished Report. SUERC.
- Earle, T. K. (1982). Prehistoric Economics and the Archaeology of Exchange. In T. K. Earle & J. E. Ericson (Eds.), *Contexts for Prehistoric Exchange*. New York: Academic Press. pp. 1-12.
- Earle, T. K. (2010). Exchange Systems in Prehistory. In C. D. Dillian & C. L. White (Eds.), *Trade and Exchange: Archaeological Studies from History and Prehistory*. New York: Springer, pp. 205-217.
- Edvardsson, R. (2001). *Fornleifar á Hellnum og Arnarstapa Aðalskráning*. FS089-9903. Unpublished Report by Fornleifastofnun Íslands.
- Edvardsson, R., & Egilsson, A. (2012). Archaeological assessment of selected submerged sites in Vestfirðir. *Archaeologica Islandica*, 9, pp. 9-28.
- Edvardsson, R., & Egilsson, A. (2015). Phønix: a preliminary report on the 19th-century Danish steamer wrecked on the Snæfellsnes Peninsula, Iceland. *The International Journal of Nautical Archaeology*, 44.1, pp. 196-213.

- Edvardsson, R., & Rafnsson, M. (2006). *Basque Whaling around Iceland Archaeological Investigation in Strákatangi, Steingrímsfjörður*. Unpublished Report by Náttúrustofa Vestfjarða.
- Eggertson, Ó. (2019). Analysis of wood samples from Arnartapi 2017. Unpublished Report.
- Einarsson, B. F. (1993). *Sjávarfornleifafræðileg rannsókn í Höfninni við Flatey á Breiðafirði sumarið 1993. 17. aldar hollenskt kaupfar og 19. aldar dönsk skonnorta*. Unpublished Report prepared for Þjóðminjasafns Íslands.
- Einarsson, B. F. (1994). Mjaltastúlkan í gígnum. *Árbók hins íslenska fornleifafélags 1993*, pp. 129-149.
- Einarsson, B. F. (1998). *Fornleifaskrá á Grundarkambi*. Unpublished Report.
- Eliassen, F.-E. (1995). The mainstays of the urban fringe Norwegian small towns, 1500–1800 In P. Clarke (Ed.), *Small Towns in Early Modern Europe*. Cambridge: Cambridge University Press, pp. 22-49.
- Eliassen, F.-E. (2012). The Heyday of the Small Town, Norwegian Urbanisation, 1500-1800. In T. Riis (Ed.), *Urbanization in the Oldenburg monarchy, 1500-1800* Kiel: Verlag Ludwig, pp. 27-38.
- Elvestad, E., & Opedal, A. (2019). Maritime-archaeological investigations of the Hanseatic harbour at Avaldsnes. In N. Mehler, M. Gardiner, & E. Elvestad (Eds.), *German Trade in the North Atlantic, c. 1400–1700. Interdisciplinary Perspectives* Vol. 27. Stavanger: AmS-Skrifter, pp. 217-236.
- Eriksson, N. (2013). Sailing, sleeping and eating on board seventeenth century ships: Tapping the Potential of Baltic Sea shipwrecks, with regard to the Archaeology of Space. In J. Adams & J. Rönnby (Eds.), *Interpreting Shipwrecks: Maritime Archaeological Approaches* (Vol. Södertörn Academic Studies 56, Southampton Archaeology Monograph New Series 4). Southampton: Highfield Press, pp. 97-109.
- Eriksson, N. (2014). *Urbanism Under Sail - An archaeology of fluit ships in early modern everyday life*. Stockholm: Södertörn University.
- Eriksson, N. (2015). Lodging in a fluitship: The material setting of everyday life on board Anna Maria of 1694. *Journal of Maritime Archaeology*, 10(1), pp. 45-63.
- Eriksson, N., & Rönnby, J. (2012). 'The Ghost Ship'. An Intact Fluyt from c.1650 in the Middle of the Baltic Sea. *IJNA*, 41(2), pp. 350-361.
- Estrud, B. (2005). Taphonomic models. Using Dempster-Shafer theory to assess the quality of archaeological data and indicative models. In P. M. van Leusen & H. Kamermans (Eds.), *Predictive Modelling for Archaeological Heritage Management: A research agenda* (Vol. Nederlandse Archeologische Rapporten 29). Amersfoort, pp. 189-198.
- Feldbaek, O. (1981). The Organisation and Structure of the Danish East India, West India and Guinea Companies in the 17th and 18th Centuries. In L. Blussé & F. Gaastra (Eds.), *Companies and Trade: Essays on Overseas Trading Companies during the Ancien Regieme*. Leiden: Leiden University Press.
- Feldbæk, O. (1997). *Dansk Søfarts Historie: 1720-1814, Storhandelsens tid* (Vol. 3). Copenhagen: Gyldendal.

- Friedland, K. (1984). The Hanseatic League and Hanse Towns in the Early Penetration of the North. *Arctic*, Vol. 37, No. 4, pp. 539-540.
- Flatman, J. (2003). Cultural biographies, cognitive landscapes and dirty old bits of boat: 'theory' in maritime archaeology. *IJNA*, 32.2, pp. 143-157.
- Folke Ax, C. (2009). The stranger you know: Icelandic perceptions of Danes in the twentieth century. In A. Folke Henningsen, L. Koivunen, & T. Syrjämaa (Eds.), *Nordic perspectives on encountering foreignness*. Vaasa: Wasa Graphics, pp. 13-25.
- Ford, B. (2007). Down by the water's edge: Modelling shipyard locations in Maryland, USA. *IJNA*, 36 (1), pp. 125-137.
- Forster, W. A., & Higgs, K. B. (1973). The Kennermerland, 1971: an interim report. *International Journal of Nautical Archaeology*, 2.2, pp. 291-300.
- Fricke, P. (1973). *Seafarer & community: towards a social understanding of seafaring*. London: Croom Helm.
- Friðriksson, A. (1994). *Sagas and Popular Antiquarianism in Icelandic Archaeology*. Avebury: Aldershot.
- Friðriksson, G. (2002). *Jón Sigurðsson- Ævisaga- Fyrri bindi*. Reykjavík: Mál og menning.
- Friðriksson, G., & Þór, J. (2013). *Kaupmannahöfn sem höfuðborg Íslands* (Vol. 1). Reykjavík: Híð íslenska bókmenntafélag.
- Friedland, K. (1973). Der hansische Shetlandhandel. In K. Friedland (Ed.), *Stadt und Land. In der Geschichte des Ostseeraumes* Lübeck: Schmidt-Römhild.
- Gardiner, M., & Mehler, N. (2007). "English and Hanseatic Trading and Fishing Sites in Medieval Iceland: Report on Initial Fieldwork". *Germania* 85, pp. 385–427.
- Gardiner, M., & Mehler, N. (2010). The Hanseatic trading site at Gunnister Voe, Shetland. *Post-Medieval Archaeology*, 44, pp. 347-349.
- Gardiner, M., & Mehler, N. (2013). *On the Verge of Colonialism: English and Hanseatic Trade in the North Atlantic Islands*. Woodbridge: The Boydell Press.
- Gardiner, R., & Bosscher, P. (1995). *The Heyday of Sail – The Merchant Ship 1650-1850*. London: Conway Maritime Press.
- Gardiner, R., & Unger, R. W. (1994). *Cogs, caravels and galleons: the sailing ship 1000–1650*. London: Conway Maritime Press.
- Gately, I., & Benjamin, J. (2018). Archaeology Hijacked: Addressing the Historical Misappropriations of Maritime and Underwater Archaeology. *Journal of Maritime Archaeology*, 13, pp. 15-35.
- Geertz, C. (1973). *The interpretation of cultures: selected essays*. New York, Basic Books.
- Gelsinger, B. (1981). *Icelandic Enterprise: Commerce and Economy in the Middle Ages*. Columbia: South Carolina Press.

- Georgsson, A. Ó. (1990). Fornleifaskrá: *skrá um friðlýstar fornleifar*. Report prepared for Þjóðminjasafn Íslands, fornleifanefnd. Retrieved from <https://www.minjastofnun.is/media/skjol-i-grein/fridlysingaskra-med-vidbotum.pdf>
- Gestsson, G. (1968). Álnir og Kvarðar *Árbók Hins íslenska fornleifafélags*, pp. 45-78.
- Gjerret, K. (1924). *History of Iceland*. New York: The McMillan Company.
- Glamann, K. (2011). *Dutch-Asiatic Trade 1620 - 1740*. The Netherlands Springer.
- Glete, J. (2007). Cities, state formation and the protection of trade in northern Europe, 1200-1700. In A. J. Brand & L. Muller (Eds.), *The Dynamics of economic culture in the North Sea and Baltic Region in the Late Middle Ages and Early Modern Period (ca. 1250-1700)*. Hilversum: Uitgeverij Verloren, pp. 13-23.
- Gøbel, E. (2010). The Sound Toll Registers Online Project, 1497-1857. *International Journal of Maritime History*, XXII, 2, pp. 305-324.
- Gosden, C. (2004). *Archaeology and Colonialism: Cultural Contact from 5000 BC to the Present*. Cambridge: Cambridge University Press.
- Graham, M. (2017). *Report on Geophysical Survey, Vesturbúðarhóll, Eyrarbakki, Iceland*. GRAMPUS HERITAGE & TRAINING LTD. Unpublished Report.
- Grassel, P. (2017). *Die späthansezeitliche Schifffahrt im Nordatlantik vom 15. Jahrhundert bis zum 17. Jahrhundert. Das maritim-archäologische Potenzial hansischer Handelsplätze auf den Shetland Inseln, den Färöer Inseln und Island anhand archäologischer und historischer Quellen*: Unpublished Doctoral thesis, Christian-Albrechts-Universität zu Kiel, Kiel.
- Grassel, P., & Martin, K. (2018). *Eyðanstovuskipið an Interim Report*. Unpublished Report prepared for the National Museum of The Faroe Islands.
- Grassel, P., & Edvardsson, R. (Forthcoming). The potential of Underwater Archaeology in the North Atlantic. In: N. Mehler (Ed.) *German voyages to the North Atlantic (c. 1400-1700)* (in Press).
- Gregory, D. (2010). Shipworm Invading the Baltic? *IJNA*, 39(2), p. 431.
- Guðmundsson, Á. (2015). *Frumdægur Akureyrar, Skrýsla 1 Forkönnun*. Unpublished Report by Forleifafræðistofan, prepared for Minjastofnun Íslands.
- Guðnadóttir, S. (2012). *Nautn og nytjar : Uppgravnir verslunarstaðir á Íslandi og erlendir gripir*. Unpublished Bachelors thesis, Háskóli Íslands, Reykjavík.
- Gunnarsson, G. (1983). *Monopoly trade and economic stagnation; Studies in the foreign trade of Iceland, 1602-1787*. Lund: Ekonomisk-historiska föreningen.
- Gunnarsson, G. (1987). *Upp er boðið Ísaland: Einokunarverslun og íslensk samfélag 1602-1787*. Reykjavík: Örn og Örlygur.
- Gunnarsson, G. (2017). Undarlegt er Ísland, örvasa og lasið : einokunarverslun á Íslandi. In S. R. Ísleifsson (Ed.), *Líftaug landsins : saga íslenskrar utanlandsverslunar 900-2010* (Vol. 1). Reykjavík: Sagfræðistofnun Háskóli Íslands og Skrudda, pp. 207-284.

- Gunnarsson, Þ. (Forthcoming). *Nesstofa við Seltjörn*. Reykjavík: Þjóðminjasafn Íslands.
- Gustafsson, H. (1998). Hugleiðingar um samfélagsgerð Íslendgina á árnýöld. In *Íslenska sögubíngið. Ráðstefnurit. II.* (Reykjavík, 1997). pp. 109-117.
- Gustafsson, H. (2002). Ritdómur. Gunnar Karlsson. Iceland's 1100 years. *Saga*, 40(2), pp. 253-259.
- Hall, M. (2000). *Archaeology and the Modern World: Colonial Transcripts in South Africa and the Chesapeake*. New York: Routledge.
- Halliday, M. (2020). Svalbard's Mysterious Disappearing Shipwrecks. *Hakai*. Retrieved from <https://www.hakaimagazine.com/news/svalbards-mysterious-disappearing-shipwrecks/>
- Hayeur Smith, M. (2016). *Arnarstapi Textile Fragment Analysis*. Unpublished Report.
- Hayeur Smith, M. (2017). *Textile Analysis of Arnarstapi textile samples*. Unpublished Report.
- Hayeur Smith, M. (2020). *The Valkyries' Loom. The Archaeology of Cloth Production and Female Power in the North Atlantic*. United States: University Press of Florida.
- Heiðarsson, D. B. (2013). *Underwater heritage in Iceland, Assessment and recommendation regarding the underwater cultural heritage*: Unpublished Masters thesis, University of Southern Denmark, Esbjerg.
- Heijink, M. (2017). *Amsterdam Notaries and the Melkmeid*. Unpublished Report prepared for The Cultural Heritage Agency of the Netherlands.
- Helgason, Þ. (2018). *The corsairs' longest voyage. The Turkish raid in Iceland 1627*. Leiden: Brill.
- Hermannsdóttir, M. (1987). Fornleifarannsóknir að Gásum og viðar í Eyjafirði árið 1986. *Sútur XIV/27*, pp. 3-39.
- Herzfeld, M. (2002). The absent presence: Discourse of crypto-colonialism. *The South Atlantic Quarterly*, 101(4), pp. 899-926.
- Hocker, F. M. (2004). Shipbuilding: philosophy, practice and research. In F. M. Hocker & C. A. Ward (Eds.), *The Philosophy of Shipbuilding: Conceptual Approaches to the Study of Wooden Ships*. College Station: Texas A&M University Press. pp. 1-12.
- Hodder, I. (1974). Regression Analysis of Some Trade and Marketing Patters. *World Archaeology*, 6, pp. 172-189.
- Hodder, I. (1982). Toward a Contextual Approach to Prehistoric Exchange. In T. K. Earle & J. E. Ericson (Eds.), *Contexts for Prehistoric Exchange*. New York: Academic Press, pp. 199-211.
- Hodges, R. (1989). *Dark Age Economics: The origins of towns and trade AD 600-1000 (2nd Edition)*. London: Duckworth.
- Hofmeister, A., & Löhr, A. (2000). *Kirche – Kaufmann – Kabeljau: 1000 Jahre Bremer Islandfahrt: Klerkar – Kaupmenn – Karfarmið: Íslandsferðir Brimara í 1000 ár*. Bremen: Staatsarchiv Bremen.

- Holland, H., & Wawn, A. (1987). *The Iceland journal of Henry Holland, 1810*. London: Hakluyt Society.
- Holterman, B. (2020). *The Fish Lands: German trade with Iceland, Shetland and the Faroe Islands in the late 15th and 16th Century*. Berlin: Walter de Gruyter, GmbH.
- Holterman, B. (2021). Vitnisburður frá 1602 sem einsöguleg heimild um utanlandsverslun á Íslandi við upphaf dönsku einokunarverslunarinnar. *Saga*, 54:1, pp. 51-82.
- Hopkins, T., & Wallerstein, I. (1977). Patterns of development of the modern world-system. *Review* 1(2), pp. 11-45.
- Hopkins, T., & Wallerstein, I. (1986). Commodity Chains in the World Economy Prior to 1800. *Review*, 10(1), pp. 157-170.
- Hoving, A. J. (1997). The fluit. *Nautical Research Journal*, 42, pp. 24-35.
- Hoving, A. J. (2012). *Nicolaes Witsen and Shipbuilding in the Dutch Golden Age*. College Station: Texas A&M University Press.
- Hoving, A. J. (2014). *17th Century Dutch Merchant Ships: Text, Photos and Plans for the Ship Modeller*. Florence (USA): Seawatch.
- Hreinsson, K. S., & Nichols, A. (2008). *The Travels of Reverend Ólafur Egilsson: Captured by pirates in 1627*. Reykjavík: Fjölvi Publishers.
- Humpert, M., & Raspotnik, A. (2012). The Future of Arctic Shipping Along the Transpolar Sea Route. In L. Heininen, H. Exner-Pirot, & J. Plouffe (Eds.), *Arctic Yearbook 2012*, pp. 281-307.
- Irwin, A. (2016). Race to save hidden treasures under threat from climate change. *New Scientist*, Online Edition, 16th June, 2016. Retrieved from <https://www.newscientist.com/article/2093905-race-to-save-hidden-treasures-under-threat-from-climate-change/>
- Israel, J. I. (1989). *Dutch Primacy in World Trade 1585-1740*. Oxford: Clarendon Press.
- Jackson, E. L. (1982). The Laki Eruption of 1783: impacts on population and settlement in Iceland. *Geography*, Vol. 67(1), pp. 42-50.
- Jacobsen, E. S. (2012). Urbanization in the Faroe Islands. In T. Riis (Ed.), *Urbanization in the Oldenburg Monarchy 1500-1800*. Kiel: Verlag Ludwig, pp. 141-148.
- James, M. (2004). *Wrangels Palais Out Skerries Shetland: 2014 Diver Survey: Archaeological Report for Historic Scotland*. Unpublished Report by Cotswold Archaeology.
- Jansma, E. (2016). *Datering houtmonsters Scheepswrak Melkmeid, IJland, Rapportnummer 2016008*. Unpublished Report. RING. Amersfoort.
- Jensen, M. (2018). Was the flute a vessel designed to evade paying toll in the Sound? *Tijdschrift Voor Zeegeschiedenis*, 37(2), pp. 22-41.
- Jespersen, K. J. V. (2004). *A History of Denmark*. Basingstoke: Palgrave Macmillan.

- Jónsson, G. (2011). Verslun á Íslandi. In J. Sigurðsson (Ed.), *Jón Sigurðsson: Hugsjónir og Stefnumál*. Reykjavík: Steinholt ehf, pp. 125-134.
- Jónsson, G., & Magnússon, M. S. (1997). *Hagskinna Sögulegar hagtölur um Ísland: Icelandic Historical Statistics*. Reykjavík: Hagstofa Íslands.
- Jónsson, J. O. (2017). *Ceramic Analysis of Arnarstapi Artefacts*. Unpublished Report.
- Jónsson, M. (2015). *Sterbúsins fémunir framtöldust þessir; Eftirlátnar eigur 96 Íslendinga sem létust á tímabilinu 1722-1820*. Reykjavík: Háskólaútgáfan.
- Judge, W. J., & Sebastian, L. (1988). *Quantifying the Present and Predicting the Past: Theory, Method and Application of Archaeological Predictive Modelling*, U.S. Department of the Interior, Bureau of Land Management. Denver.
- Kahlow, S. (2018). Introduction: Maritime Vessels and their Significance for Early Modern Cultural Exchange. In S. Kahlow (Ed.), *Transfer Between Sea and Land. Maritime vessels for cultural exchanges in the Early Modern Period*. Leiden: Sidestone Press, pp. 15-23.
- Kaijser, I. (1983). *Vraket vid Jutholmen. Last och utrustning. Statens Sjöhistoriska museum rapport 17*. Statens Sjöhistoriska museet. Stockholm.
- Kaller, M., & Jacob, F. (2019). *Transatlantic Trade and Global Cultural Transfers Since 1492: More than Commodities (1st ed.)*. London: Routledge.
- Karlsson, G. (2000). *Iceland's 1100 Years: History of a Marginal Society*. London: Hurst & Company.
- Karlsson, G. (2020). *Iceland's 1100 Years, History of a Marginal Society (2nd Edition)*. London Hurst & Company.
- Kelleher, C. (2020). *The alliance of pirates: Ireland and Atlantic piracy in the early seventeenth century* (Book edition. ed.). Chapel Hill: Cork University Press.
- Kelsall, P. (2007). The Changing Relationship Between Denmark and The Netherlands. In H. Brand & L. Müller (Eds.), *The Dynamics of Economic Culture in the North Sea- and Baltic Region in the Late Middle Ages and Early Modern Period*. Hilversum Verloren.
- Kemp, P. (2002). *The History of Ships*. Singapore: Grange Books.
- Ketilsson, M. (1776). *Kongelige Allernaadigste Forordninger og aabne Breve, som til Island ere udgivne af de Høist-priselige Konger af den Oldenborgiske Stamme: Rappsøe*.
- Kintisch, E. (2016a). Arctic shipworm discovery alarms archaeologists *Science*, Volume 351, (Issue 6276), p. 901.
- Kintisch, E. (2016b). Voyage into Darkness. *Science*, Volume 351(Issue 6279), pp. 1254-1257.
- Kjærgaard, T. (2012). A Forgotten Urban Revolution: Urban Settlements and Urbanization in Greenland, 1721-1814. In T. Riis (Ed.), *Urbanization in the Oldenburg Monarchy 1500-1800*. Kiel: Verlag Ludwig, pp. 149-164.

- Koivikko, M. (2017). *Recycling Ships: Maritime archaeology of the UNESCO World Heritage Site, Suomenlinna*. Helsinki: WhyPrint.
- Kristinsson, H. (1995). Post-Settlement history of Icelandic forests. *Búvísindi, Journal of Icelandic Agricultural Science* 9, pp. 31-35.
- Kristjánsdóttir, S. (2000). Grundarfjarðarkaupstaður hinn forni: Safn til sögu Eyrarsveitar. In Eyrbyggjar (Ed.), *Fólkið, fjöllin, fjörðurinn – Safn til sögu Eyrarsveitar*. Hollvinasamtök Grundarfjarðar: Eyrbyggjar, pp. 42-55.
- Kristjánsson, V., & Skúlason, Þ. (2000). *Upplýsingaröldin:úrval úr bókmenntum 18. aldar*. Reykjavík: Mál of menning.
- Lárusdóttir, B., Lucas, G., Pálsdóttir, L. B., & Ólafsson, S. (2005). Kúvikur An Abandoned Trading Site, *Archaeologia Islandica* 4, pp. 103-118.
- Lárusdóttir, B., & Hreiðarsdóttir, E. O. (2016). *Fornleifar í Flatey: Aðalskráning. FS640-14071*. Unpublished Report. Fornleifastofnun Íslands.
- Lavery, B. (2004). *SHIP - 5,000 Years of Maritime Adventure*. London: Dorling Kindersley / National Maritime Museum.
- Lee, J. J. (1995). *Ireland 1912-1985: Politics and Society*. Cambridge: Cambridge University Press.
- Lemée, C. P. P. (2006). *The Renaissance Shipwrecks from Christianshavn. An Archaeological and architectural study of large carvel vessels in Danish waters, 1560-1640*. Roskilde: Viking Ship Museum.
- Lerner, A. P. (1934). The Concept of Monopoly and the Measurement of Monopoly Power. *The Review of Economic Studies*, 1, No. 3, pp. 157-175.
- Líndall, P. (1982). *Bærnir byggast, Skipulagsstjóri ríkisins and Sögufélag*. Reykjavík.
- Linebaugh, P., & Rediker, M. (2012). *The Many-Headed Hydra: The Hidden History of the Revolutionary Atlantic*. London, New York: Verso.
- Little, B. (1994). People with History: An Update on Historical Archaeology in the United States. *Journal of Archaeological Method and Theory*, 1, pp. 5-40.
- Litwin, J. (1998). Medieval Baltic Ships - Traditions and Constructional Aspects. In *L'innovation technique au moyen age. Actes du VI^e Congrès International d'Archéologie Médiévale, (1-5 Octobre 1996, Dijon - Mont Beuvray - Chenôve - Le Creusot - Montbard) Caen* (Vol. 6): Société d'Archéologie Médiévale, pp. 89-97.
- Løvenørn, P. (1821). *Beskrivelse over den iislandske Kyst og alle Havne fra Fugle-Skiærene til Stikkelsholm i Brede-Bugten med Forklaring over deres Indseiling* (Vol. 3). Copenhagen: Det Konglige Søkaart-Arkiv.
- Lucas, G. (2009). The Tensions of Modernity: Skálholt during the 17th and 18th Centuries. *Journal of the North Atlantic*, pp. 75-88.
- Lucas, G. (2010). The Ceramic Revolution in Iceland 1850-1950. In *Table Settings: The Material Culture and Social Context of Dining, AD 1700-1900*. Oxford: Oxbow Books. pp. 125-132.

- Lucas, G. (2012). Later Historical Archaeology in Iceland: A Review. *International Journal of Historical Archaeology*, 16, pp. 437-454.
- Lucas, G. (2017). *Flatey Pottery*. Unpublished Report.
- Lucas, G., & Ævarsson, U. (2017). *Archaeological Investigations at Sandártunga, Þjórsárdalur 2017*. Unpublished Report prepared for the University of Iceland & The Icelandic Heritage Agency.
- Lucas, G., & Hreiðarsdóttir, E. (2012). The Archaeology of Capitalism in Iceland: The View from Viðey. *International Journal of Historical Archaeology*, 16, pp. 604-621. doi:10.1007/s10761-012-0193-y
- Lucas, G., Jónsson, J. O., & Martin, K. (2021). Pots for socks. Commodity Itineraries in the North Atlantic during the 17th and 18th Centuries In. *Post-Medieval Archaeology*, 55:2, pp. 194-210.
- Lucas, G., & Parigoris, A. (2013). Icelandic archaeology and the ambiguities of colonialism. In M. Naum & J. M. Nordin (Eds.), *Scandinavian colonialism and the rise of modernity: Small time agents in a global arena*. New York: Springer. pp. 89-104.
- Lucas, G., & Snæsdóttir, M. (2006). Archaeologies of modernity in the Land of the Sagas. *Meta:Medeltidarkeologisk Tidskrift 2006*, 3, pp. 5-18.
- Ludlow Collective. (2001). Archaeology of the Colorado Coal Field War 1913–1914. In V. Buchli & G. Lucas (Eds.), *Archaeologies of the Contemporary Past*. London: Routledge, pp. 94-107.
- Maarleveld, T. (1995). Type or technique. Some thoughts on boat and ship finds as indicative of cultural traditions *IJNA*, 24.1, pp. 3-7.
- Maarleveld, T. (2003). Predictive assessment as a tool in Dutch maritime heritage management. *The Bulletin of the Australasian Institute for Maritime Archaeology*, 27, pp. 121-134.
- MacKintosh, R. (2019). Capacity in Maritime Archaeology: A Framework for Analysis. *Journal of Maritime Archaeology*, 14, pp. 391-408.
- Manders, M. R. (2011). *Guidelines for protection of submerged wooden cultural heritage*. Amersfoort. Wreck Protect.
- Magnússon, S. (1783). Sveitabóndi. *Rit þess (konunglega) íslenszka Lærdómslistarfélags* 4(1), pp. 137-207.
- Magnússon, S. (1784). Fyrsti viðbætur til sveitabóndans. *Rit þess (konunglega) íslenszka Lærdómslistarfélags*, 5(1), pp. 143-189.
- Marboe, A. (2009). Das Schiff als Träger der spanischen Expansion in Amerika. In A. Marboe (Ed.), *Seefahrt und frühe europäische Expansion*. Vienna: Mandelbaum Verlag, pp. 123-152.
- Margeirsson, J. K. (1978). Et bidrag til det islandske kompagnis historie. In S. Jensen (Ed.), *Historiske Meddelelser om Köbenhavn*. Copenhagen: Köbenhavns kommunalbestyrelse, p. 212.

- Martin, C. J. M. (1992). The wreck of the Dutch East-Indiaman Adelaar off Barra in 1728. In R. Mason & N. Macdougall (Eds.), *People and Power in Scotland: Essays in Honour of T. C. Smout*. Edinburgh: John Donald Publishers Ltd. pp. 145-169.
- Martin, C. J. M. (1998). *Scotland's Historic Shipwrecks*. London: B T Batsford Ltd.
- Martin, C. J. M. (2005). The Adelaar: A Dutch East Indiaman wrecked in 1728 off Barra, Outer Hebrides, Scotland. *International Journal of Nautical Archaeology*, 34.2, pp. 179–210.
- Martin, C. J. M. (2017). *A Cromwellian Warship wrecked off Duart Castle, Mull, Scotland, in 1653*. Edinburgh: Society of Antiquaries of Scotland.
- Martin, K. (2013). *Vellankatla: An underwater archaeological assessment of potential archaeological remains in Þingvallavatn*. Unpublished Report prepared for Þingvallanefnd.
- Martin, K. (2016). *Fornleifarannsókn á Arnarstapa á Snæfellsnesi (201606-0020)*. Unpublished Report prepared for Minjastofnun Íslands.
- Martin, K. (2017a). *An archaeological dossier of the Danish Trade Monopoly Ports*. Unpublished report.
- Martin, K. (2017b). *Fornleifarannsókn á Arnarstapa á Snæfellsnesi (201607-0020)*. Unpublished Report prepared for Minjastofnun Íslands.
- Martin, K. (2018). *Archaeological Survey of the Melckmeyt Shipwreck in Flatey, Iceland (201606-0020)*. Unpublished Report prepared for Minjastofnun Íslands.
- Martin, K. (2019). *Archaeological Survey of a Dutch Merchant Ship from the 17th Century (201604-0098)*. Unpublished Report prepared for Minjastofnun Íslands.
- Maxwell, A. E. (2017). *Vesturbúðarhóll á Eyrarbakka. Jarðsjármælingar og könnunaruppgröftur*. Unpublished Report prepared for Minjastofnun Íslands.
- McCarthy, J. K. (2020). *Maritime Archaeology and 3D Digital Libraries: a case study of Dutch Merchant Ships (1595–1800)*: Unpublished Doctoral thesis, Flinders University, Adelaide.
- McCarthy, J. K., & Benjamin, J. (2014). Multi-image Photogrammetry for Underwater Archaeological Site Recording: an accessible, diver-based approach. *Journal of Maritime Archaeology*, 9.1, pp. 95-114.
- McCarthy, J. K., & Martin, K. (2019). 'Virtual Reality for maritime archaeology in 2.5D: A virtual dive on a flute wreck of 1659 in Iceland'. *2019 23rd International Conference in Information Visualization – Part II, IEEE*, pp. 104-109.
- McCarthy, J. K., Robertson, P., & Mackay, E. (2015). Discovery and Survey and of a 17th–18th Century Shipwreck near Drumbeg, NW Scotland: an initial report. *International Journal of Nautical Archaeology*, 44.1, pp. 202-208.
- McGrail, S. (1995). Romano-Celtic boats and ships: characteristic features. *IJNA*, 24(2), pp. 139-145.

- McGrail, S. (1998). *Ancient Boats in North-West Europe. The Archaeology of Water Transport to AD 1500*. London & New York: Longman.
- McWilliams, D. (2021). Covid-19 and Zoom will not finish off Dublin *The Irish Times*. Retrieved from: <https://www.irishtimes.com/opinion/david-mcwilliams-covid-19-and-zoom-will-not-finish-off-dublin-1.4470163?mode=sample&auth-failed=1&pw-origin=https%3A%2F%2Fwww.irishtimes.com%2Fopinion%2Fdavid-mcwilliams-covid-19-and-zoom-will-not-finish-off-dublin-1.4470163>
- Mehler, N. (2015). The Sulphur Trade of Iceland from the Viking Age to the End of the Hanseatic Period. In I. Baug, J. Larsen, & S. S. Mygland (Eds.), *Nordic Middle Ages – Artefacts, Landscapes and Society. Essays in Honor of Ingvild Øye on Her 70th Birthday*. Bergen: University of Bergen.
- Mehler, N., Guðmundur, Ó., Holterman, B., Coolen, J., Edvardsson, R., & Brorsson, T. (2019). “Gautavík – A Trading Site in Iceland Re-Examined”. In N. Mehler, M. Gardiner, & E. Elvestad (Eds.), *German Trade in the North Atlantic, c. 1400–1700. Interdisciplinary Perspectives* (Vol. 27). Stavanger: AmS-Skrifter, pp. 259-275.
- Michell, A. R. (1977). The European Fisheries in Early Modern History. In D. Coleman, P. Mathias, & M. Postan (Authors) & E. Rich & C. Wilson (Eds.), *The Cambridge Economic History of Europe: Volume 5 The Economic Organization of Early Modern Europe*. Cambridge: Cambridge University Press, pp. 133-134.
- Mitchel, J. (2005). *The Last Conquest of Ireland (Perhaps) [1860]*. Dublin: UCD Press.
- Moreland, J. (2001). *Archaeology and Text*. London: Duckworth.
- Mortensøn, O. (2017). Da skuderne fór. *M/S Museet for Søfarts årbog, 71*, pp. 7-32. Retrieved from https://tidsskrift.dk/mfs_aarbog/article/view/96611
- Muckelroy, K. (1978). *Maritime archaeology*. Cambridge: Cambridge University Press.
- Nørlund Christensen, A. (2021). *Maritime Connections Across the North Sea*. Leiden: Sidestone Press.
- Nymoén, P. (2009). Marginale steder eller marginale kilder? Undervannsarkeologisk blikk på små handelshavner. In J. Brendalmo, F.E. Eliassen, & T. Gansum (Eds.), *Den urbane underskog: Strandsteder, utvekslingssteder og småbyer ivikingtid, middelalder og tidlig nytid*. Oslo: Novus, pp. 93-131.
- O’Sullivan, A., & Breen, C. (2007). *Maritime Ireland: An Archaeology of Coastal Communities*. Gloucestershire: The History Press.
- Ólafsson, G. (1982). Der Ostkomplex. In T. Capelle (Ed.), *Untersuchungen auf dem mittelalterlichen Handelsplatz Gautavík, Island*. Köln: Rheinland-Verlag, pp. 60–68.
- Ólafsson, G. (2005). *Verslunarstaðurinn í Gautavík. Rannsókn á rúst I*. Unpublished Report by Þjóðminjasafn Íslands. Reykjavík.
- Ólafsson, G., & Sigurðsson, M. A. (2001). *Grundarkampur – uppmæling vegna skiltagerðar*. Vinnuskýrslur Þjóðminjasafns. Unpublished Report.
- Ólafsson, S. (2009). *Akureyjar Aðalskráning fornleifa*. Unpublished Report by Fornleifastofnun Íslands prepared for Minjastofnun Íslands.

- Pálsdóttir, L. B., & Gylfadóttir, R. G. (2020). *Vesturbúð, Eyrarbakka, Fornleifarannsókn 2019. FS816-17252*. Unpublished Report. Fornleifastofnun Íslands.
- Pálsdóttir, L. B., Roberts, H., Harrison, R., & Gísladóttir, G. (2007). *Excavations at Gásir 2006: An Interim Report/ Framvinduskýrsla. report nr. FS355 -010710*. Unpublished Report by Fornleifastofnun Íslands prepared for Minjastofnun Íslands.
- Pajkull, C. W. (1868). *A Summer in Iceland (translated by M.R. Barnand)*. London: Chapman and Hall. Retrieved from <https://archive.org/details/asummeriniceLAN01paijgoog>
- Parry, J. H. (1967). Transport and Trade Routes. In E. E. Rich & C. H. Wilson (Eds.), *Cambridge Economic History of Europe. IV: The Economy of Expanding Europe in the Sixteenth and Seventeenth Centuries*. Cambridge: University Press, pp. 155-219.
- Parthesius, R. (2010). *Dutch ships in tropical waters: The development of the Dutch East India Company (VOC) shipping network in Asia, 1595-1660*. Amsterdam: Amsterdam University Press.
- Polanyi, K. (1944). *The Great Transformation*. New York: Farrar & Rinehart.
- Polanyi, K., Arensberg, C. M., & Pearson, H. W. (1957). *Trade and Market in the Early Empires – Economies in History and Theory*. Chicago: Henry Regnery Company.
- Pontoppidan, C. (1787-1788). *Samlinger til Handels Magazin for Island. 1-2 Deel*. Copenhagen: Publisher unknown. Retrieved from https://baekur.is/bok/000315086/2/35/Samlinger_Til_Handels_Magazin?language=en
- Pontoppidan, C. (1792-1793). *Magazin for almeennyttige Bidrag til Kundskab om Indretninger of Forfatninger i de Kgl. danske Stater 1-2 Deel*. Copenhagen: Publisher unknown.
- Porsius, N. (2002). Hout en schepen. *Zaans Erfgoed 1, 2*, pp. 10-13.
- Prescott, R. G. W., Atkinson, D., & Liscoe, S. (2008). *Preliminary Survey and Assessment of a wreck on the island of Funday, Barra, Western Isles. Unpublished report for Headland Archaeology*.
- Price, R., & Muckelroy, K. (1974). The Kennermerland. *IJNA*, 2.2, pp. 291-300.
- Price, S. E., & Carr, P. J. (2018). *Investigating the Ordinary: Everyday Matters in Southeast Archaeology*. Gainesville: University of Florida Press.
- Raleigh, W. (1829). 'A Discourse of the Invention of Ships, Anchors, Compass, &c.' *The Works of Sir Walter Raleigh, Kt.*, (Vol. 8). Oxford: Oxford University Press.
- Rasch, A. (1964). *Niels Ryberg 1725-1804; Fra bondedreng til handelsfyrste*. Aarhus: Universitetsforlaget i Aarhus.
- Rediker, M. (1987). *Between the devil and the deep blue sea: merchant seamen, pirates, and the Anglo-American maritime world, 1700-1750*. Cambridge; New York: Cambridge University Press.

- Renfrew, C. (1970). New Configurations in Old World Archaeology. *World Archaeology* 2 (2), pp. 199-211.
- Renfrew, C. (1975). Trade as action at a distance. In J. Sabloff & C. C. Lamberg-Karlovsky (Eds.), *Ancient Civilisation and trade*. Albuquerque: University of New Mexico Press, pp. 3-59.
- Roberts, H. M. (2002). *Fornleifarannsókn á Gásir / Archaeological Research at Gásir 2001. An Interim Report / Framviduskýrsla report nr. FS163–01071*. Unpublished Report by Fornleifastofnun Íslands prepared for Minjastofnun Íslands.
- Roberts, H. M. (2005). *Excavations at Gásir 2004: An Interim Report. nr FS280-01076*. Unpublished Report by Fornleifastofnun Íslands prepared for Minjastofnun Íslands.
- Roberts, H. M., Snæsdóttir, M., & Vésteinsson, O. (2002). *Fornleifarannsóknir við Aðalstræti 2001 / Archaeological investigations in Aðalstræti 2001: Áfangaskýrsla/Interim Report*. Unpublished Report by Fornleifastofnun Íslands prepared for Minjastofnun Íslands.
- Róbertsdóttir, H. (2001). Krambúðir og kaupstaðarferðir : heimildir um atvinnu og verslun á 18. öld. In A. Agnarsdóttir & S. T. Erlendsdóttir (Eds.), *Kvennaslóðir : rit til heiðurs Sigríði Th. Erlendsdóttur sagnfræðingi*. Reykjavík: Kvennasögusafn Íslands, pp. 188-204.
- Róbertsdóttir, H. (2008). *Wool and society; Manufacturing policy, economic thought and local production in 18th century Iceland*. Göteborg: Makadam.
- Róbertsdóttir, H. (2012). Munaðarvara og matarmenning; Pöntunarvara árið 1784. *Saga*, 50(2), pp. 70-111.
- Róbertsdóttir, H. (2014). Manufacturing in the 18th century; Production, consumption and relative usefulness in Iceland's Old Society. *Scandinavian Journal of History*, 39(1), pp. 49-77. Retrieved from <http://dx.doi.org/10.1080/03468755.2013.856813>
- Róbertsdóttir, H. (2018). Permanent or Seasonal Settlements? Communities and Settlement Patterns in Iceland in Early Modern Times. In P. Cornell, L. Ersgård, & A. Nilsen (Eds.), *Urban Variation - Utopia, planning and practice*. USA: Lulu Press, Inc, pp. 329-388.
- Róbertsdóttir, H., & Guðmundsdóttir, J. Þ. (2016). *Landsnefndin fyrri: I – Den islandske Landkommission 1770-1771*. Reykjavík: Þjóðskjalasafn Íslands.
- Róbertsdóttir, H., & Guðmundsdóttir, J. Þ. (2016). *Landsnefndin fyrri: II - Den islandske Landkommission 1770-1771 (Vol. 2)*. Reykjavík: Þjóðskjalasafn Íslands.
- Róbertsdóttir, H., & Guðmundsdóttir, J. Þ. (2018). *Landsnefndin fyrri III - Den islandske Landkommission 1770-1771 (Vol. 3)*. Reykjavík: Þjóðskjalasafn Íslands.
- Róbertsdóttir, H., & Guðmundsdóttir, J. Þ. (2019). *Landsnefndin fyrri IV: Den islandske Landkommission 1770-1771 (Vol. 4)*. Reykjavík: Þjóðskjalasafn Íslands.
- Róbertsdóttir, H., & Guðmundsdóttir, J. Þ. (2020). *Landsnefndin fyrri V: Den islandske Landkommission 1770-1771 (Vol. 5)*. Reykjavík: Þjóðskjalasafn Íslands.
- Róbertsdóttir, H., & Guðmundsdóttir, J. Þ. (2022). *Landsnefndin fyrri 1770–1771 VI. Vinnugögn nefndarinnar (Vol. 6)*. Reykjavík: Þjóðskjalasafn Íslands.

- Robson, J. (1780). *Von Troil, Uno. Letters on Iceland*. London: New Bond Street. Retrieved from https://baekur.is/bok/000977962/Letters_on?language=en
- Rönnby, J. (2013). The Archaeological Interpretation of Shipwrecks. In J. Adams & J. Rönnby (Eds.), *Interpreting Shipwrecks: Maritime Archaeological Approaches* (Vol. Södertörn Academic Studies 56, Southampton Archaeology Monograph New Series 4). Southampton: Highfield Press, pp. 9-24.
- Sanden, J. (1988). Vraket fra Stoppleia - et tidsbilde fra hollendertida. *SPOR -fortidsnytt fra Midt-Norge*, 3, pp. 12-14.
- Scorrer, J., Faillace, K. E., Hildred, A., Nederbragt, A. J., Andersen, M. B., Millet, M. A., Lamb, A. L., & Madgwick, R. (2021). Diversity aboard a Tudor warship: investigating the origins of the *Mary Rose* crew using multi-isotope analysis. *Royal Society open science*, 8(5), 202106. <https://doi.org/10.1098/rsos.202106>
- Shakespeare, W., & Bevington, D. M. (1997) *The complete works of Shakespeare*. New York: Longman.
- Sigurðsson, J. (1843). Um verzlun á Íslandi *Ný Félagsrit*, 3(1), pp. 1-127.
- Sigurðsson, J. (1862). Um fjárhagsmálið *Ný Félagsrit*, 23(1), pp. 22-99.
- Sigurðsson, S. H. (2010). *Munaðarvörur á Íslandi á 18. og 19. öld og viðhorf til þeirra*. Unpublished Bachelors thesis, Háskóli Íslands, Reykjavík.
- Simon Thomas, M. (1935). *Onze IJslandvaarders in de 17de en 18 Eeuw*. Amsterdam: Maatschappij ENUM.
- Sindbæk, S. M. (2008). Local and long-distance exchange In S. Brink & N. Price (Eds.), *The Viking World*. London and New York: Routledge. pp. 150-158.
- Skre, D. (2008). The development of urbanism in Scandinavia In S. Brink & N. Price (Eds.), *The Viking World*. London and New York: Routledge, pp. 83-93.
- Smith, K. P. (1995). *Landnám: The settlement of Iceland in archaeological and historical perspective*. *World Archaeology*, 26:3, pp. 319-347.
- Smith, K. P. (2009). *Gilsbakki in Hvítársíða, Western Iceland: Preliminary Report of Investigations, 2008*. Unpublished Report prepared for Minjastofnun Íslands.
- Smith, L. C., & Stephenson, S. R. (2013). New Trans-Arctic shipping routes navigable by mid-century. *PNAS*, pp. 1191-1195. Retrieved from www.pnas.org/cgi/doi/10.1073/pnas.1214212110
- Smith, M. E. (2009). V. Gordon Childe and the Urban Revolution: a historical perspective on a revolution in urban studies. *Town Planning Review*, 80(1), pp. 2-29.
- Snæsdóttir, M., Lucas, G. M., & Vésteinsson, O. (2006). Fornleifar og rannsóknir í Skálholti. In S. Kristjánsdóttir (Ed.), *Saga biskupsstólanna*. Akureyri: Hólar, pp. 674-697.
- Söderlind, U. (2006). *Skrovmål: Kosthållning och matlagning i den svenska flottan från 1500-tal till 1700-tal*. Carlssons Forum Navales skriftserie 17, Stockholm.

- Stefánsson, B. (1998). *Skipsviðir úr Búðaósi. Þjóðminjasafn Íslands*. Unpublished Report.
- Steffy, J. R. (1994). *Wooden Ship Building and the Interpretation of Shipwrecks*. College Station: Texas A&M University Press.
- Steffy, J. R. (2011). Illustrated Glossary of Ship and Boat Terms In A. Catsambis, B. Ford, & D. L. Hamilton (Eds.), *The Oxford Handbook of Maritime Archaeology*. New York: Oxford University Press, pp. 1105-1150.
- Sténuit, R. (1974). Early Relics of the VOC Trade from Shetland: the wreck of the flute Lastdrager lost off Yell 1653. *International Journal of Nautical Archaeology*, 3.2, pp. 213-256.
- Stephensen, Ó. (1786a). Um jafnvægi bjargræðisveganna á Íslandi. *Rit þess (konunglega) íslenska Lærdómslistarfélags*, 7(1), pp. 113-193.
- Stephensen, Ó. (1786b). Um sjávaralfa og fleiri vatnaveiðar á Íslandi. *Rit þess (konunglega) íslenska Lærdómslistarfélags* 7(1), pp. 1-64.
- Steward, J. H. (1955). *Theory of culture change*. Urbana: University of Illinois Press.
- Stirland, A. (2000). *The Skeleton Crew of Henry VIII's Mary Rose*. London: Wiley-Blackwell.
- Sveinbjarnardóttir, G. (1996). *Leirker á Íslandi*. Reykjavík: Hið íslenska fornleifafélag & Þjóðminjasafn Íslands.
- Sveinbjarnardóttir, G. (2012). *Reykholt. Archaeological Investigations at a High Status Farm in Western Iceland*. Reykjavík: Þjóðminjasafn Íslands & Snorrastofa.
- Sveistrup, P. P. (1943). Det Almindelige Handelskompagni 1747-1774; Med særligt henblik på dets virksomhed i Grønland. *Meddelelser om Grønland* 131(9).
- Swart, K. W. (1969). *The miracle of the Dutch Republic as seen in the seventeenth century: an inaugural lecture delivered at University College London 6 November 1967*. London: HK Lewis.
- Thór, J. T. (1996). Foreign Fisheries Off Iceland, c. 1400-1800. In Juliette Roding & L. Heerma van Voss (Eds.), *The North Sea and Culture (1550-1800)*. Hilversum: Verloren Publishing, pp. 124-134.
- Thurston, T. L. (2009). Unity and Diversity in the European Iron Age: Out of the Mists, Some Clarity? *Journal of Archaeological Research*, 17, pp. 347-423.
- Tilly, C. (1964). *The Vendée: A Sociological Analysis of the Counterrevolution of 1793*. Cambridge, Massachusetts: Harvard University Press.
- Topick, S. (2009). Historicizing Commodity Chains: Five Hundred Years of the Global Coffee Commodity Chain. In J. Bair (Ed.), *Frontiers of Commodity Chain Research* (pp. 37-63). California: Stanford University Press.
- Traustadóttir, R. (2000). *Fornleifaskráning á Miðnesheiði: Archaeological Survey of Miðnesheiði*. Reykjavík: Þjóðminjasafn Íslands.
- Traustadóttir, R. (2018). Kolkuós in the north of Iceland: A harbour site and trading place in the Viking Age to the medieval period. In D. L. Mahler (Ed.), *Gruel, Bread, Ale and*

- Fish: Changes in the Material Culture related to Food Production in the North Atlantic 800-1300 AD* (Vol. 26). Denmark: University Press of Southern Denmark. pp. 119-138.
- Traustadóttir, R., Dencker, J., & Rieck, F. (2003). *Kolkuóshöfn höfn Hólastaðar. Hólarannsóknin. Framvinduskýrsla 2 - excavation report*. Hólarannsóknin Reykjavík. Unpublished Report prepared for Minjastofnun Íslands.
- Traustadóttir, R., Skogbert, M., Hansen, S. J., Fennö, H., & Brorsson, T. (2009). *Hólarannsóknin 2009: Jarðfundnir gripir frá Hólum í Hjaltadal 2002 – 2008*. Unpublished report by Hólarannsóknin and Háskólinn a Holum, Skagafjörður prepared for Minjastofnun Íslands.
- Traustadóttir, R., & Svenson, J. (2012). *Kolkuós í Skagafirði. Framvinduskýrsla - preliminary excavation report*. Unpublished report by Hólarannsóknin and Háskólinn a Holum, Skagafjörður prepared for Minjastofnun Íslands.
- Traustadóttir, R., Svenson, J., Hansen, S. J., Carter, T., & Guðmundsdóttir, L. (2010). *Kolkuós í Skagafirði. Framvinduskýrsla* Unpublished report by Hólarannsóknin and Háskólinn a Holum, Skagafjörður prepared for Minjastofnun Íslands.
- Traustadóttir, R., & Zoëga, G. (2006). Saga Hóla letuð í moldina. In G. Kristjánsson (Ed.), *Saga biskupsstólanna : Skálholt 950 ára - 2006 - Hólar 900 ára*. Akureyri: Hólar, pp. 699-721.
- Tuddenham, D. B. (2010). Maritime Cultural Landscapes, Maritimity and Quasi Objects. *Journal of Maritime Archaeology*, 5, pp. 5-16.
- Turley, C. (2018). Centering Alluitsoq: The potential for an indigenous Archaeology in Greenland. Presented at The 82nd Annual Meeting of the Society for American Archaeology, Washington, DC. Unpublished Conference Presentation.
- Tuttle, M. C. (2011). Search and Documentation of Underwater Archaeological Sites. In A. Catsambis, B. Ford, & D. L. Hamilton (Eds.), *The Oxford Handbook of Maritime Archaeology*. New York: Oxford University Press, pp. 114-132.
- Tyas, A. (2016). *Managing Coastal Heritage in the Westfjords: Case Study of 19th Century Norwegian Whaling Stations*: Unpublished Masters thesis, University Centre of the Westfjords, Iceland.
- Unger, R. W. (1978). *Dutch Shipping before 1800: Ships and Guilds*. Amsterdam: Van Gorcum, Assen.
- Unger, R. W. (1997). *Ships and Shipping in the North Sea and Atlantic, 1400-1800*. Aldershot: Variorum.
- Unger, R. W. (2000). The fluit: specialist cargo vessels 1500 to 1650. In R. Gardiner (Ed.), *Cog's, Caravels and Galleons. Conway's History of the Ship (Reprint)*: Conway Maritime Press, pp. 115-130.
- Valante, M. A. (1998). Reassessing the Irish 'Monastic Town'. *Irish Historical Studies* 31(121), pp. 1-18.
- Valsson, T. (2003). *Planning in Iceland: From the Settlement to Present Times*. Reykjavik: University of Iceland Press.

- van Bruggen, B. E. (1977). Schepen, ontwerp en bouw. In F. J. A. Broeze, J. R. Bruijn, & F. S. Gaastra (Eds.), *Maritiem Geschiedenis der Nederlanden: Deel III*. Bussum: De Boer Maritiem, pp. 15–58.
- van Duivenvoorde, W. (2009). More than Just Bits of Hull: Expensive Oak, Laminate Construction, and Goat Hair - New Insights on Batavia's Archaeological Hull Remains. *Tijdschrift Voor Zeegechiedenis, Jaargang 28(2)*, pp. 59-69.
- van Duivenvoorde, W. (2015). *Dutch East India Company Shipbuilding: The Archaeological Study of Batavia and other Seventeenth-Century VOC Ships*. College Station: Texas A&M University Press.
- van Royen, P. C. (1988). Foreigners aboard the Dutch merchant marine around 1700. In W. G. Heeres, L. M. J. B. Hesp, L. Noordegraaf, & R. C. W. van der Voort (Eds.), *From Dunkirk to Danzig: shipping and trade in the North Sea and the Baltic, 1350-1850*. Hilversum: Verloren Publishers, pp. 391-404.
- van Tielhof, M. (2002). *The 'Mother of all Trades': The Baltic Grain Trade in Amsterdam from the Late 16th to the Early 19th Century*. Leiden, Boston, Köln: BRILL (The Northern World).
- van Zanden, J. L. (2001). Early modern economic growth: a survey of the European economy 1500–1800. In M. Prak (Ed.), *Early Modern Capitalism*. London: Routledge, pp. 69-87.
- van Zanden, J. L., & van Tielhof, M. (2009). Roots of growth and productivity change in Dutch shipping industry, 1500–1800. *Explorations in Economic History, 46*, pp. 389-403.
- Vasey, D. (1996). Population Regulation, Ecology, and Political Economy in Pre-industrial Iceland. *American Ethnologist, 23 (2)*, pp 366-392.
- Veluwenkamp, J. W. (2011). *Sound Toll Registers: Concise source criticism*. University of Groningen. Retrieved from <http://www.soundtoll.nl/images/files/STRpdf.pdf>
- Verneyden, P. (1998). 1782: The Wreck of De Jonge Alida. In A. Swanson & B. Törnqvist (Eds.), *Europe – The Nordic Countries*. Vol. 10. Leiden: Brill, pp. 101-118.
- Verhagen, P., & Whitley, T. G. (2012). Integrating Archaeological Theory and Predictive Modeling. - A Live Report from the Scene. *Journal of Archaeological Method and Theory*, pp. 49-100.
- Vilhjálmsón, V., & Jaspers, N. L. (2013). Plain white gadrooned dishes from the wreck of the *Melckmeyt* (1659) - Cream from the Milkmaid. Plain white faience of foreign origin excavated in the Netherlands (1500-1680). In T. Eliëns (Ed.), *White Delft. Not just blue. History of a national product* Vol. V. The Hague, pp. 45-76.
- Vilhjálmsón, V. Ö. (2013). Kaptajn, købmand og helligmand. *SKALK Nr. 6*, pp. 18-27.
- Vilhjálmsón, V. Ö. (2014). De man achter de Melckmeyt. *Vind, Geschiedenis, Archeologie, Kunst en Antiek, 13*, pp. 41-45.
- Wallerstein, I. (2011). *The Modern World System II, Mercantilism and the Consolidation of the European World-Economy 1600-1750*. Berkeley: University of California Press.

- Ward, A. (2010). Iceland uses Arctic thaw to turn heat on UK. *Financial Times*. Retrieved from <http://www.ft.com/intl/cms/s/0/76ca458c-2be5-11df-8033-00144feabdc0.html#axzz1tkzWEzrn>
- Wegener Sleeswyk, A. (2003). *De Gouden Eeuw van het Fluitschip*. Franeker: Uitgeverij Van Wijnen.
- Weibust, K. (1969). *Deep sea sailors. A Study in Maritime Ethnology* Stockholm: Nordiska Museum.
- West, J. F. (1970). *The Journals of the Stanley Expedition to the Faroe Islands and Iceland in 1789: Vol 1. Diary of James Wright*. Tórshavn: Føroya Fróðskaparfelag.
- West, J. F. (1975). *The Journals of the Stanley Expedition to the Faroe Islands and Iceland in 1789: Vol 2. Diary of Isaac Benners*. Tórshavn: Føroya Fróðskaparfelag.
- Westerdahl, C. (1978). *Marinarkelögisk inventering med utgáangspunkt frá n eitt norrlandskt exempel. C-uppsats i arkeologi, VT 1978*. Stockholms Universitet.
- Westerdahl, C. (1992). The maritime cultural landscape. *The International Journal of Nautical Archaeology*, 21, pp. 5-14.
- Westerdahl, C. (2008). Fish and Ships. Towards a theory of maritime culture. *Deutsches Schifffahrtsarchiv Wissenschaftliches Jahrbuch des Deutschen Schifffahrtsmuseums*, 30.2007, pp. 191-236.
- Wilkins, B. (2009). Rumsfeldian Archaeology. *Current Archaeology*, 231:43. Retrieved from <https://www.archaeology.co.uk/issues/ca-231.htm>
- Wilson, C. H. (1973). Transport as a Factor in the History of Economic Development. *Journal of European Economic History*, II (2), pp. 320-337.
- Winchester, S. (2010). *Atlantic: a vast ocean of a million stories*. London: Harper Press.
- Witsen, N. (1671). *Architectura Navalis et Regimen Nauticum Ofte Aaloude en Hedendaagsche Scheeps-bouw en Bestier Waar in Wydtloopigh Wert Verhandelt de Wyze van Scheeps-timmeren, Zoo als de Zelve Eertydts by de Grieken, en Romeinen, in Gebruik was*. Amsterdam: The Appelaer brothers and Casparus Commelin.
- Zwick, D. (2013). Conceptual evolution in ancient shipbuilding: an attempt to reinvigorate a shunned theoretical framework. In J. R. Adams & J. Ronnby (Eds.), *Interpreting Shipwrecks: Maritime Archaeological Approaches*. Southampton: The Highfield Press, pp. 46-71.
- Þórhallsson, B., & Joensen, T. (2014). Iceland's External Affairs from 1550-1815: Danish societal and political cover concurrent with a highly costly economic policy. *Icelandic Review of Politics & Administration*, 10(2), pp. 191-216.
- Porkelsson, M. (1984). Búðasandur – Maríuhöfn? Gömul höfn í Laxárvogi. *Útivist* 10, pp. 103-116.
- Porkelsson, M. (2004). *Í Hvalfirði: Miðaldahöfn og hlutverk hennar*. Unpublished Masters thesis, Háskóli Íslands, Reykjavík.

Þorláksson, H. (2003). *Frá kirkjuvaldi til ríkisvalds* (Vol. VI). Reykjavík: Sögufélag / Hið íslenska bókmenntafélag.

Þorláksson, H. (2004). *Undir einveldi* (Vol. VII). Reykjavík: Sögufélag / Bókmenntafélag.

Þorláksson, H. (2017). Frá landnámi til einokunar. In S. R. Ísleifsson (Ed.), *Líftaug landsins: saga íslenskrar utanlandsverslunar 900-2010* (Vol. 1). Reykjavík: Sagfræðistofnun Háskóli Íslands og Skrudda, pp. 21-206.

Appendix A

Melckmeyt 1659 Exhibition

This appendix provides an overview and a selection of images from a number of the archaeological exhibits and information panels which the author created and developed for the *Melckmeyt 1659* exhibition in collaboration with the Reykjavík Maritime Museum. The exhibition was centred around the theme of maritime archaeology with the results of the 2016 *Melckmeyt* underwater archaeological survey and subsequent analysis (carried out as part of this doctoral study) presented as its central focus. The images below should give the reader, who may not have had the chance to visit the exhibition in person, a good overview of the manner, style and format of what was presented and conveyed to the public. The exhibition opened in June 2018 and is still currently on-going (September 2021) in the Engine Room (*Vélasalur*) of the museum's ground floor.

Layout

Light boxes

Three four-sided light boxes were built around and concealing three building structural columns in the exhibition space form the main showpiece and immediately catch the visitor's eye once they descend the short flight of steps from the museum's foyer. The boxes were used to display artefacts recovered from the wreck that were each deliberately chosen to highlight a certain aspect or theme. Each pane of the light box was divided into three segments. The lower $\frac{1}{3}$ segment was filled with sand to represent the seabed around the wreck. The middle segment housed the chosen artefacts and the upper segment contained a text panel in both Icelandic and English describing the objects. The background of the upper segment featured a wave motif which represented the ocean. As a result, this visually sandwiched the displayed artefacts between the ocean above and the seabed below.

Wall table display

Along one side wall of the exhibition space a long display table runs the full length of the room. Randomly spaced along the table are information light boxes and replica objects of items used aboard 17th century ships, including an hour-glass, a chip-log and a spy-glass. As the museum visitor advances from one end of the table to the other, the light boxes progressively reveal details about the origins and construction of 17th century flute ships like the *Melckmeyt* and the merchants that chartered them. At the far end (right side) the visitor

is presented with the analysis and recording methodologies employed on the *Melckmeyt* survey such as the dendrochronological sampling and the digital photogrammetry. A 3D print of the surveyed *Melckmeyt* wreck is also displayed and available for closer inspection and handling by members of the public.

Video display element

On one of the side walls, three TV monitors display video content continuously on a loop, of different aspects of the shipwreck investigation. The first monitor has a drone video of Hafnarey and Flatey taken during the survey. This provides a locational setting and context for the viewer. The second (central) monitor has an edited 5-minute video which is essentially a highlight reel from the 2016 survey. A narration (written and performed by the author) accompanies the video. The third monitor has a still image of Hafnarey and Flatey.

Animated display

On another of the side walls an animated display presents the recorded remains of the 2016 survey overlaid on top of a plan from a full-size 17th century flute ship. This gives the visitor a sense of how much of the ship survived in relation to a comparably sized complete ship.

VR-dive experience

As part of the museum's educational outreach programming a special virtual reality (VR) element of the exhibition was created in 2018 using content captured during the 2016 survey. This is primarily an experience offered to visiting school groups and involves specialised VR headsets/smartphones which the museum provides for this specific element of the exhibition. The VR dive experience has been previously discussed in the main thesis text.

Tactile experience

In one corner of the exhibition space the visitor has the opportunity to test their sense of touch. This is one of the major senses which maritime archaeologists are often forced to rely upon particularly under conditions of poor visibility. Several covered boxes are set up with a number of everyday household objects (spoon, hair brush, etc.) placed inside which the visitor cannot see but must try to identify. They may only handle the objects whilst wearing a thick neoprene glove/mitten similar to those that a maritime archaeologist might use in freezing cold water. There is also a pottery puzzle set up at this location where the visitor must attempt to re-arrange the ceramic sherds back together into a complete dish.



Image 1. View from the museum foyer towards the *Melckmeyt 1659* exhibition

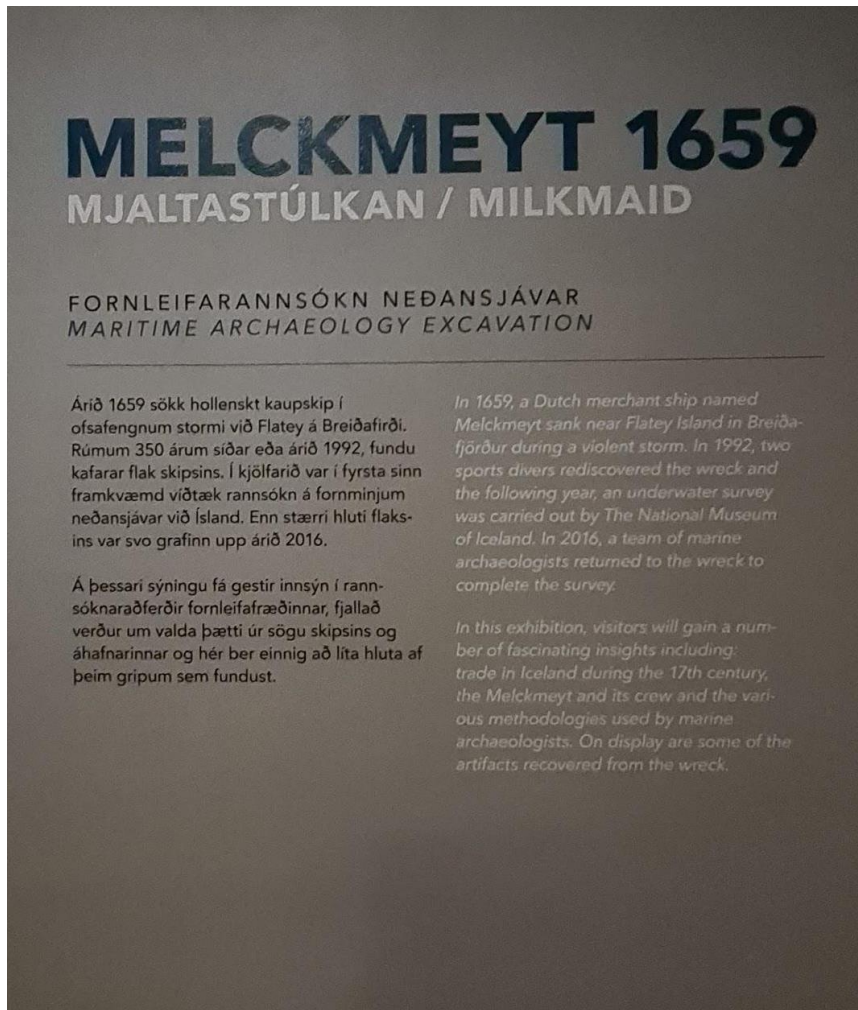


Image 2. Introduction poster

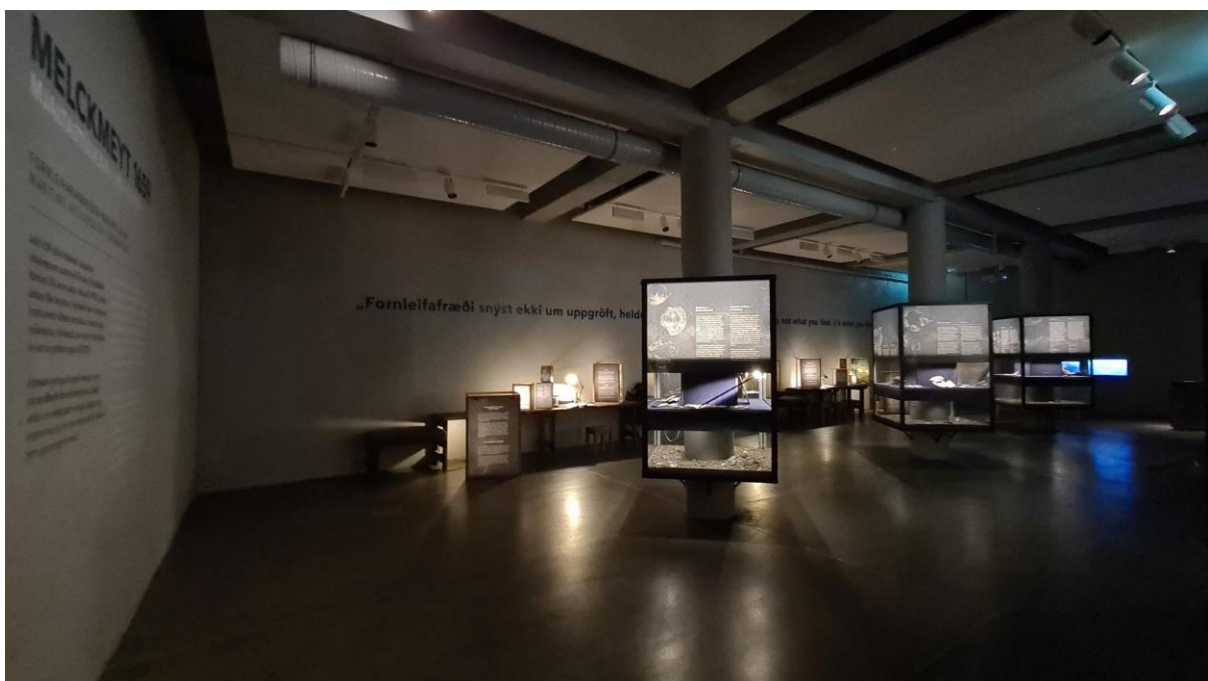


Image 3. Overview of exhibition space showing light boxes



Image 4. View from the entrance of the exhibition



Image 5. Lightbox and wall table displays



Image 6. Central lightbox and wall table display



Image 7. View from one end of the exhibition room



Image 8: Hourglass, chip log and spyglass on the wall tabl



Image 9. Wall table display overview

FLAUTA

Melckmeyt var líklega flutningaskip af tegund sem nefndist flauta (e. fluit). Tilkoma þessa sérstaka skipalags á seinni hluta 16. aldar átti sinn þátt í velmegun hollenska ríkisins á 17. öld. Helmingur alls varnings sem fluttur var um Evrópu árið 1670, eða um 568.000 tonn, var fluttur með hollenskum kaupskipum.

Smíðatími skipanna var stuttur og skipasmíðir héldu kostnaði niðri; notuðu til dæmis furu í stað eikar ef þess var kostur. Tækninýjungar eins og vindknúnar sögunarmyllur lækkuðu einnig kostnað. Það tók tuttugu menn aðeins fimm mánuði að smíða 40 metra langt skip, tilbúið til sjóferða, á 40% lægra verði en sambærileg ensk flutningaskip. Aðeins þurftu tólf manns í áhöfn og var meðalstórt 250 tonna skip sjófært að meðaltali í 25 ár.

Þar sem siglingarhraði skipti ekki höfuðmáli var þessi skipagerð besti kosturinn til flutninga og voru svipuð skip smíðuð í Frakklandi, Þýskalandi og Svíþjóð.

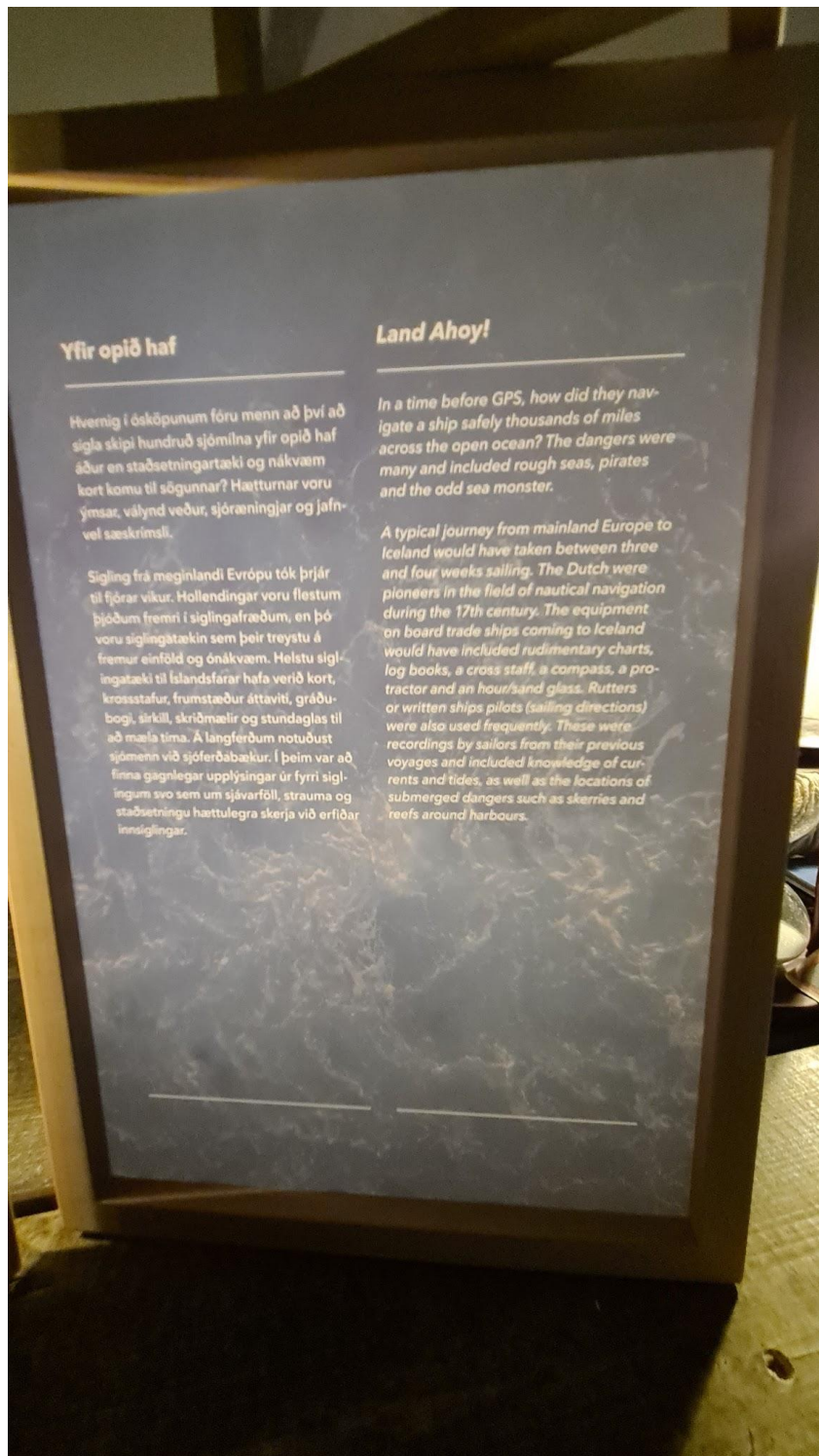
FLUIT

It is likely that the Melckmeyt was a fluit ship. These were designed and built as dedicated cargo transporters in the late 16th century. The fluit ship was a significant factor in the 17th century rise of the Dutch seaborne empire. In 1670, the Dutch merchant marine totalled 568,000 tons of shipping—about half the European total.

The building process was extremely short and the prices were kept comparatively low. Shipwrights often used cheaper pine wood instead of oak and advances in machinery, such as the wind powered sawmill, kept labour costs down. A team of twenty men could create a 40m long fluit ship within five months, at about 40% less cost than the equivalent English transport ship at the time. A typical fluit had an average life span of twenty-five years.

A fluit of 250 tonnes could be sailed with a crew of just twelve men. The fluit's popularity quickly spread beyond Holland and the design was copied in France, Germany and Sweden.

Image 10. Fluit



Yfir opið haf

Hvernig í ósköpunum fóru menn að því að sigla skipi hundruð sjómílna yfir opið haf áður en staðsetningartæki og nákvæm kort komu til sögunnar? Hættur voru ýmsar, völduð veður, sjóræningjar og jafnvel sæskrimsl.

Sigling frá meginlandi Evrópu tók þrjár til fjórar vikur. Hollendingar voru flestum þjóðum fremri í siglingafræðum, en þó voru siglingatækin sem þeir treystu á fremur einföld og ónákvæm. Helstu siglingatæki til Íslandsfárahafa verið kort, krossstafur, frumstæður áttaviti, gráðubogi, sírkíll, skriðmælir og stundaglas til að mæla tíma. Á langferðum notuðust sjómenn við sjóferðabækur. Í þeim var að finna gagnlegar upplýsingar úr fyrri siglingum svo sem um sjávarföll, strauma og staðsetningu hættulegra skerja við erflidar innsiglingar.

Land Ahoy!

In a time before GPS, how did they navigate a ship safely thousands of miles across the open ocean? The dangers were many and included rough seas, pirates and the odd sea monster.

A typical journey from mainland Europe to Iceland would have taken between three and four weeks sailing. The Dutch were pioneers in the field of nautical navigation during the 17th century. The equipment on board trade ships coming to Iceland would have included rudimentary charts, log books, a cross staff, a compass, a protractor and an hour/sand glass. Rutters or written ships pilots (sailing directions) were also used frequently. These were recordings by sailors from their previous voyages and included knowledge of currents and tides, as well as the locations of submerged dangers such as skerries and reefs around harbours.

Image 11. Land Ahoy!

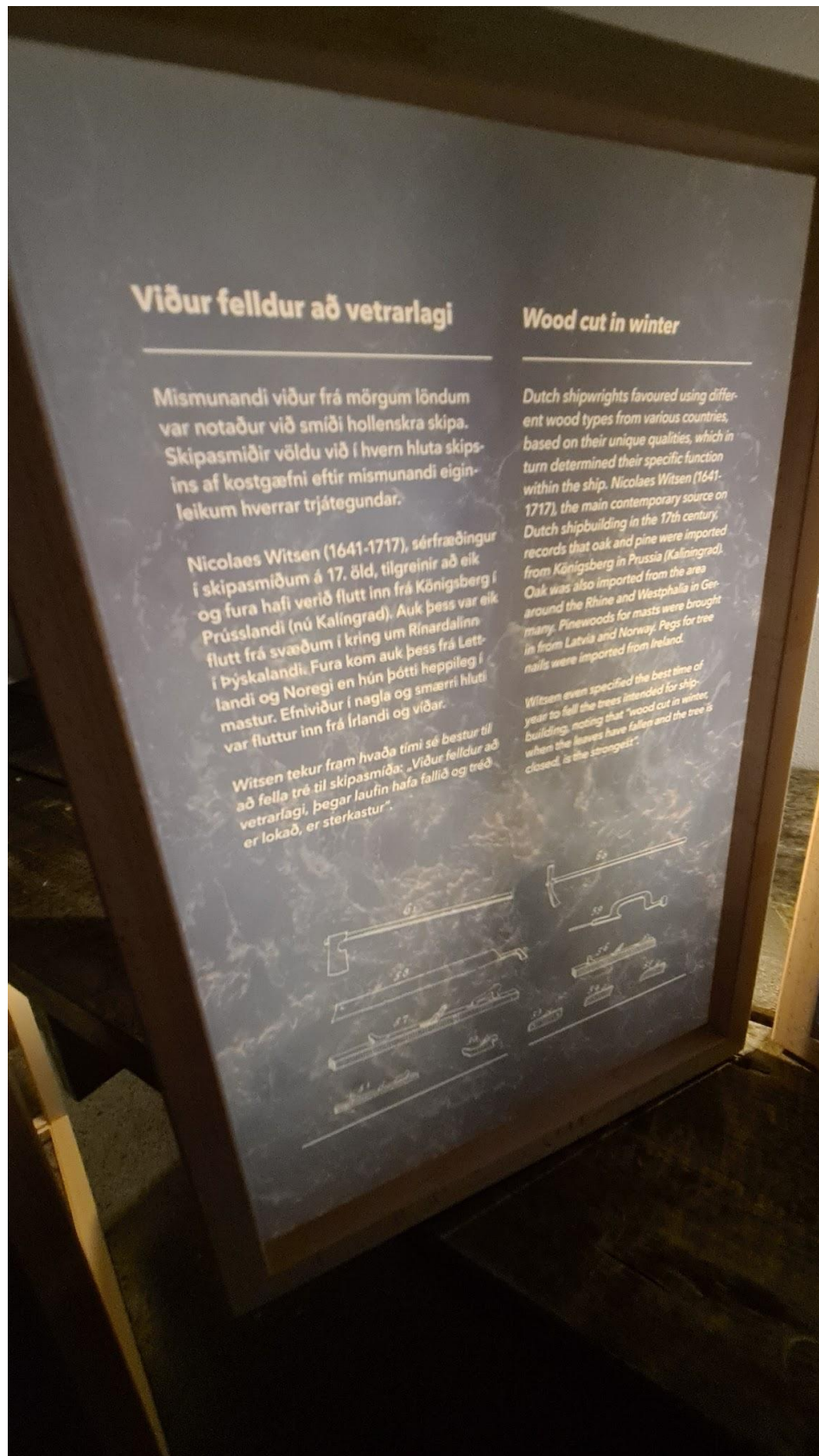
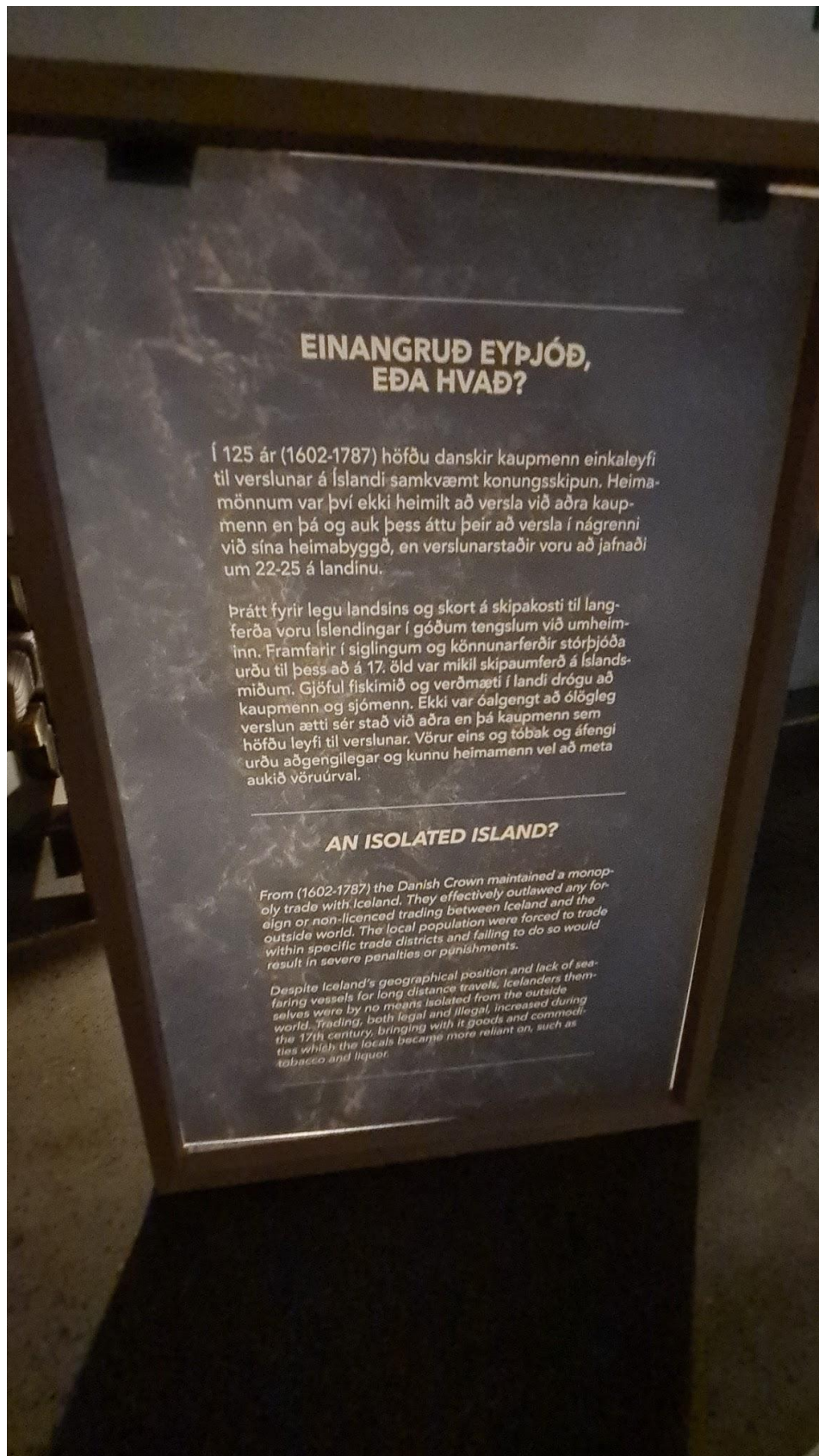


Image 12. Wood cut in winter



EINANGRUÐ EYÞJÓÐ, EÐA HVAD?

Í 125 ár (1602-1787) höfðu danskir kaupmenn einkaleyfi til verslunar á Íslandi samkvæmt konungsskipun. Heimamönnum var því ekki heimilt að versla við aðra kaupmenn en þá og auk þess áttu þeir að versla í nágrenni við sína heimabyggð, en verslunarstaðir voru að jafnaði um 22-25 á landinu.

Þrátt fyrir legu landsins og skort á skipakosti til langferða voru Íslendingar í góðum tengslum við umheiminn. Framfarir í siglingum og könnunarferðir stórbjóða urðu til þess að á 17. öld var mikil skípaumferð á Íslandsmiðum. Gjölful fiskimið og verðmæti í landi drógu að kaupmenn og sjómenn. Ekki var óalgengt að ólögleg verslun ætti sér stað við aðra en þá kaupmenn sem höfðu leyfi til verslunar. Vörur eins og tóbak og áfengi urðu aðgengilegar og kunnu heimamenn vel að meta aukið vöruúrval.

AN ISOLATED ISLAND?

From (1602-1787) the Danish Crown maintained a monopoly trade with Iceland. They effectively outlawed any foreign or non-licensed trading between Iceland and the outside world. The local population were forced to trade within specific trade districts and failing to do so would result in severe penalties or punishments.

Despite Iceland's geographical position and lack of seafaring vessels for long distance travels, Icelanders themselves were by no means isolated from the outside world. Trading, both legal and illegal, increased during the 17th century, bringing with it goods and commodities which the locals became more reliant on, such as tobacco and liquor.

Image 13. An isolated island?



Image 14. Dutch influence

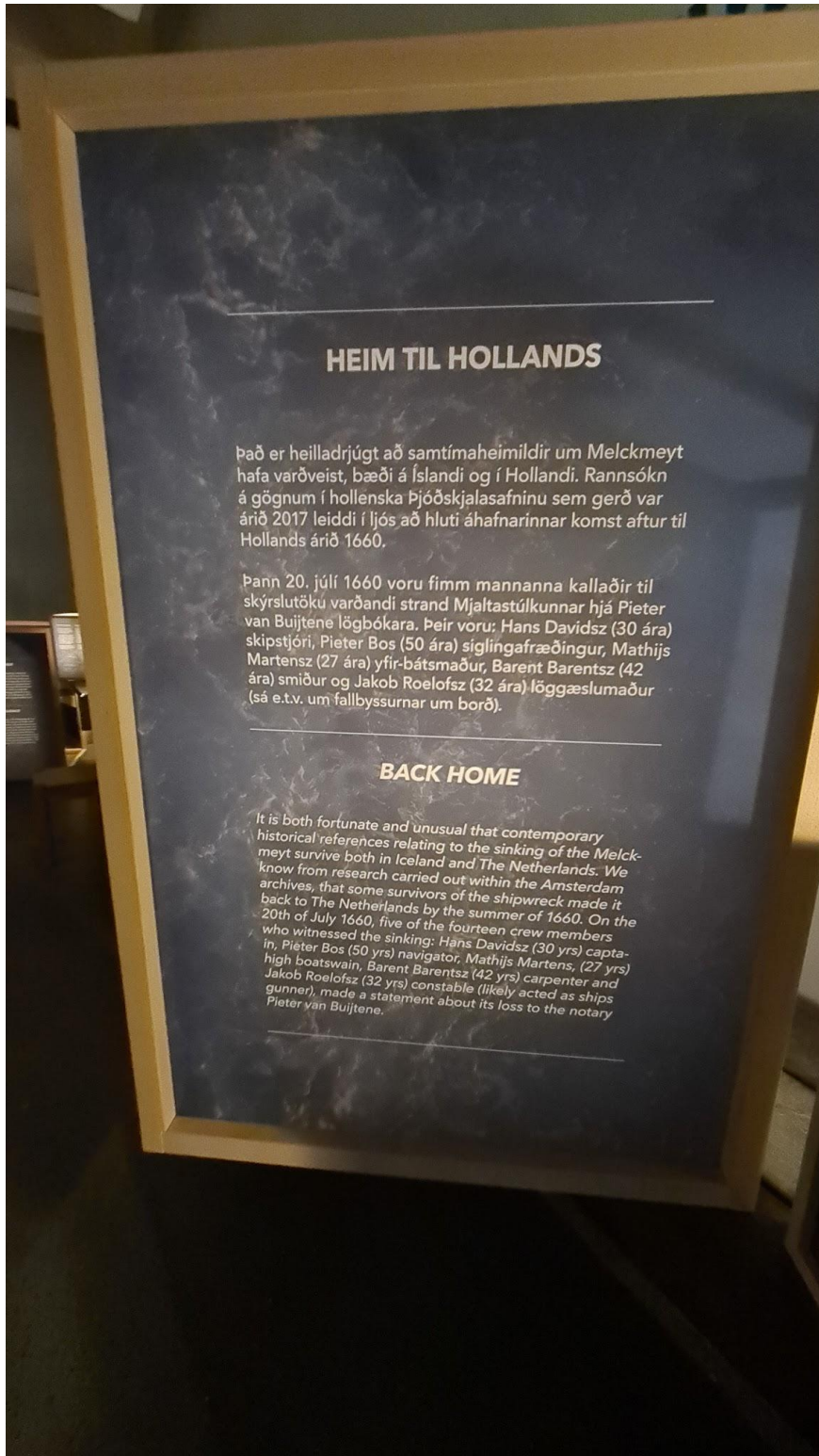


Image 15. Back Home

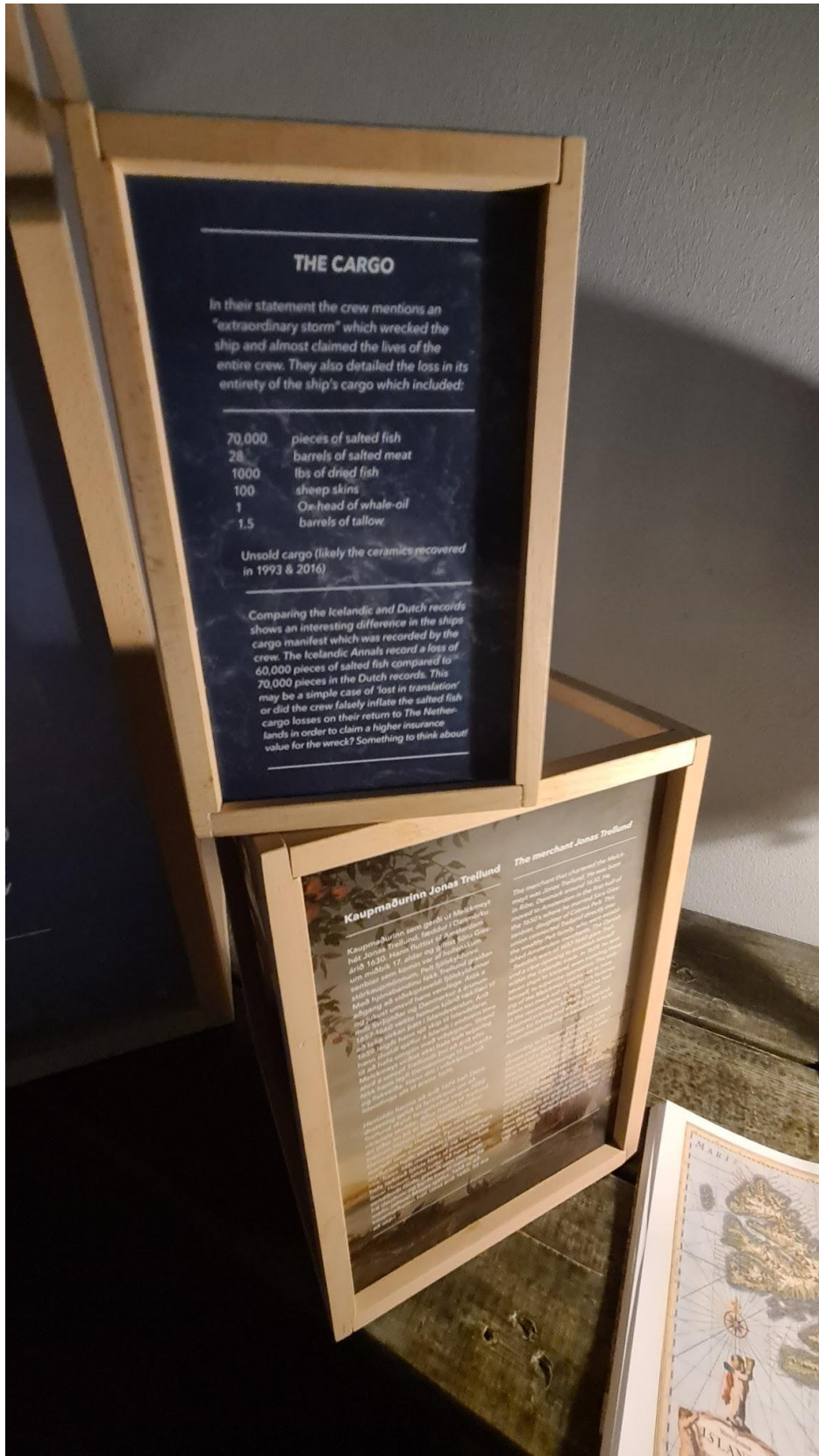


Image 16. The cargo and The merchant Jonas Trelund



Image 17. Flatey & Hafnarey map

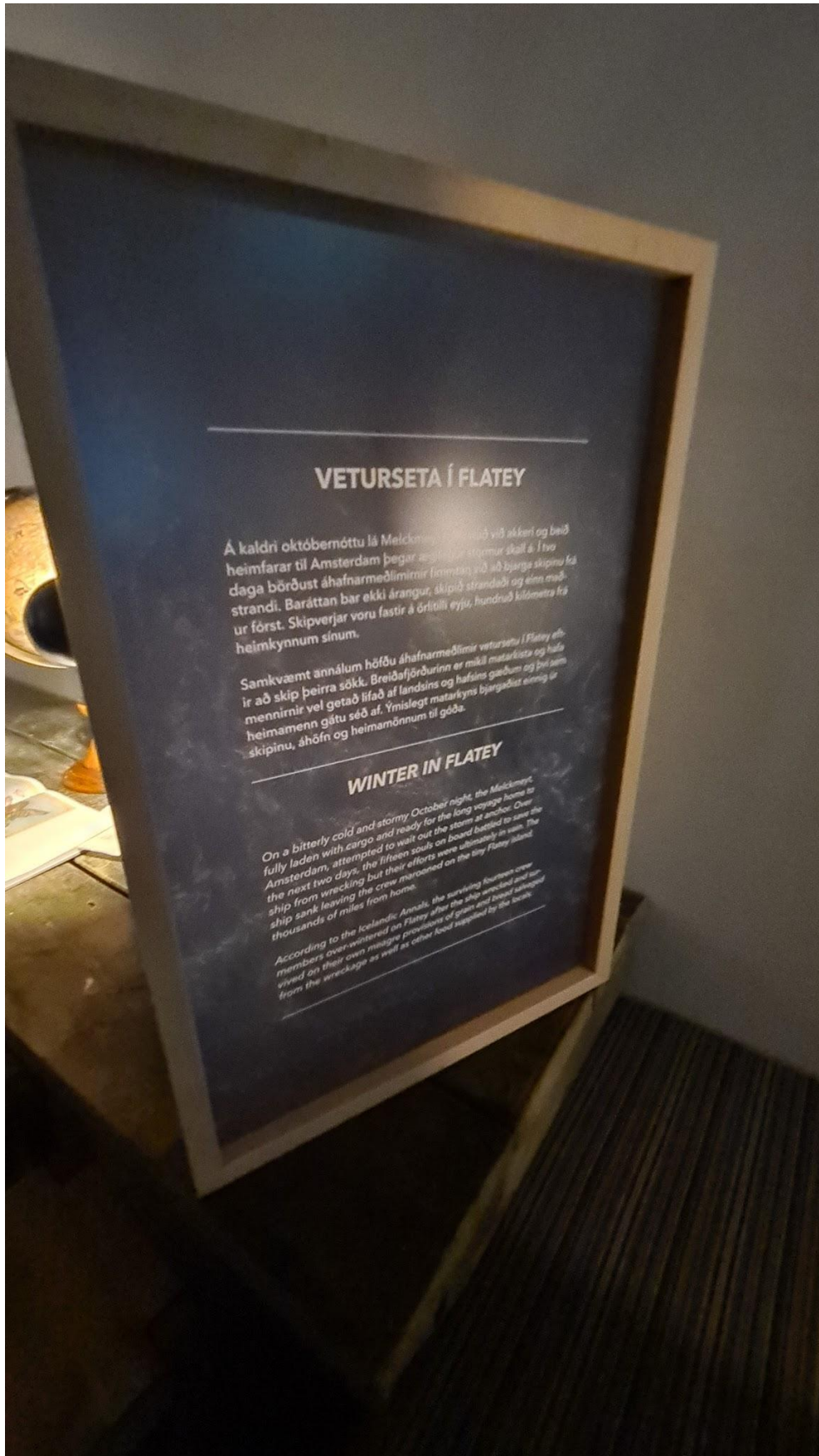


Image 18. Winter in Flatey

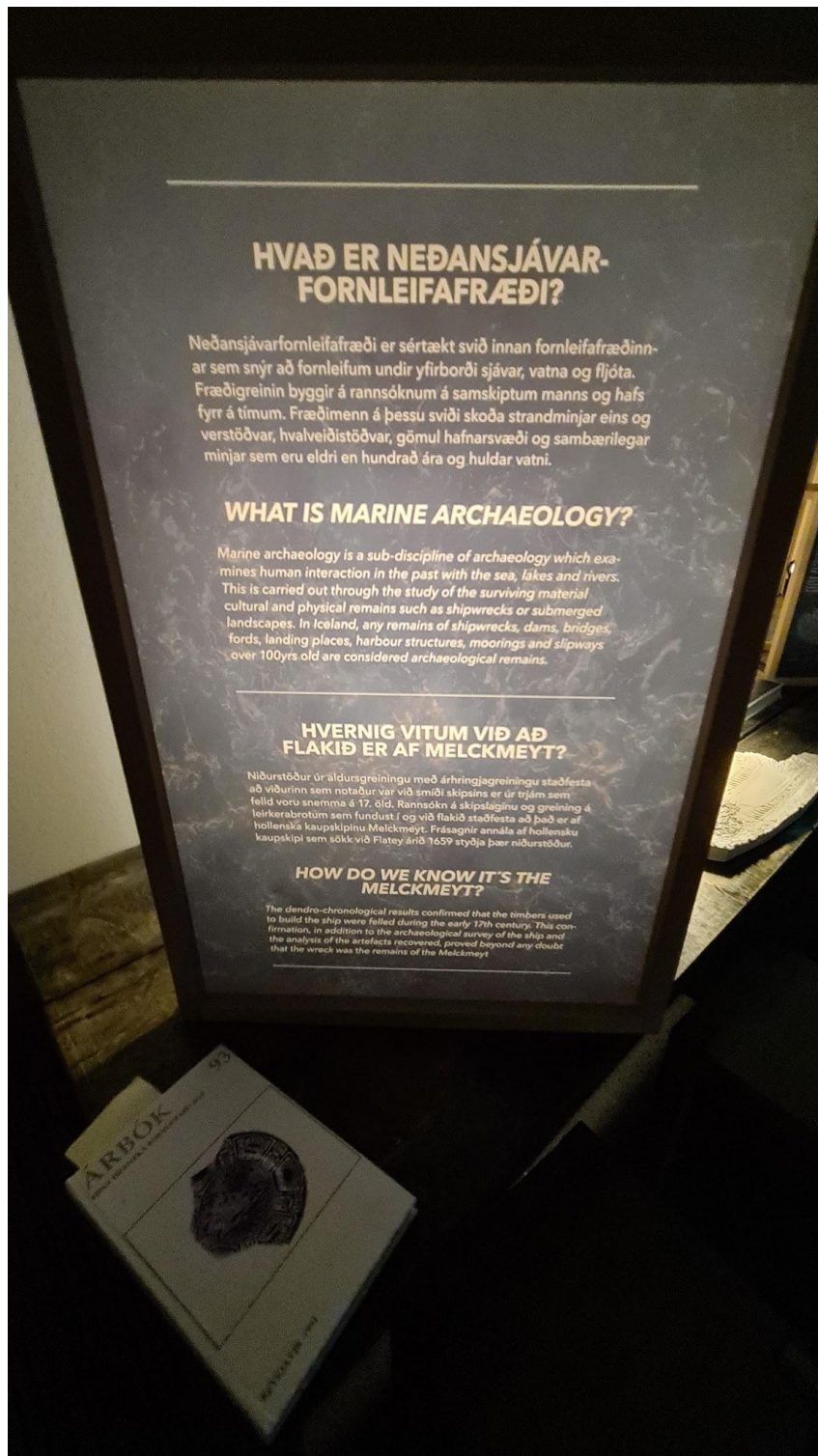


Image 19. What is marine archaeology? How do we know it's the *Melckmeyt*?

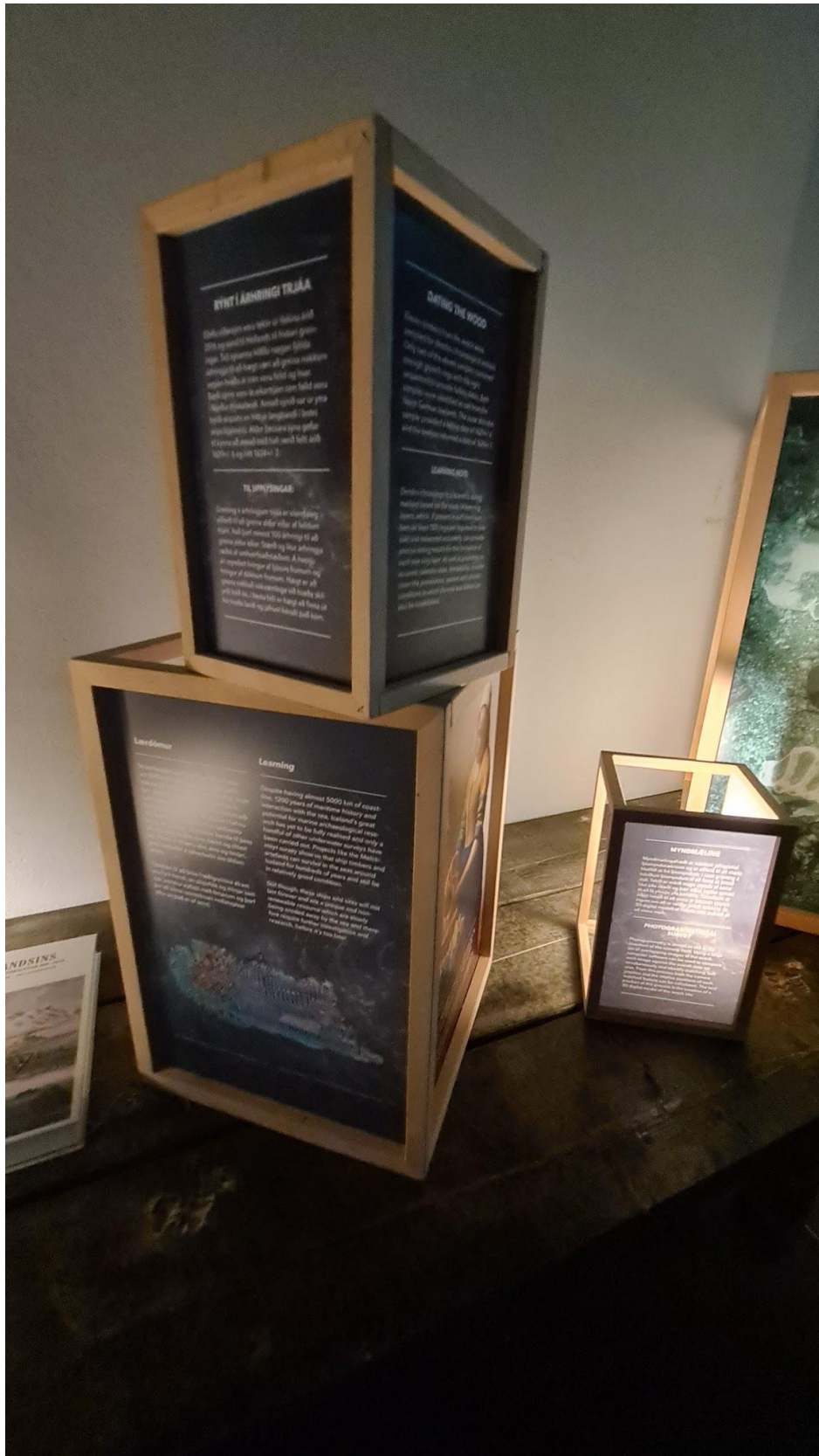


Image 20. Photogrammetry & Dendrochronology



Image 21. Artefact images from 1993 survey



Image 22. Photo of maritime archaeologist at work and a 3D print of wreck



Image 33. Vermeer's Milkmaid print

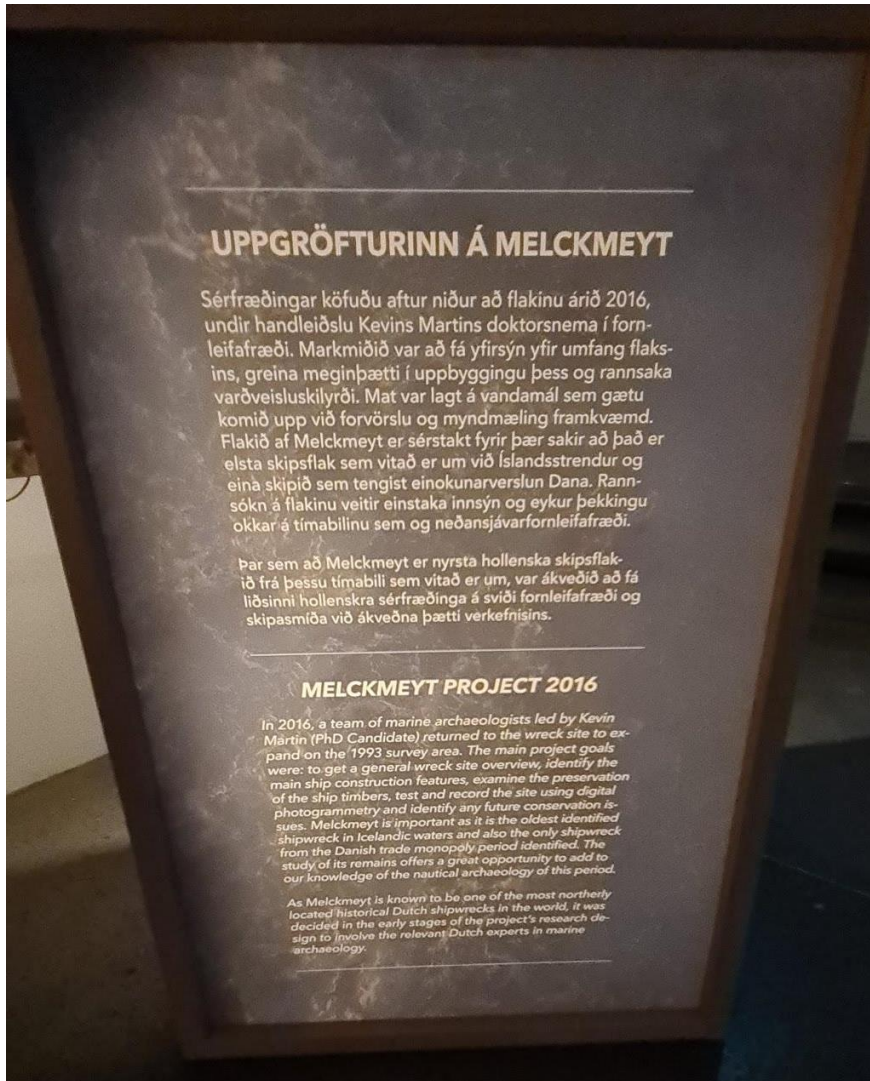


Image 34. Melckmeyt Project 2016



Image 35. Tripod Colander pane

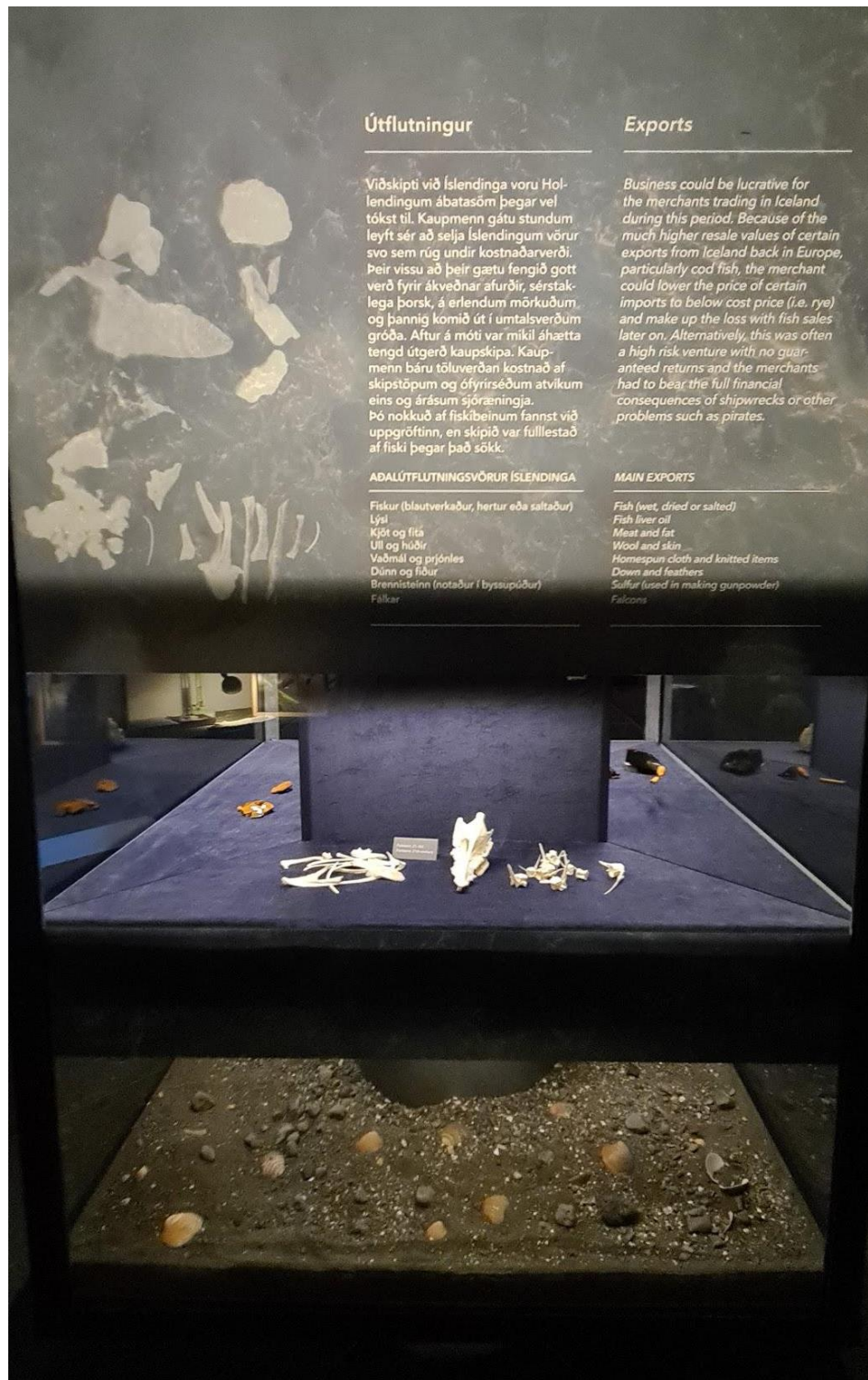


Image 36. Exports pane with fish bones displayed



Franskur hvítleir

Af brotum sem fundust í uppgreftirnum má áætla að allavega 17 gripir úr frönskum hvítleir hafi verið um borð í Mælkmeit, sjö mismunandi tegundir af diskum og fótum. Franski hvítleirinn taldist til mun-ávarnings og var aðallega til skrauts. Elstu dæmin um framleiðslu slíks leirs í Hollandi eru frá því um 1620, en framleiðsla var orðin töluverð um miðbik aldarinnar.

Þau brot sem hér eru til sýnis eru úr svokölluðum „gadroned dishes“, íburðarmikil form sem helst líkjast krónublöðum eru einkennandi fyrir diskna af þessari tegund. Rannsóknir benda til þess að upprunaland diskanna sé Frakkland, en svipaðir diskar voru einnig framleiddir á Ítalíu og í Hollandi.

Faience

Sherds from 17 vessels of faience were recorded. The earliest Dutch vessels date to the 1620's with full blown production by the 1650's. In all, seven vessel types were identified and were grouped into dishes and plates. Plain white, undecorated vessels were considered to be largely for display at this time (i.e. third quarter of the 17th century) and were relatively expensive.

The sherds on display are from Gadrooned dishes which were undecorated vessels ornately moulded with a double row of gadroons so they resembled a large petalled flower. An earlier study of these vessels suggested they may come from France, though similar types are known from Italy and also The Netherlands.

Image 37. Faience pane



Image 38. Items for cooking pane



Image 39. Blue tinted faience pane



Majorkuleir

Þrettán brotanna sem fundust í uppgreifnum voru úr majorkuleir (e. majolica), flest úr djúpum dökum. Skreytingarnar eru blátt, aðar, eins og algengt var á þessum tíma. Stílbrigðin eru mismunandi en mest bær á hollenskum eða kínversk-hollenskum stílbrigðum. Kínverskt postúlin flæddi inn á markaðsstaði Evrópu á 16. öld og vinsældir þess urðu slíkar að líkari stílbrigði urðu undir í samkeppni og handverksmenn gerðu eftirlíkingar í miklu magni.

Bláma- og punktastíll

Algengasta stílbrigðið sem greina má á brotum er punktar og bláamynstur á barmi díska. Kanturinn er skreyttur með bláum eða laufblöðum til skiptis við fjóra punkta. Þessi kínversk-hollenski stíll er fremur grófgreifar og má tíma-setja á stafrönu 1590-1640.

Majolica

Sherds from 13 vessels of majolica were identified. All the vessels apart from the possible exception of one, were large deep plates. Most of the plates were decorated in blue patterns with the main variations in the decorations. The styles are mainly Dutch or Chinese-Dutch. The 17th century saw Chinese influences largely supersede the south European styles as Chinese porcelain started to flood into Europe, and blue and white palettes replaced the more colourful 16th century types.

Dot and flower border majolica

Dot and flower border majolica was the most common type recovered from the wreck. The rim is decorated with alternating stylised flower or leaf motif and four dots arranged in a square shape. The execution of the paintwork is often very coarse and poor and the style can be defined as Chinese-Dutch, dated to 1590-1640.

Image 40. Majolica pane

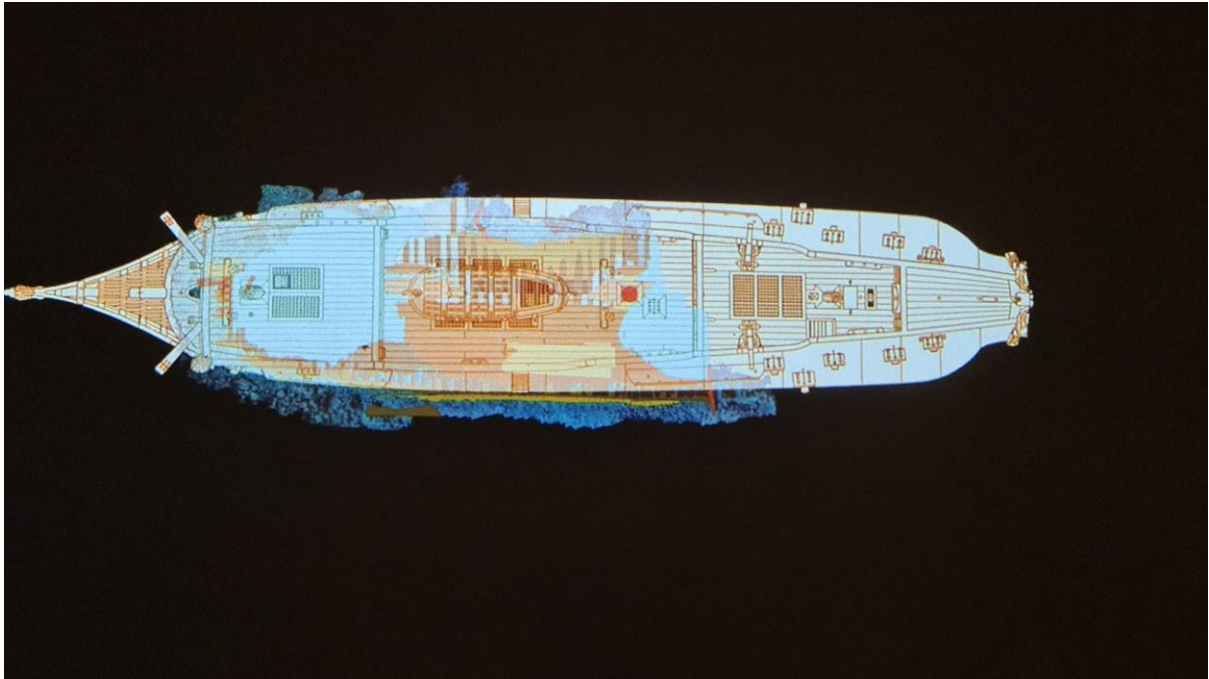


Image 41. Wreck survey overlaid onto a complete flute ship plan

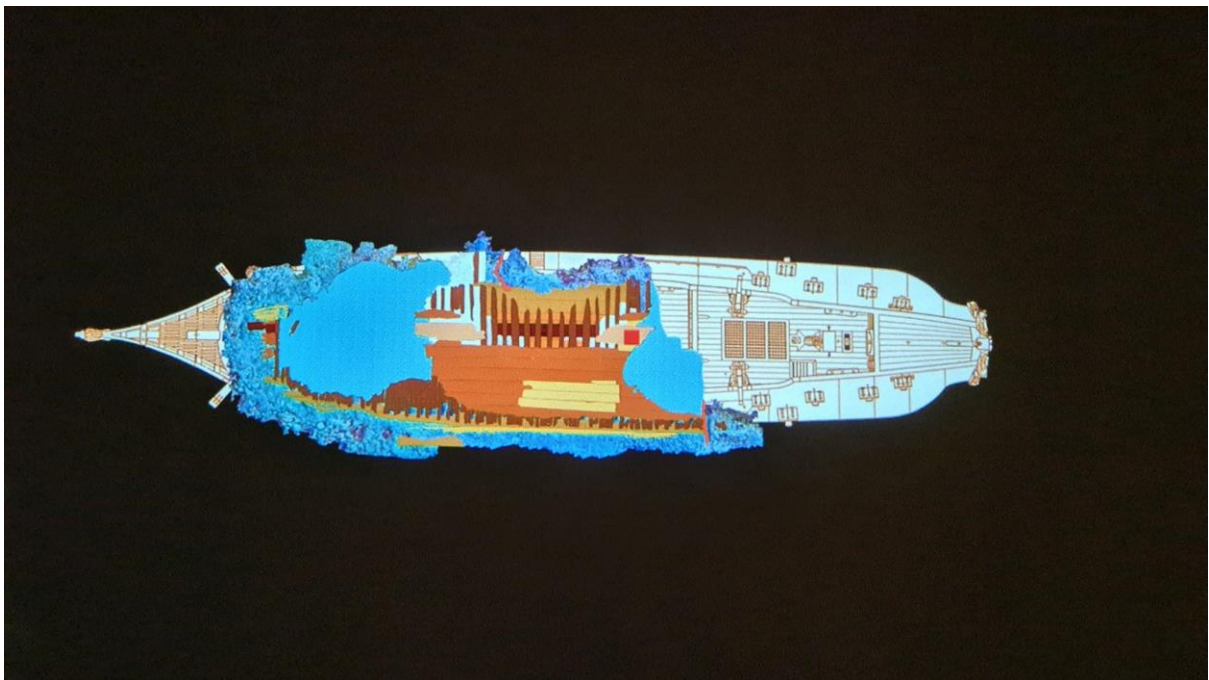


Image 42. Wreck survey overlaid onto a complete flute ship plan



Image 43. Visitors trying the VR dive experience



Image 44. Visitors trying the VR dive experience



Image 45. Visitors trying the VR dive experience



Image 46. Author's son Kiljan at the pottery puzzle

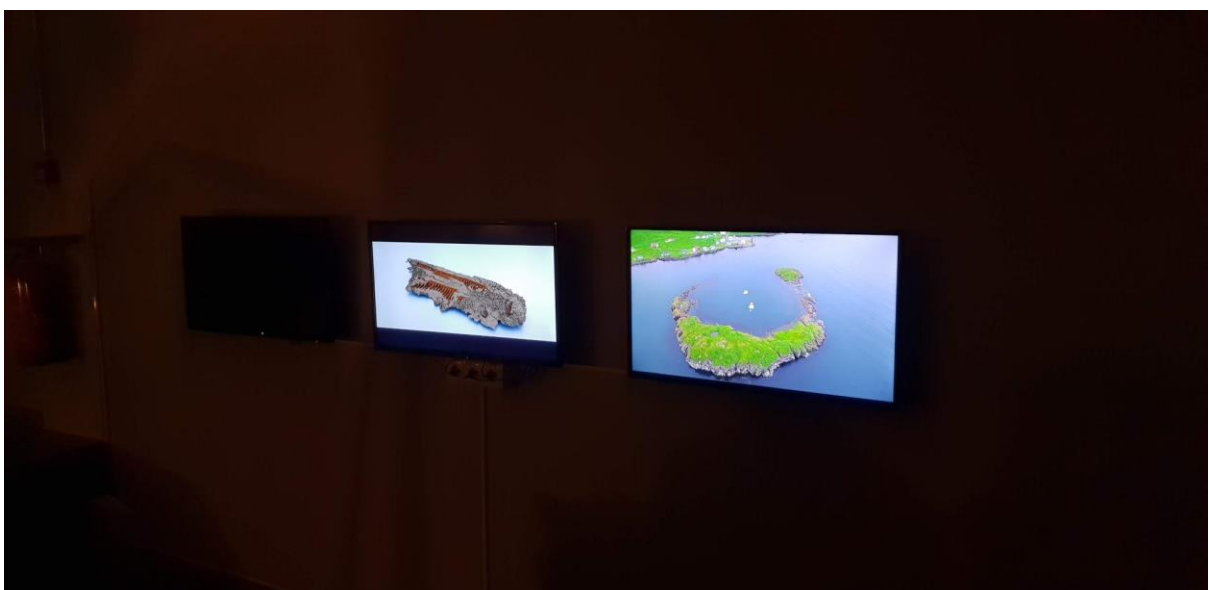


Image 47. Video displays