

CULINARY HERITAGE

Tracing, shaping and reshaping food culture from the Middle Ages to the present

Marianne Vedeler | Annechen Bahr Bugge (Eds.)



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INTRODUCTION

Although interest in food history has increased in recent years, it is still an under-researched, under-used and under-communicated field. This book's ambition is to contribute new and valuable knowledge to the field of food history, as well as to inspire more research in it.

The conference “Tracing, shaping, reshaping Culinary Heritage” was held in the University of Oslo's Botanical Garden at Tøyen in Oslo in September 2022. The overall theme was to investigate and illuminate how food history can help us understand our past, present and future society. At the conference scholars from the disciplines of sociology, archaeology, anthropology and history, in addition to representatives of the value chain in food production, provided new knowledge about local food cultures of the past. At the same time, the food value chain is focusing on the creative use of past food culture and on taking food heritage into the future. In this way, we connected the history of food to the past, the present and the future. This perspective is also reflected in the contributions presented in this book.

THE NORDIC FOOD CULTURE

Richard Tellström (2015) has called the traditional Nordic food culture as a “storage culture”. This diet was characterized by local

resources that were harvested in season and stored. Until the twentieth century, storing food was the norm. The advent of freezing and refrigeration technology led to a transition to fresh (often imported) foods all year round, and at the same time to a decline in the use of, and in knowledge about, traditional conservation techniques (Freidberg 2009, 2018; Marshall 2022; Tellström 2024 a/b). The growing interest in sustainable eating has given rise to a greater curiosity among consumers and producers about old preservation techniques that increase the shelf-life of food, such as drying, pickling, and fermentation. The same applies to the use of food that does not meet required standards of one sort or another, or has expired, such as offal and blood, as well as edible resources available in nature and our gardens that we do not harvest any more (Bugge 2019, 2024; Bugge & Schjøll 2023).

A FIELD OF RESEARCH IN THE MAKING

This anthology has been facilitated through a collaboration across two research projects funded by the Research Council of Norway. Both projects focused

on culinary heritage, but from completely different angles. The project *FOODIMPACT: The impact of food culture in medieval towns* (at the Museum of Cultural History, University of Oslo) is the first major study of urban food culture in medieval Norway. The main aims of this project have been to study how food culture facilitated the emergence of an urban identity, and to look into the interaction between urban and rural sites of production and consumption in medieval Norway.

In the second project – *FoodLessons: Culinary heritage as a resource in developing “Food Nation Norway 2030”* (2021–2025) at Consumer Research Norway, Oslo Metropolitan University (OsloMet) – we have looked closer at how a revitalization of our culinary heritage can be used in business development and value creation. The project’s goal has been to showcase our diverse food and drink culture in innovative and exciting ways and stimulate better interaction between traditions and new impulses.

In 2010, food was first listed on UNESCO’s intangible Cultural Heritage List with the entry of the Mediterranean diet, French gastronomic cuisine,

Michoacán cuisine, and Croatian gingerbread. In 2010, food was first listed on UNESCO's Intangible Cultural Heritage List with the inclusion of the Mediterranean diet, French gastronomic cuisine, Michoacán cuisine, and Croatian gingerbread. No Nordic products or dishes were listed until December 6, 2024, when Norwegian-Swedish mountain summer farming was added as the first.

A strategy is needed to raise awareness of the Nordic food heritage, but it is also necessary to acquire new and deeper knowledge of this heritage and of issues associated with it. This applies not least to early historical periods, where there has so far been only a limited research focus on culinary heritage. Five papers in this volume bring results of new research on medieval food culture. Starting with the spectacular Viking ship find at Gjellestad, Christian Rødsrud has studied the role and place of a small bone from an enormous halibut buried in this ship dated to the ninth century. Dried halibut, called *rav and rekling*, is known from trade transactions from the fourteenth century onwards. There is, however, no written evidence of early halibut fishing and trade before 1100

AD. The Gjellestad find casts new light on early fishing culture in Norway.

The vast majority of research that has been carried out on cultural remains of the Middle Ages is based on finds from medieval towns. So far, we have less knowledge about medieval farms in rural areas. With her study of the farm Bjerland, on the near-coastal moors of Agder in southern Norway, Silje Hårstad presents valuable new research on animal husbandry, cultivation, and food processing.

Monastic orders also had their own food culture in the Middle Ages. Marianne Vedeler and Margrete Figenschou Simonsen present the results from an archaeological survey on a Cistercian monastery on Hovedøya outside Oslo seen in the light of the Cistercians' rules and guidelines for diet and self-sufficiency.

Words matter. Not least the words we use to describe food culture. Inspired by the *Wörter und Sachen* movement of the early twentieth century, Mathias Blobel reintroduces the focus on individual words as a way to investigate historic materiality. The words used to describe cooking pots in medieval

Norwegian narrative and non-narrative texts open up a new landscape of culinary heritage.

The food culture in medieval Norway can indeed be characterized as “a storage culture” (Tellstrøm 2015). In his chapter on salt consumption, Per Norseng discusses the economic significance of the production of marine salt and the use of salt for the preservation of foods in Norway from the Viking Age to ca. 1600. Here he challenges the tenacious notion that salt was hardly used in food preservation in medieval Norway.

Beer brewing has been a central part of Norwegian food culture since time immemorial. Heating is an important part of the process, and cauldrons have traditionally been used for heating the liquid. In times when the high cost of metal made cauldrons very expensive or unavailable, heated stones were a good alternative. Lars Marius Garshol discusses how beer was brewed throughout this time, and what evidence we have for the use of hot stones in the process.

After the Middle Ages, Nordic cuisine gradually changed in the direction of what we today usually think of as traditional Nordic cooking. Christmas cake is just one of many examples of how Norwegian taste

preferences were completely won over by the global trade in foodstuffs in the long eighteenth century. Ragnhild Hutchinson dives deep into the influence of global – often colonial – trade and the taste of sugar, lemon, raisins, cinnamon and cardamom in her article about the first published recipe of traditional Norwegian Christmas cake from 1843.

Over the past hundred years, Norwegian cuisine has changed radically. The change in the professional kitchen and restaurant industry may have helped to influence this development. In her chapter Annechen Bahr Bugge shows how more and more restaurants are run with high gastronomic ambitions and innovative high-quality cuisine, and how Norwegian chefs have gradually gained celebrity status. These processes may have contributed to a change in how the Norwegian people view their own food culture.

New knowledge of past food culture is all very well, but we also need to understand how this knowledge can be used to support innovation and sustainability today. In their chapter Theano Mousouri, Diana Rahman and Georgios Alexopoulos discuss how co-creation and food heritage can empower

communities to maintain sustainable food systems. They draw on two case studies; a traditional irrigation system employed on the island of Bali and a project of co-creation activities launched by several European botanic gardens.

The tourist economy has the potential of being an important factor in the dissemination of local food culture and knowledge. Jenny Högström draws attention to culinary traditions, culinary tourism, and heritage entanglements in Swedish Kukkola. She demonstrates how restaurants in the area use local resources to teach visitors about cultural heritage and foodways and thereby create active engagement in sustaining traditions.

TRACING, SHAPING AND RESHAPING

Growing attention on the relationship between food heritages and sustainability has led to discussions on how safeguarding and highlighting food and cultural resources can be used as a tool to achieve social and cultural sustainability goals. Cultural sustainability is often explained as the protection and maintenance

of cultural values, practices and knowledge, and their transmission to future generations (Zocchi 2021). Kapelari *et al.* (2020) suggested that food heritages should play a central role in the design and implementation of sustainable development policies aiming at food security and sovereignty for the world's population. A key term in this context is *heritagization*, an approach which is concerned with the processes and dynamics of constituting food as heritage. By considering 'heritage as a process', the cultural heritage discourse shifts from what heritage *is* to what heritage *does* (Geyzen 2014; Harrison 2013; Harvey 2001, 2008; Thouki 2022; Zocchi 2021). Jönsson (2020) defines heritagization as the creation (shaping) and re-creation (reshaping) of cultural and historical meaning and identity - where different actors identify foods in various places, attach new values to them and formally recognize it as a part of their collective heritage to pursue their specific goals. Such processes are seen increasingly often in the food and meal sector across large parts of the world. In the case of Scandinavia, the dialectic between tradition and innovation became clear during the development of the term *New Nordic*

Cuisine, originally launched as a collaboration between the Nordic countries (Larsen & Österlund-Pötzsch 2013). Although there has been an increasing interest in heritagization processes, few studies have been carried out to deepen the understanding of such processes (Almansouri 2022; Zocchi 2021).

It appears from several consumer studies that the growing interest in local traditions, foods and beverages cannot only be interpreted as a sentimental yearning for past times, but also as a reaction to modernisation and globalisation and a consequence of a new type of consumer orientation: recognition and appreciation of cultural heritage, increased pre-occupation with supply security, self-sufficiency, and preparedness, as well as a mobilisation to manage and develop sustainable jobs in the agricultural sector and profitable local communities (Bugge 2019; Bugge & Schjøll 2021, 2023).

THE THEORY OF HERITAGIZATION

The term *heritagization* appeared at the end of the twentieth century to denote a transformative and

historically conditioned process, where historical objects and places become objects of display and exhibition with an impact in the present (Geyzen 2014; Harrison 2013; Harvey 2008; Thouki 2022; Zocchi 2021). Two concepts that are linked to such processes are ‘heritage foods’ and ‘food heritage’. Heritage foods have been described as “a traditional local food which is inherited, prepared and practiced”. ‘Food heritage’ has, however, been defined as the set of material and immaterial elements of food cultures that are considered a shared legacy or a common good. Food heritage covers typical aspects related to agricultural products, compositions, dishes, preparation techniques, recipes, food traditions, and table manners, as well as the symbolic dimension and material aspects such as utensils and dishware (Bessière & Tibère 2013).

A FOOD CULTURE OF PRESERVATION

Today’s food culture is characterized by globalization. A large variety of foods are mostly available year-round. What we may call the old Nordic cuisine was, on the other hand, a culture of food preservation.

Short growing seasons and a relatively harsh climate demanded adaptation to the seasons. For a long period of the year, it was necessary to consume the crops that had been harvested during a short season.

In the medieval period, most people lived on farms. Fish, porridge, bread and salted food made up a large proportion of their diet. But growing medieval towns gradually became part of an international trading network, offering markets to exotic ingredients like spices, figs and larger amounts and variations of grain. The medieval town dweller's motivation for combining food production with trade may have been forced by the need for regional adaptation to available resources.

Cooking typically took place over an open hearth, but in the High Middle Ages communal baking ovens were introduced in towns and the art of cooking gradually developed through the introduction of both new kitchen utensils and new preparation methods.

During the nineteenth century, new reforms and technological advances improved agriculture. Oats, barley and rye were still the essential cereals, but wheat was becoming more widespread. The potato

became an important ingredient in the diet and quickly gained the reputation of being a poor man's food. In the latter half of the nineteenth century, a revolution took place. The black stove became part of ordinary people's kitchen. It provided completely new opportunities, many new kitchen utensils and serving utensils – and led to major changes in eating patterns. In the following years, the Nordic countries underwent major changes, becoming industrialized and more and more urban. Agriculture was modernized and production increased.

During this long period, Nordic culinary culture was a culture of food preservation. Salting, fermenting, smoking, and drying of foodstuffs affected not only shelf life but also the food's taste and consistency. It was not until the middle of the twentieth century that households gained access to freezing and cooling technology. Although today's eating habits have many roots in the past, much has changed. Particularly striking are the changed expectations and practices that accompanied the enormous growth in wealth and the many technological innovations throughout the twentieth century and up to the present day.

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CHAPTER 1

HALIBUT FISHING IN THE VIKING PERIOD

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ABSTRACT

After the news of the discovery of a new Viking ship burial at Gjellestad went worldwide in 2018, the Norwegian government decided to fund an excavation in 2020–2021. Inside the burial chamber of the disturbed Gjellestad ship a range of fragmented artefacts and small finds were discovered. Amongst them, part of a hypural from a halibut had survived. This article discusses the setting of the find within the burial and goes on to discuss whether this find could be the remains of a cured product called *rav and rekling*. This product is known from medieval sources but may very well have existed during the Viking period. Production of *rav and rekling* may have required the use of salt, a commodity that was locally produced from ca. AD 1150 and onward. It is unclear when the

boiling and evaporation of seawater for producing salt began, but available source material seems to suggest that the commodity was available for curing fish during the Viking period.

Flatfish are found on many sites in northern Europe, while halibut is mainly associated with the deep sea, and areas close to the Atlantic. Finds at locations like Gjellestad and at Hedeby do, however, imply that we may be looking at cuts of prime material, that were cured or dried, and traded via markets during the Viking period. The find of a halibut bone raises many questions that need further research, and hopefully the genome record of Atlantic halibut will be researched in the near future, thus enabling aDnA or isotope comparison of the sample from Gjellestad with the modern fish population.

Keywords: Viking ship, fishing, halibut, burial, dried fish, status food

The Gjellestad site attracted massive attention when a new Viking ship burial was discovered in 2018. After trial excavations in 2019, the Norwegian government funded a full-scale excavation that was conducted in 2020–2021. While most focus so far has been on the ship itself, this article takes its starting point within the burial chamber of the ship and in small things forgotten – by plunderers. The ship burial had been broken into on at least two occasions, when large parts of the artefact material from the burial had been removed or damaged. Amongst the surviving artefact material were mostly smaller objects like beads and fragments of larger objects, in addition to animal bones. The animal bones mostly consist of remains of large mammals like horses and cattle, but one bone stood out – a small piece of bone from a fish that had survived both plundering and decay – a halibut of once considerable size.

The purpose of this article is to give a broader context for this find from the Gjellestad ship burial, and to consider the scale of halibut fishing in the Viking period. Was it a common phenomenon? What is the

archaeological evidence for this kind of fishing? Can historical sources shed light on the archaeological finds? I will begin by describing the context of the find, before moving on to what the bone may represent, and to a discussion of flat-fish fishery from the Viking period, and of historical sources. I will conclude by returning to the burial, setting a course for new fishing grounds concerning natural sciences and the way forward with this peculiar find.

BACKGROUND

Geographically Gjellestad is located in south-eastern Norway close to the Swedish border. It lies next to the monumental Jellhaugen mound, pre-dating the ship-burial by some 400 years, in a landscape that was gradually inhabited by people as the land rose above the sea (for a simulation of sea level in the first millennium AD, see Gustavsen *et al.* 2020, Figure 2). The site developed from a bay next to a stream to becoming an open plain landscape suitable for agriculture as the land rose and the sea receded. Today, the seashore is 1 km from the site. The site was gradually settled,

with a primary phase in the pre-Roman period (500–1 BC), continuous use throughout the Roman period and a new expansion in the Migration period (AD 400–550) (Berge 2019; Gustavsen *et al.* 2020). During the period of settlement, a burial ground was established alongside the Jellhaugen mound, erected in the Migration period (Gustavsen and Canell 2024), and the Gjellestad ship burial was an important addition during the Viking period (Wenn and Rødsrud forthcoming). Today only five burial mounds have survived, in addition to the Jellhaugen mound, but surveying with high-resolution ground-penetrating radar (GPR) has shown that a large number of mounds have been levelled as a result of agricultural activity in the area (Gustavsen *et al.* 2020). This is partly confirmed by oral sources, noted by Erling Johansen when visiting the farm in the 1950s. Johansen (1953:461–462) recorded that three large mounds were removed before 1880, and that during the process weapons and part of a boat, that are lost today, were recovered. His description seems to fit well with the ship mound and two other large mounds north of it, but the details of his account cannot be confirmed. If the boat in Johansen’s

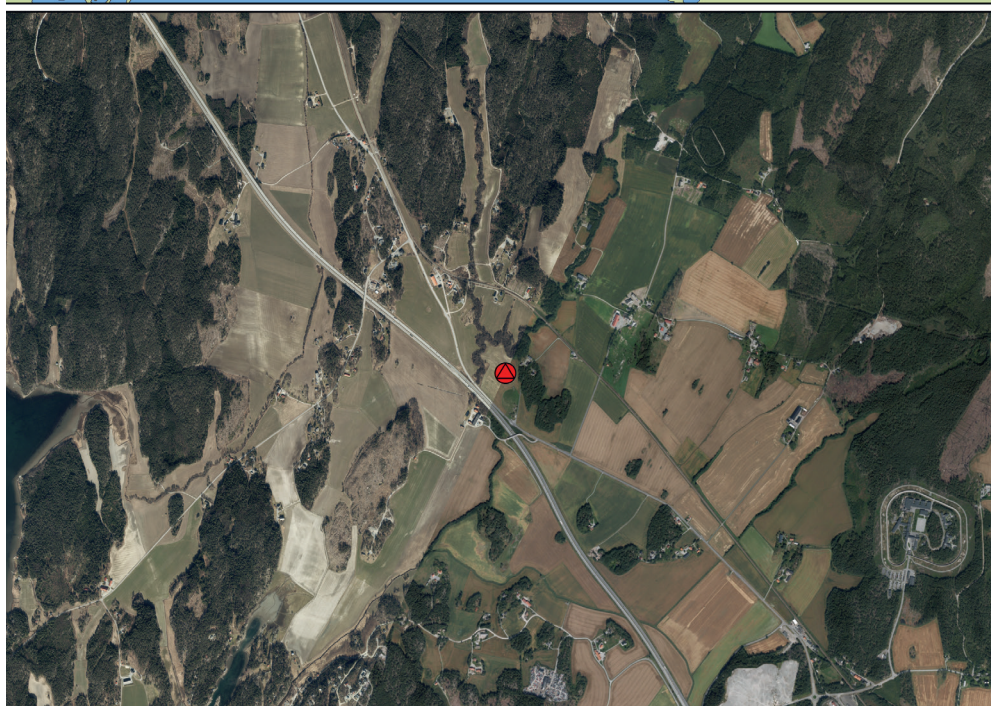
description is the boat in the ship burial discovered in 2018, it substantiates the theory of disturbance that was recorded during excavation. While excavating, evidence that it had been disturbed on at least two occasions was found. One break-in seemed to start above the ship and work downwards, damaging parts of the burial chamber and the southern part of the ship. The other disturbance was a trench approaching the burial chamber from the west, presumably dug while there was still a mound covering the ship, digging straight into the burial chamber.

ANIMAL BONES

With the ninth century ship burial from Oseberg as a backdrop, there were great expectations about what could be found in the Gjellestad burial. When investigating culinary heritage from the Viking period, the Oseberg site is the primary source of information, as the burial held a vast number of artefacts. Among items for storage were chests, barrels, baskets, and buckets. Kitchenware included iron pots, a pot stand, stirring sticks, spoons, ladles, a frying pan, troughs,



Figure 1. Map of Gjellestad.
Map: Camilla Cecilie Wenn,
Museum of Cultural History.



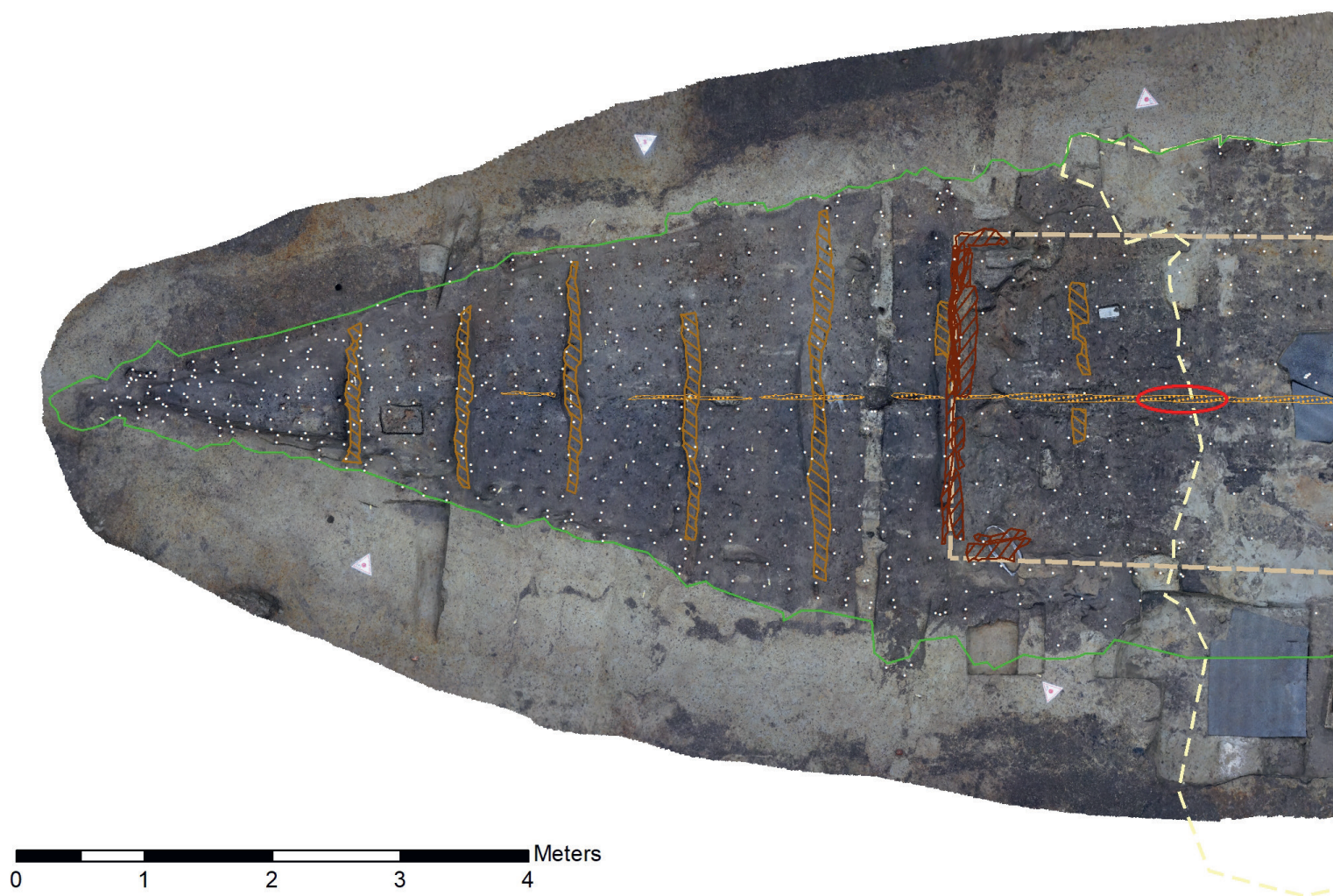
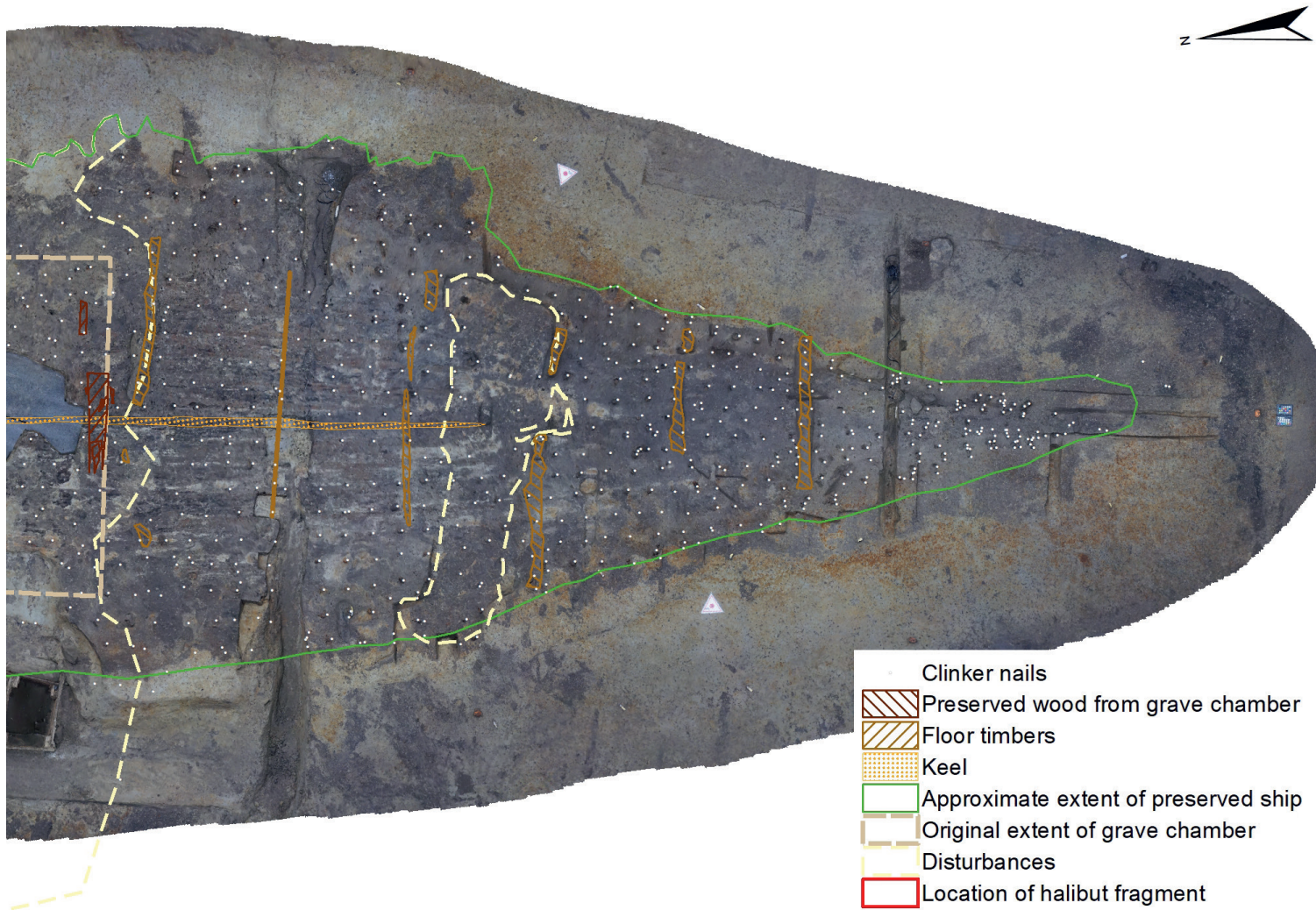


Figure 2. Photogrammetry of the Gjeljestad ship with rivets. The red circle marks the find spot for the halibut bone. The southern part of the burial chamber (to the right and marked with bright yellow dotted lines) was clearly disturbed. The northern part of the burial chamber remained undisturbed. Map: Camilla Cecilie Wenn, Museum of Cultural History.

bowls, platters, buckets, axes, knives and a quern stone. Several animals were also slaughtered as part of the burial, namely fifteen horses, four dogs and two oxen (Brøgger *et al.* 1917–2006). There was direct evidence of food: plums, blueberries, apples and a bread dough, but Jens Holmboe (1921) also categorizes oats, wheat, rye, walnut, hazelnut, watercress, flax for making linen, hemp, seeds of the plant woad (*vaid*) whose leaves can



yield a blue dye, as well as wild apples. In addition, he mentions nine species as “weeds” and eight species as “other plant remains”.

However, Gjeltestad as a site had deteriorated markedly compared to Oseberg where the artefacts had survived, even if the puzzle to interpret them was immense. On the other hand the methodology and

techniques for retrieval of highly degraded materials have advanced greatly since 1904, so finding the remains of material, even when decomposed, was possible and these could be scientifically analysed; in addition, many bones were found. In total 750 unburnt fragments of mammals (mostly teeth) were recovered from the dig. Those that could be isolated

and subjected to analysis constituted 550 fragments of hoofed animals, 25 horse teeth and ten teeth from cattle (Magnell & Arcini 2021). Additionally, one bone from a pig and eight fragments of roe deer were found in the topsoil above the ship, but these are probably much younger than the burial.

Apart from these, one bone leaped to attention. This was a piece of the hypural from the tail fin of a halibut. It was found inside the burial chamber all the way down in the wettest parts of the burial – on top of what survived of the keel (see circled area in Figure 2). This is where the preservative conditions were best, allowing for the preservation of unburnt bones. The osteologist Ola Magnell (Magnell & Arcini 2021:15) estimates the fragment from Gjellestad (Figure 3) to be from a fish close to three metres in length. There are many entries online for halibuts of record size, with a catch of a fish weighing 234 kg (515 pounds) and with a length of 2.62 metres (8 feet 7 inches) from Norway in 2013 being the largest.¹ Historical records, however, state that a halibut 3.65 metres long, weighing

¹ Giant Atlantic Halibut Caught in Norway | Sport Fishing Mag

266 kg, has been caught off the coast of Iceland (Pethon 2005[1985]:439), while the international game fish association (accessed September 2023) claims that the largest specimen was taken off the coast of Sweden, weighing 326.6 kg. The Gjellestad example must be an adult fish, as it takes at least 30 years to reach a length of two metres (Pethon 2005[1985]:440). Halibut of this size were possibly more common in the Viking period than today when modern fishery is thinning populations.

The hypural is a porous bone, and it is surprising that it could survive in an environment where most unburnt bone had decayed, but the context just above the keel had been mostly wet since the burial, creating an environment with favourable conditions for the preservation of bone.

RAV AND REKLING

The size of the fish is remarkable, as it would have taken up a large proportion of the burial chamber. Still, we are probably not seeing the remains of a complete fish, but rather a food offering in a similar manner to what is known from the Oseberg (Christensen *et al.* 1992), or



Figure 3. Proximal end of the hypural (pinnae) of a halibut from Gjellestad (bottom), compared to a hypural from a much smaller specimen. Photo, Ola Magnell, Statens Historiska Museer.

in Ibn Fadlan’s description of a Rus chieftain’s funeral (Ibn Faḍlān & Simonsen 2004). The bone could well have been part of the prime cut of the halibut, possibly connected to a traditional way of drying or curing halibut products, called *rav* and *rekling* (Bernström & Otterberg 2008:102–103; Grøttland & Ropeid 1978:110–113; Nedkvitne 2014:364; Notaker 2006:112–113; Svanberg 2000:124), and not as well known as the regular stock-fish made from cod.

The first detailed description of this product comes from Peder Claussøn Friis (1881) who in the sixteenth century describes *rav* (Figure 5a) as the fatty meat around the fins of the halibut. This was cut off, possibly salted, and hung up for drying. Alternatively, it could be smoked (Grøttland & Ropeid 1978:110–111).

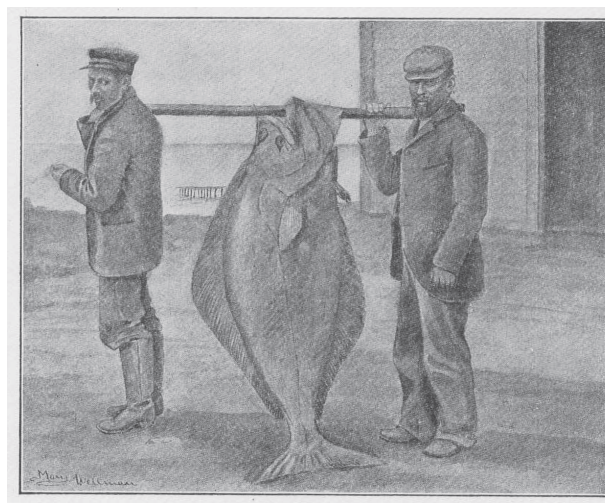


Figure 4. Giant halibut. Krüger, Public domain, via Wikimedia Commons.

Furthermore, the halibut has two fillet parts. These were cut into long thin strips (*rekling*) that were typically kept attached, thread onto sticks and also hung up for drying (Figure 5b). They were dried in outhouses or boathouses with no insulation, so wind brought fresh air into the building and there was no protection against frost – both these conditions being good for the drying process. *Rav* would typically be served by cutting thin slices off one or two hypurals (Notaker 2006:113). In the eighteenth to the nineteenth century *rav* and *rekling* was typically eaten with barley bread or dried flatbread and is described as a traditional meal for fishermen or shepherds. Another well-known use was in soup (Grøttland & Ropeid 1978:111, 113), while it was considered quite exclusive and used for Christmas

sandwiches in nineteenth century Bergen (Notaker 2006:112).

As mentioned above, it is debated whether salt was necessary for producing *rav and rekling* (Grøttland & Ropeid 1978; Notaker 2006). It has been claimed that salt was expensive and primarily used for flavouring food during the medieval period (Norseng 2024; Vedeler & Garnier 2024:47–48). The most well-established method for conserving fish in medieval Norway was air drying, but salt was still considered an important preservative during the medieval period, and salt export is documented from Norway from the early fourteenth century, with the Hardanger and the Oslo fjord regions as prime producers (Loftsgarden 2018; Norseng 2024; Vedeler & Garnier 2024: with further references). In Sweden the earliest mention of salt boiling stems from the twelfth century (Gräslund 1973:288). A simpler technique than boiling is burning seaweed to produce black salt from the ashes, which is documented in the North Atlantic region in the first millennium AD, and specifically at the royal manor on Avaldsnes, Karmøy, Rogaland before AD 600 (Nordseng 2024; Skre 2018: chapters 8, 9, 18 and

19). Furthermore, the phenomenon of salt extraction from mines is well known from Hallstatt in Austria, the Saale-region in Bayern, while boiled sea-salt is known from the northern and southern coasts of Britain from the second millennium BC and onwards (Gräslund 1973:284 with further references). Against this background Bo Gräslund (1973) suggests that sea-salt was available, or even produced, in Scandinavia during the Bronze Age or somewhat earlier. He also suggests that the etymological background for the prefix “hall” in, for example, the landscape of Halland refers to salt extraction. Altogether the available data indicate that salt could have been obtained for curing fish products during the Viking period.

To the author’s knowledge there are no archaeological sources confirming the use of *rav and rekling* from prehistoric times, but several written sources from the medieval period mention this commodity, indicating its central place in trading. The first mention of *rekling* is in Frostatingsloven from the eleventh century, in chapter 37, where travelling provisions are mentioned (Sandnes & Hagland 1994). The *Diplomatarium Norwegicum* describes court fines and trading records, and

there are several mentions of *rav*. The first is in the oldest known Norwegian customs record, from 1316, when King Haakon V Magnusson imposed tolls on the exports of *rav* to countries abroad (Vollan 1959:343–344, *Regesta Norvegica*: no. 972, 30 July 1316). In 1325, *rav* is mentioned in a trading record where six strips of halibut (*kveiterav*) changed hands between Arnald Jonsson and Jon Gunnarson (*Regesta Norvegica*: no. 383, 17 October, 1325). Third, there is a written record from 1534 of a gift from archbishop Olav Engbrektsson of a barrel of *kveiterav* to the Franciscan monastery in Bergen.

It would make sense for a food offering to be a cut of a fish and preferably one that could be stored for a period before going bad. I will now look briefly at the background of our knowledge about fishing, especially for flatfish, in the Scandinavian region in the Viking period, in order to establish the rarity of the find and to outline some future avenues of research.

VIKING FISHERY

It is commonly accepted that around AD 1100 there was an economic change involving fishery, with the export

of stockfish expanding to a more commercial business (Helberg 2013:95 with further references; Hufthammer 2016; Nielssen 2016; Wickler & Narmo 2014). Cod fishing was also quite expansive in the Viking period, and anatomical analysis of fish bone assemblages suggest, because of the lack of cranial bones, that fish have been stored as stockfish (Hufthammer 2016; Star *et al.* 2017).

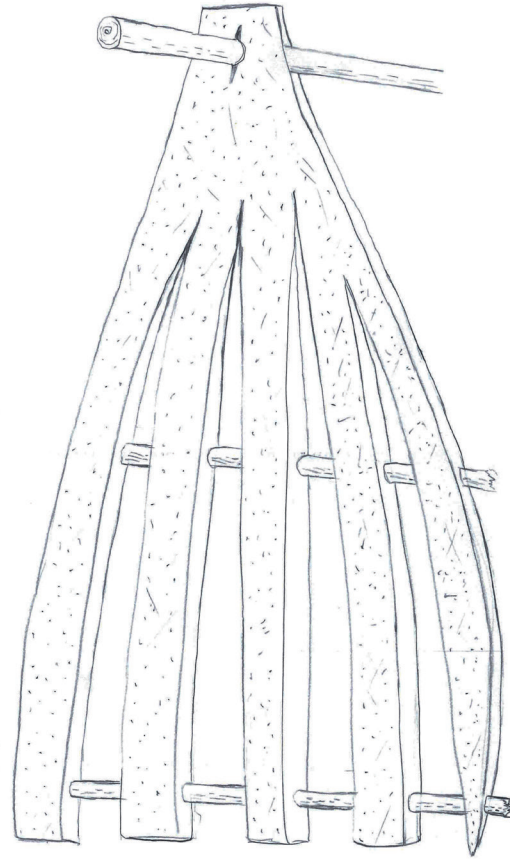
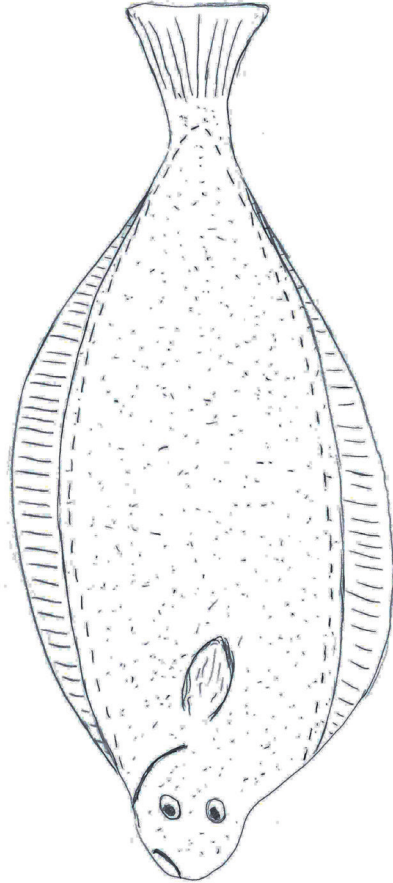
The catch of herring seemingly expands in the same period (Atmore *et al.* 2022). These two, cod and herring, are the most well-researched species of fish from the North Atlantic region in the Viking and medieval periods of Norway (AD 800–1400). The seasonal fishing was probably a chieftain-organised activity from the seventh century and onward, a theory supported by the presence of boathouses constructed for boats with a length of 4–10 metres in many sites in northern Norway from the Late Iron Age (Helberg 2013:95; Nilsen 2005[1997]). Alf Ragnar Nielssen (2016:44–45), however, has argued that the potential markets for such an early export have not yet been identified, and that the finds cannot be used as evidence for a very early export trade.

Viking Age fishery is divided into four techniques: fish nets, fish traps, spearfishing with gigs and fishing with tackles or hooks (Crumlin-Pedersen *et al.* 1992:248; Edberg 2012:7–10; Helberg 2013). Fishing for halibut would be performed with lines and fishing tackles; it is illustrated in Olaus Magnus's book on the history of the Nordic people, published in 1555 (Swahn & Magnus 2005). The halibut is a flatfish bottom dweller that seeks deep waters to a depth of 300–700 metres or more for spawning in winter, but it regularly swims to shallower waters hunting prey, and sometimes swims close to the surface (Pethon 2005[1985]). Today halibut can be caught anywhere off the coast of Norway, but the larger fish are found in the north.

From ca. AD 800 a technological development in fishing is evident, likely responding to the opportunity of fishing for a surplus for a larger market. In the period AD 800–1100, coastal fishing villages that supported the dietary habits of the inhabitants grew into trading ports, supporting local economies with their resources (Graham-Campbell 1980:46). Fishing camps in the Viking period and earlier are presumed to have been temporary, with trading posts taken down for

Figure 5. Rav and rekling. Left: Illustration showing which parts of the halibut (fins) that could be cut for Rav. Right: Rekling was cut from the filet part of the fish and sliced into thin strips when hung for drying or curing. Drawings by the author.

winter (Carlsson & Owen 1996:9), but I think this generalisation is somewhat stereotypical since it contradicts the fact that the best fishing periods for most species are during winter when the climate for drying and storing is also favourable. In northern Norway and Trøndelag district changes to Viking period fishery are related to finds of heavy sinkers and fairleads (Norwegian *rullevadbein*) for deep-water fishing with jigs (Helberg 2013:96), possibly associated with halibut. This tradition is not documented in eastern and western Norway, but scholars like Live Johannessen (1997) and Birgit Tansøy (2001) argue that specialised fishermen also worked in these regions, mostly for supplying local consumption and not for export. The Vestfold/Kaupang region does, for example, have a variety of other sinkers, even including some made of lead (this is not found elsewhere), that are probably adopted to fishing in the Oslo fjord (Tansøy 2001:68). When it comes to fish tackles or hooks, the available material is limited, as metal hooks are small and corrode easily. Nevertheless, it is still clear that Helberg's type I is the most common, a versatile hook for all types of fish, while his less common type III would typically be used



for troling (Norw. *dorging*), typically for halibut (Helberg 2013:101, Figure 3). Among the Skuldelev wrecks, a twelve-metre-long boat built of pine from the eleventh century has been interpreted as a fishing vessel (Crumlin-Pedersen *et al.* 1992:44).

I will now visit a selection of well-published sites that have yielded finds of fish bones with dates from the Viking period, to assess the extent to which common halibut bones are in the archaeological

record. In Lofoten and Vesterålen in northern Norway zooarchaeological traces for (presumably dried) fish production are most frequent. Excavated farm mounds are excellent sites for organic preservation and thereby for revealing the ways in which fish have been prepared for consumption (Perdikaris 1999). The sites of Bleik and Toften on Andøya show a fairly even distribution of cod, saithe, and halibut in the Iron Age/Viking period. This stands in remarkable contrast to

thirteenth century Vågan when the stockfish-trade is well-established. By then it is evident that cod dominates, while halibut has become rare (Perdikaris 1999:396, 398, Figures 3, 4). Two other settlements from northern Norway are Storvågan (ninth to fifteenth century) and Blomsøy (seventh to thirteenth century), both with a preliminary focus on cod (Hufthammer 2016:224–226). At Kaupang in the Oslo fjord, however, there are few traces of halibut, while cod and saithe dominate (Barrett *et al.* 2007). Birgit Tansøy (2001:25–30) summarizes the finds from the excavations in 2000, and concludes that halibut make up 1% of the amount of diagnostic bones, and that four fragments of the excavations 1956–74 are from flatfish.

Halibut seems to have been an incidental catch in the Scottish colonies in the Viking period, perhaps caught while fishing offshore for large cod, saithe, ling or haddock (Barrett 1995:117–118, Figures 5, 6). It is also found in Viking and medieval assemblages in York (Harland *et al.* 2016). Flatfish are also recorded at Carlton Colville in Suffolk, England as early as the sixth to the eighth century, and in small numbers in the Netherlands (for example at Dorestadt) and Belgium,

but with no particular figures for halibut (Barrett 2016:250, 254; Van Neer & Ervynck 2016).

In the Baltic region, marine fish are much rarer, and freshwater fish make up the main proportion at the excavation sites (Lindbladh 2014; Lõugas 2016). Marine fish only make up a tiny proportion of the fish bones from Birka, and no halibut is present (Barrett 2016:256; Wigh 2001:132–134). Flatfish are, however, present in the bone assemblages from Eketorp, Oldenburg and Gamle Lejre, all being in use during the Viking period (Enghoff 2016; Lõugas 2016). The somewhat later assemblage of fish bones from the town of Sigtunas also reveal that most fish were freshwater fish caught for private consumption, but the residents probably also traded Baltic Sea fish and fish from Lake Mälaren. Atlantic species are not visible earlier than from AD 1100 (Edberg 2012). On the west coast of Sweden it seems a little different, for here 75–90 % of the bones from Uppåkra are saltwater species. It is evident that herring is the major species of fish, with cod gradually increasing its share. By the eighth century the distribution of cod and herring is close to equal, while herring was almost the sole source of marine food during

the Roman period. Flatfish are mentioned among the species present, but not halibut in particular (Magnell *et al.* 2013:97–98, Fig. 10). In nearby Viking/medieval Löddeköpinge the majority of fishbones are from cod with just a small proportion of undetermined flatfish (Pleuronectidae) bones (Macheridis 2022). At Ribe on the west coast of Jutland very few fish bones were uncovered, and it has been argued that the excavation area did not represent a midden, but rather remains from the fields (Hatting 1991).

Finally, at Hedeby in Schleswig, northern Germany animal bones from food production represent the settlement's largest find group, reflecting a great biodiversity. There is a multitude of fish species represented, and amongst it a variety of flatfish, including halibut. While herring is the most common fish, flatfish (*Pleuronectidae*), including halibut, make up as much as 7.4 % of the fish from the settlement area, and a little less at the harbour area (Barrett 2016:256; Heinrich 2006:186–189; Lepiskaar & Heinrich 1977:18, Abb. 5). It is unlikely that the flatfish was local, but was probably caught in the Skagerrak, the North Sea or the North Atlantic.

DNA AND ISOTOPES

As previously mentioned, fishing in Arctic Norway occurred long before the Viking period, and most researchers have argued that the long-range exports of cod did not predate the twelfth century. Before the 2010s, it had been impossible to trace the movement of stockfish or dried cod. As described in historical sources that post-date the events, it was one of the big industries of the Middle Ages in Scandinavia where bulk commodities were traded internationally. Interestingly, cod finds from Hedeby occurred alongside species such as saithe, ling, and halibut. These are more consistent with fishing in the North Sea or North Atlantic than in the Kattegat or Baltic Sea, and a research group took on a study of cod bones, where the Hedeby bones were compared to a large source material. The team made a breakthrough because it was possible to show that a Viking Age cod bone from the Viking town in Hedeby had come from a cod caught in the Arctic North Atlantic (Star *et al.* 2017). Although some have claimed that occasional fish may have been provisions for traders coming into town (Nielsen 2016:45), Bastiaan Star and his colleagues claim

that this discovery revealed that the first beginning of the stockfish trade may have been well established in the Viking period (Star *et al.* 2017). Although this is still debated, it seems fair to assume that the finds provide early evidence for a pattern that was later commercialised (Barrett 2016:256) and possibly opens a door to studying the eco-history of the Vikings more closely. Large scale fishing of herring has also been studied combining modern whole-genome data with ancient DNA (aDNA), showing that an extensive fish trade began during the Viking Age (Atmore *et al.* 2022). The question is – could this also be done with halibut bones?

In a similarly influential study, another team of scholars were able to trace the long-distance effects of trade with Greenlandic ivory commencing in the Viking Age and escalating to a big industry in the Middle Ages. They did so by tracing lead isotopes enabling them to separate walrus from Greenland, Iceland, and Scandinavia (Frei *et al.* 2015). The hunt for halibut as a resource is comparable to walrus hunting, both involving the capture of large animals at sea, coming with a great risk for the hunters as it has

been recorded with modern halibut fishing. It is still unknown whether the halibut bone in question here hides DNA or strontium isotopes, but if it does, it could be holding evidence to spark questions about a trade that is, so far, even less known than trade in stockfish or walrus ivory. At present, it remains an open question as to where this halibut originated.

CONCLUSION

The find of a bone from a giant halibut within the burial chamber of the Gjellestad ship has sparked an interest in an aspect of prehistoric fishery that has so far been little explored. Even though halibut is plentiful in the Oslo fjord and the Skagerrak today (Pethon 2005[1985]), the overview of the fish-bone material from well-documented Viking Age sites shows that the halibut was not common in the Baltic, Denmark or eastern Norway in the Viking period, although at the large trading site of Hedeby it was more common. It also appears in several assemblages in northern Britain, but the main district for fishing halibut seems to have been the North Atlantic, where giant

halibut still roam in the deep-sea waters today. Recent research has indicated that Arctic cod and herring might have been exported to far away markets like Hedeby as early as the Viking Period. From the fourteenth century on, the dried halibut delicacy *rav and rekling* is known from trade transactions, and it is also mentioned in law texts of the eleventh century. When viewing these commodities in the light of the

knowledge of large-scale trade in cod and herring before AD 1100, it certainly raises questions regarding early halibut fishing and trade. The find of the halibut bone needs further study, and hopefully the genome record of Atlantic halibut will soon be so well researched that the sample from Gjellestad can be aDNA-analysed and compared to the modern halibut population.

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CHAPTER 2

CISTERCIAN FOOD CULTURE ON HOVEDØYA, AN ISLAND IN THE OSLO FJORD

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ABSTRACT

In this article, we present the results from an archaeological survey on a Cistercian monastery on Hovedøya outside Oslo, seen in the light of the Cistercians' rules and guidelines for diet and self-sufficiency. Food remains, in addition to preserved letters of land transactions and toll rolls, can shed new light on the monastery's strategies to meet both the demands of self-sufficiency and the order's strict regulations regarding nutrition, discipline, and self-control. According to their rules and international instructions, the Cistercian diet should primarily consist of vegetables, fish, and bread, with an increasing focus on fish

from the late thirteenth century onwards. How did they manage in one of the order's northernmost outposts? In the ongoing discussion about sustainability and food safety, knowledge of how the medieval Cistercians took advantage of the local opportunities that were given them may add a new perspective.

Keywords: Cistercian food, medieval, archaeology, Hovedøya, medieval fishing, fish-ponds, self-sufficiency

To live off the land and cultivate it by their own hands was considered a ground rule in medieval Cistercian monasticism (Jamroziak 2013:184). When the order established monasteries all over Europe in the twelfth century, they came to areas with very different climatic conditions. We ask: To what extent did the monasteries in the far north have a realistic chance of being self-sufficient? And how did they take advantage of the local opportunities that were given them? A small Cistercian monastery established on the island of Hovedøya in the Oslo fjord in southern Norway will serve as our case study. An excavation outside the monastery kitchen has revealed new information about

the life and food strategies of the Cistercian community on the island. We present here the results from the excavation in the light of previous archaeological surveys on the island as well as a new review of surviving written documentation about the monastery. The results will be discussed in the light of rules and regulations of the medieval Cistercian order in general, and might also contribute a few new elements into today's discussion about food's cultural values.

From the first Cistercian monastery, established in Cîteaux in 1098, the order spread its wings throughout Europe. By the end of the twelfth century, 500 Cistercian abbeys had been built (Newman 2013:25).

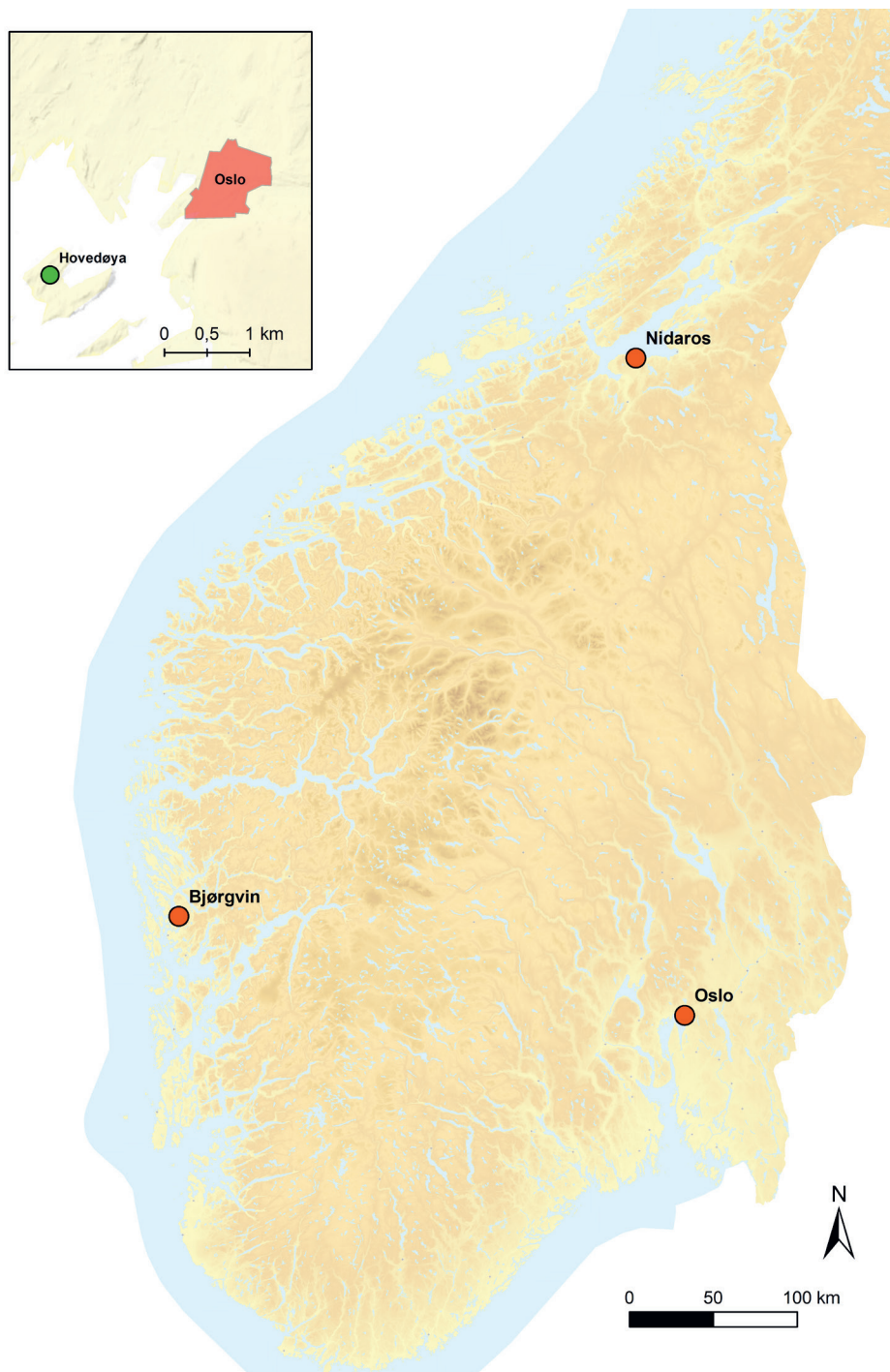


Figure 1. Hovedøya monastery is located on a small island just outside Oslo.
Map: Steinar Kristensen.

The monastery on Hovedøya was founded in 1147 by monks from Kirkstead monastery in England, barely 50 years after the first Burgundian monastery. Situated on a small island outside Oslo, it was the second of its kind in Norway, established only a year after the first Cistercian monks came to Lyse outside Bergen (France 1992:77–98).

Due to the Cistercians' strict rules, the monks' food culture was in principle different from that of the residents of the nearby town. While periodic abstinence from meat and dairy products was the rule among the Catholic townspeople, the Cistercians were to abstain from eating meat throughout the year. The size and timing of meals was also regulated to a different degree than for those who lived outside the order. On the other hand, the Cistercians on Hovedøya had access to their own herb and vegetable garden, and probably had a detailed knowledge of how to use it to compose a healthy diet.

Following the motto *Ora et labora* – pray and work – farming and self-sufficiency away from towns were essential to this community. In some ways, this lifestyle mirrors modern ideals. Control over one's body,

sustainability and local production, an international food culture: these are all catchwords and concepts that can also describe the Cistercians on Hovedøya, despite the fact that both their starting point and their motivation were different from those of most people today.

NUTRITION, DISCIPLINE AND CONTROL. THE CISTERCIAN RULES

To meet the demands of moderation and austerity, Cistercian monks followed St. Benedict's rules of life with some special adaptations for their order (Gunnes 1986). In the Cistercian living rules, a threefold vow of poverty, chastity, and obedience was a cornerstone. Because discipline and control over the body were considered a matter of devotion to God, the need for nutrition had to be balanced with the body's urge for pleasure and gluttony. This need for balance is recognized in the rules and guidelines of St. Benedict. St. Benedict's rule specifies only a few foodstuffs. It states in chapter 39, concerning the quantity of foods, that either one or two meals per day should be given

to the brethren, and only two cooked dishes should be served for the main meal: “For all the brethren let two cooked dishes suffice; and if there be fruit in addition or young vegetables let there be added a third dish also” (Benedict of Nursia 1931:57). Bread and wine were served in addition. The general rule of two dishes applied to days outside Lent. On Wednesday and Friday and on Lenten days, the monks had to make do with one meal per day, according to the rules (Benedict of Nursia 1931:59). Through reforms during the ninth, eleventh and twelfth centuries these restrictions were considerably eased within the Benedictine order (Dembinska 1985:449). Cistercians remained, however, closer to the strict older rules.

With Christianity came a general ideal of moderation and a ban on eating meat on certain days and periods of the year for all Christians (Halvorsen & Rindal 2008:126, 130, 148). By staying away from certain foods, you confessed your sins and showed that you were a true Christian.

According to the monastery rules, Cistercian monks, on entering the order, had to agree to refrain from eating meat throughout the year. Monks

following St. Benedict’s rule were vegetarians or pescetarians.

The *Regula Benedicti* does not mention fish, milk products or eggs, either as forbidden or as recommended nourishment. The rules for Cistercians, however, originally completely excluded the use of meat, pork, fat and eggs. During Lent, milk products like butter and cheese were also forbidden (Ortved 1927:93; Wadell 1999:409–410). The main part of the diet, therefore, came from products of the earth. However, the availability of vegetables, fruit and herbs depended heavily on local conditions for farming. This might be the reason why species are not specified in the regulations.

These rules and regulations are to be considered as the international norm for the different local practices that had to be adapted to different geographical and climatic conditions. The most important food source for the monastery brethren on Hovedøya should thus, according to the rules, be fish, bread, vegetables, fruit and herbs, and, in addition, milk products and eggs outside of fasting. Hovedøya, and the nearby island Bygdøy, were probably given to the Cistercians as first



Figure 2. The Hovedøya monastery.
Photo: Marianne Vedeler.

donations from King Inge Krokrygg, with the intention of supplying the monastery with sufficient arable land (Berg 1952; Bowitz 2009:8, Tabell 1, Ak. 1347–1348). The monastic community probably utilized all available arable land on these islands and on the many farms they eventually came to own in the area around Oslo. They could also make use of the sea. The local climate and conditions for exploiting marine resources were both desirable and probably also necessary to be able to maintain a balanced diet. The custom of giving small pittances in the form of *naturalia* to the monasteries increased in the late medieval period, and as a result extra treats of fish were given to the monks on certain days (Jamroziak 2013:260).

ORA ET LABORA – THE MEDIEVAL MONASTERY ON HOVEDØYA

The Cistercians followed the motto *Ora et labora* – pray and work, meaning that self-sufficiency through labour on the land was a key factor (Waddell 1999:459). A new Cistercian monastery should therefore ideally be placed in an area outside of towns, where agriculture could be practised and where there was access to fishing. Seen from this point of view, Hovedøya was an ideal place. It was an island and, as such, physically separated from the city. The fjord also provided good fishing. The agricultural area on the island was admittedly limited, but throughout the Middle Ages the monastery constantly acquired more land,

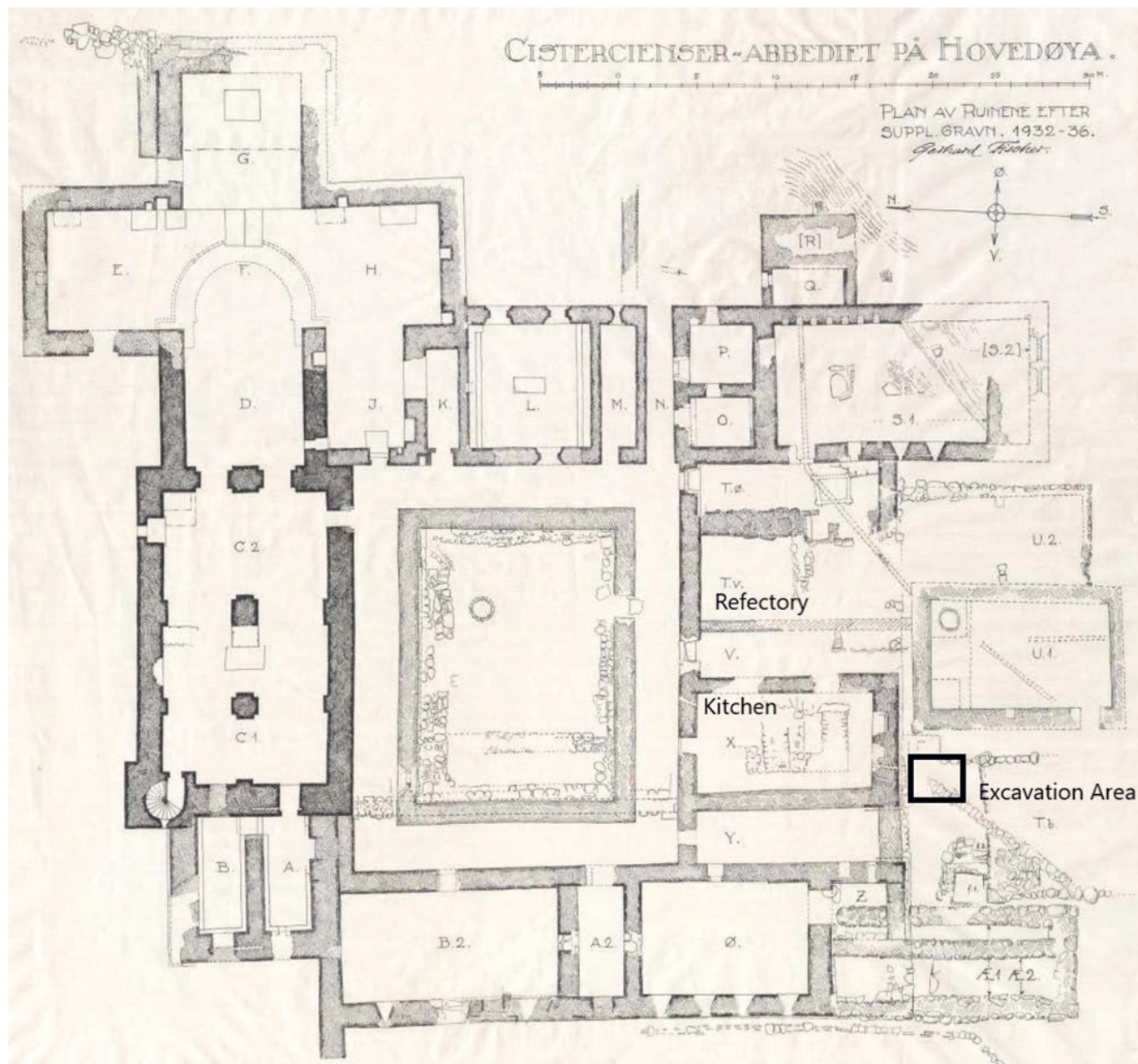


Figure 3. Drawing of the monastery at Hovedøya made by G. Fischer after his excavations in the 1930's. Kitchen, refectory and the excavation ditches from 2021 is marked.

which provided the Cistercians with products (and income).

Cistercians had a relatively fixed ground plan in all their monasteries, with the early complexes built in Burgundy as role models. The room plan at the Hovedøya monastery follows the overall plan, but with certain adaptations (Fischer 1974:38). The kitchen facilities as well as the *refectorium*, or dining room, were situated in the south wing of the complex (Figure 3).

The kitchen was originally located next to the refectory (Fischer 1974:49). According to their monastic rules, the monks prepared their own food, and had a fixed schedule for kitchen service that went on a weekly basis (Ortved 1927:94–95). There was often a hatch between the kitchen and the dining room through which the food could be served. At the centre of the kitchen there is a large, almost square, walled-up hearth. In one corner, there was also a “waste basin” or sink. The sink was made of copper and was preserved until the nineteenth century (Mydland 2004:74). An opening in the wall, formed as a channel, runs diagonally through it. The channel transported wastewater and food waste further away

from the residential area in the direction of the fish farming facility, through a stone set ditch probably in combination with a wooden pipe. A basin on the inside of the wall provided practical opportunities for the simple scrubbing of vegetables, for example (Figure 4).

SELF-SUFFICIENCY OR NOT?

The food culture of the medieval monasteries was a melting pot of international and local food. Architecture and location, as well as living rules for food, drink, cooking and meal practices, were designed according to a common international idea.

Special rules for the Cistercian monasteries were issued by the Cistercians’ joint meeting, the so-called General Chapter, which took place in Cîteaux once a year. In regulations dated to 1157, fish, cheese and eggs are specified as extra treats to be given to sick monks or monks who had recently been subjected to blood-letting (Ortvedt 1927:15, 91–92). However, by the late twelfth century, the importance of fish in the monks’ diet seems to have increased (Jamroziak 2013:260).



Figure 4. Basin and channel through the cloister wall in the kitchen at Hovedøya. Photo: M. Vedeler.

FISHING PLACES/FARMS	LANDSCAPE/ COMMUNITY	SOURCE
Bekkelaget	Oslo	Regesta Norvegica VI, nr. 124; Indrebø 1929:11
Bestonbukta (?)	Hurum	Bowitz 2009: 83, see also Norseng 1999
Bjørnholmen og Hemnes	Spydeberg	AK: 1017; 1614?; Bowitz 2009:76
Blylaget (Bløylaget)	Nesodden	Indrebø 1929: 60, Norseng 2015:217
Botnem/Bonn/Bonnlaget/Bonden (Frogn gård)	Nesodden	AK: 848, 1267–1271, 1431, 1469, 1521, 1522, 1558, 1559, 1591; Norseng 1999:45–46; Indrebø 1929:72; Bowitz 2009:77; Norseng 2015:221
Bygdøy	Oslo	AK: 1347–1348; Bowitz 2009:8; Norseng 2015:218, 222
Djuplaget (Sandspollen)?	Hurum	Bowitz 2009:83; see also Norseng 1999:49
Dramstad-Hurumstrømmen (Hov)	Hurum	AK.reg: 1018–2020; Bowitz 2009: 61, 75; Norseng 2015:218, 221
Døvik (Djupvig; Verp)	Eiker	AK.reg: 1266; 1314, 1333, 1336–1337, 1384; 1402; 1422–24, DN VI, 148; Bowitz 2009: 73–75; Norseng 2015:220–221
Fiskehol/Filskeholsfoss, Nes sogn	Nes	AK: 833, 836; Bowitz 2009:81
Fjolanger (Engervannet)	Bærum	AK: 1594; Bowitz 2009:78; Norseng 2015:218
Flodespielslandt (Flespield)	Nesodden	AK: 1043; Bowitz 2009:80
Frogn gård (Froen, Bunnefjorden)		AK:1168, 1188; Norseng 1999: 45; 2015:219
Fosseneng, Henni sogn	Nes, Romerike	AK: 903, 904; Bowitz 2009: 81
Fossum	Gjerdrum	AK: 909; Bowitz 2009: 81
Glennelaget/Glemmege	Nesodden	AK: 848, 1269–71; Indrebø 1929: 74; Norseng 1999:51;
Groå (Åroselva)	Røyken	AK: 1571; 1252; Norseng 1999: 50
Haukaashyll	Modum	AK: 1119
Hovedøya	Oslo	Indrebø 1929: 19–20; Norseng 2015: 218, 222
Hov gård	Fet	AK: 1486; Bowitz 2009:76; Norseng 2015:218
Huseby	?	AK:1393
Ingedal, ant. Skjebergkilen	Sarpsborg	AK:1487; Bowitz 2009: 81
Krange	Nesodden	Schou 1979:297; Norseng 1999:51; Bowitz 2009:80
Krogfossen (Leira)	Ullensaker	AK: 889; Bowitz 2009:81
Løkså (Sandvikselva)	Bærum	AK: 986, 1106, 1109, 1166; 1594; Norseng 1999:51; Bowitz 2009:78;
Milmerud med foss	Bærum	AK: 925; Bowitz 2009:81
Røssholmen	Fet	AK: 1486; Bowitz 2009:76
Stengaardspolden	Aker	AK: 1483; Bowitz 2009: 81
Øengrå (Gråøya)	Røyken	AK: 1601; Bowitz 2009:79; Norseng 1999:51

Figure 5. List of properties and fishing rights/places connected to the Hovedøya monastery. Mainly based on the monasterys documents in the archive Akershusregisteret (Ak.).

According to the basic rules of the order, monasteries should be built on sites away from towns and villages, and preferably where they could catch fish. As a supplement, or in the absence of this possibility, fish farms for freshwater fish were established (Ortved 1927:4). A key factor must have been that each monastery in the Middle Ages was forced to adapt its food practice to the resources that were locally available. As we shall see, this was also the case on Hovedøya, but here the need for self-sufficiency was not the only factor involved.

Fish and fishing on and near Hovedøya

Surviving letters of land transactions, toll rolls and archaeological remains all bear witness to fish and fishing being an important part of daily life and income for the monastery. The Cistercians on Hovedøya had fishing rights in several places in the Oslo fjord, in shallow waters and in river outlets. There exist over 40 documents related to fish and fishing rights in Akershusregisteret (Fig. 5; Bowitz 2009:73; Krabbe & Høg 1916; Norseng 1999, 2015:218).

Legal rights to fish in a specific area were given to the monastery as donations and gifts. An example of a gift including fishing rights can be seen in the gift, made by King Håkon V's daughter Ingebjørg, of the islands of Bygdøy, Hengsøya and Oksenøya, as well as of fishing rights in the area of Bekkelaget, to the monastery in 1532 (Berg 1952:9–11; Norseng 2015:220; Regesta Norvegica 2005, 6:124). Fishing rights along the coast and in inland areas were also bought for money. In 1532, the Cistercians owned all the farms with fishing rights in Bunnefjorden along the northern and eastern side of the Nesodden peninsula (Bowitz 2009:76, 91).

Yearly visits to the mother-monastery Kirkstead in Lincolnshire, England, were combined with trade, organized by the abbot, a monk or a lay brother from Hovedøya (Bowitz 2009:116–119; Christensen 2009:6). The monastery owned its own ship called *Hovedøybussen*, a type of longship used for cargo. English customs archives show that salted herring, dried fish and other products like timber, butter and goat hide were transported by *Hovedøybussen* to King's Lynn in England, the nearest harbour to Kirkstead (Bowitz 2009:70, 82–83, 116–119).

Figure 6. Medieval Fish hook of bone for line fishing. Hovedbanens verksted, Oslo. Photo: Adnan Icgagic, Museum of Cultural History.



Figure 7. Medieval Float of barch, for fishing with net. Nedre Langgate 45, Tønsberg. Photo: Olav Heggø, Museum of Cultural History.

In addition to fishing in the Oslofjord, inland locations like rivers and waterfalls with fishing pools represented important resources for the Cistercians on Hovedøya. Fish caught could be eaten or sold (Figure 5). The salmon fishery in Døvikfossen, Åmot (Drammenselva) had an outcome of several tons per year. In the inland rivers they could also catch pike and eel (Bowitz 2009:74, 80–81 with references). The importance of both sea and inland fishing is also evident from documented rights conflicts in medieval law texts (Rindal 2024, VII, 48–51, 64). A conflict with Nonneseter monastery over fishing rights for salmon at Døvik lasted from the 1290s to 1334. The task of resolving this dispute was given to the bishop at Hamar by Pope John XXII (Krabbe & Høg 1916, no. 1333).

Line, net and fishing traps were used as fishing methods in the inner Oslo fjord in the Middle Ages (Nordlie & Wammer 2024). Finds from the area connected to line fishing, like hooks, line runners, floats and different types of sinkers, have been made (Figures 6–7). Fishing with nets (Norw. *garn/not*) are documented by finds of floats and sinkers. Fish traps (*ruse/teine*) were made from rope or twigs (Olsen 2004:69; Nordlie & Wammer 2023:88). Nets and different types of enclosure traps were used for inland rivers and lakes (Mjærum *et al.* 2024 with references).

The Cistercians were known for their skills in fish farming. To secure an abundant supply of fresh fish, the monks on Hovedøya also had fish farming facilities on land, following the pattern of other Cistercian



Figure 8. Fishpond at Hovedøya monastery. Photo: Riksantikvaren.

Abbeys in Europe. The fishponds served two different purposes, being used either for producing and raising fish, in which case they were referred to as a *vivarium*, or for storing fish for consumption, in which case they were referred to as a *servatorium* or *piscine*. Even today, a fishpond that has been preserved is visible southwest of the monastery (Figure 8). The

water in the pond flowed openly until 1957, when it was emptied in accordance with new legislation. In order to restore and replant the area, the pond was investigated in 2003. This investigation showed that the original pond was dug out as a circular pit in the moraine sediment and had a row of stones around the rim. It measured about 18 m in diameter and was



Figure 9. Test pits outside the kitchen sink, excavation at Hovedøya in 2022. Photo: Margrete F. Simonsen.

probably 1–1.5 m deep (Mydland 2004). Another possible fishpond has been detected right outside the cloister by ground-penetrating radar (GPR), revealing a rectangular construction measuring about 3 x 11 m (Kristensen & Meyer 2019:29, 51). The construction corresponds with the size and shape of a fishpond at the monastery of St. Olav of the Dominican order in

Oslo. The construction is, however, yet to be verified through an archaeological excavation.

Historical sources suggest that the monks on Hovedøya also owned two fishponds on the mainland. The place is today called Munkedammen (Tvedt 2010:369). The property was later included in a Renaissance garden with a fish park, combined with a huge fruit garden (Schnitler 1916:217).

FAM/SPECIES	NORWEGIAN	ENGLISH	
<i>Clupea harengus</i>	Sild	Atlantic herring	201
Salmonidae	Laksefamilien	Salmon family	6
Cyprinidae	Karpefamilien	Family cyprinids	1
<i>Rutilus rutilus</i>	Mort	Roach	1
<i>Scardinius erythrophthalmus</i>	Sørv	Common rudd	3
<i>Anguilla anguilla</i>	Ål	European eel	2
<i>Merluccius merluccius</i>	Lysing	European hake	1
Gadidae	Torskefamilien		66
<i>Gadus morhua</i>	Torsk	Atlantic cod	167
<i>Melanogrammus aeglefinus</i>	Hyse (Kolje)	Haddock	4
<i>Merlangius merlangus</i>	Hvitting	Whiting	9
<i>Pollachius virens</i>	Sei	Saithe	6
<i>Pollachius virens/Pollachius pollachius</i>	Sei/Lyr		1
<i>Molva molva</i>	Lange	Ling	5
<i>Dicentrarchus labrax</i>	Havabbor	European seabass	1
<i>Perca fluviatilis</i>	Abbor	European perch	3
Labridae	Berggyltfamilien	Wrasses	1
<i>Scomber scombrus</i>	Makrell	Atlantic mackerel	3
<i>Myoxocephalus scorpius</i>	Vanlig ulke	Shorthorn sculpin	4
Heterosomata	Flyndrefisker	Flounder	1
Pleuronectidae	Flyndrefamilien		1
<i>Pleuronectes platessa</i>	Rødspette	European plaice	3
<i>Platichthys flesus</i>	Skrubbe	European flounder	4
<i>Lagenorhynchus sp</i>	Kvitskjeving/kvitnos	White-beaked dolphin	1

Figure 10. List of species found during the excavation outside the kitchen at Hovedøya. After Hufthammer and Bratbak 2022.

What species of fish did they keep in the ponds? Unfortunately, we have no written sources concerning the Hovedøya fishponds. But according to *The Handbook of Agriculture* written in the early fifteenth century by the priest Petrus Magni at Vadstena Abbey in Sweden, species raised and stored in artificial ponds were first and foremost crucian carp, pike and tench (Svanberg & Chios 2014, see also Nordeide 2016:147 with references). Moreover, other species like eel, lamprey, roach and other fish of similar kinds can thrive, Magni says, if you have a muddy bottom in the pond. Unlike crucian carp, pike seldom reproduced in ponds and were therefore placed instead in store-ponds for a shorter period (Svanberg & Chios 2016:124). Carp and pike were appreciated both as food, and for medical purposes. Hildegard of Bingen (1098–1179) recommends roasted carp head with wine and honey to cure fever (Throop 1998:168). By the end of the medieval period, Olaus Magnus (1490–1557) recommends using a powder of burnt pike bones to cure injured horses; he also says that pike are considered healthy and were used by doctors to cure illness in humans (Magnus 2010:949). The keeping of fish in

ponds gave easy access to fresh fish, as this was considered important.

Architect Gerhard Fischer undertook excavations in the 1930s to restore the walls of the abbey. When excavating, he also uncovered ditches marked by stones, which he thought had led wastewater and sewage away from the buildings (Fischer 1935, 1936). The FOODIMPACT project excavated a small area outside the monastery kitchen in 2021. The area of investigation was strategically placed below an opening in the wall where waste had come out from the sink, possibly connected to a stone-built ditch. The aim of the survey was to get a representative amount of organic material, including animal bones and other kitchen waste like seed and herbs. The excavation also aimed at locating the row of flat stones documented by Fischer. Two test pits or shafts measuring 1 × 1.5 m were opened and excavated (Simonsen *et al.* 2023). The soil was partly sieved, and samples for macro fossil analysis were taken from each context. The small project revealed a surprisingly rich material – 4700 animal bones were found. Nearly 4200 of these were fish bones, the rest turned out to be bones from livestock,

including pigs, cattle, sheep, and goats, and from domestic fowl (Hufthammer & Bratbak 2022). This sounds like a huge number of bones, but represents just a small, but presumably representative, proportion of waste material from the abbey's settlement.

Both written and archaeological sources suggest that, for the Cistercians, variation in the selection of fish was desirable. An eleventh century list of food is preserved from the rich Benedictine monastery at Cluny in France. Because of the rule of silence during meals, a list of finger signs to be used for practical communication was prepared. The list refers to seven different species of fish, including cuttlefish, eel, lamprey, salmon, sturgeon, pike, and trout (Ambrose 2003:16-17).

Bones from as many as 20 different species of fish and sea mammals were documented at the excavation. Herring and cod dominated, with 40% of determinable bones coming from herring, and 33% from cod (Hufthammer & Bratbak 2022). Different parts of head bones from cod were found, indicating that some of the fish were eaten fresh and were probably caught locally. A number of large bones indicate that

some of the cod could have been imported, as was the case in the nearby town. Results of DNA and stable isotope studies have shown that North Atlantic cod was imported to the medieval town of Oslo (Martínez-García *et al.* forthcoming).

Species recognizable from the Cluny list, like eel, salmon and trout, were also found. Bones from small tooth whales like the white-beaked dolphin (Norwegian *kvitnos*), as well as cyprinids like roach and common rudd, show that these were also consumed as food. Some of these species, such as roach, are, for different reasons, not considered human food today.

The dominance of herring and cod, and a great variety of local saltwater fish, are features that are completely in accordance with what excavations in the medieval town of Oslo have shown (Oslogt. 4, Kanslergt. 10, Mindets tomt in Lie 1988:184, 1991:78, 79; Norseng 2015:209). Today fish are scarce in the inner Oslo fjord, and this bone material supports zoologists who point out that the species were much more diverse in the medieval period than today (Norseng 2015:187 with references). The bone material from medieval Oslo in general shows that freshwater fish

were of little importance, and the results from Hovedøya support this (Hufthammer & Bratbak 2022; Lie 1991:81). This seems to contradict the large number of inland fishing places which are known from the written sources (Figure 5). Moreover, at the Danish Cistercian abbey at Øm, on the contrary, only bones from different freshwater fish and salmon were found, which shows that local fish were most important in the Cistercian diet there, probably due to its location near inland water courses (France 1992:281).

Income accounts for 1558 show that the monastery on Hovedøya at this time collected ca. 13 metric tons of salt received as land rent from 82 farms along the Oslo fjord (see Norseng in this volume), suggesting that the monastery had more than enough salt for the preservation of fish and other foodstuffs needed for winter storage.

Bones from fish make up 99% of the material found on Hovedøya. The remaining bones come from husbandry: pigs, cattle, sheep, goats and domestic fowl.

The bone material from Hovedøya represents, as has been mentioned, just a small but presumably representative proportion of waste material from the

abbey's kitchen. Other finds include potsherds identified as so-called *Grimston ware* and *South Scandinavian ceramics*, dating from 1100–1350, which corresponds well with use of the abbey.

Four radiocarbon datings of charcoal show that the kitchen waste was deposited in the medieval period, mainly in the twelfth and thirteenth centuries, where samples from the bottom layers go back to about a hundred years before the establishment of the monastery in 1147 (Figure 11).

The earliest activity can probably be related to preparing the area and to construction of wooden buildings, as the deposition of turf and chopping of wood is documented in the soil samples, analyzed by soil micromorphology (Macphail 2022). Samples from the upper layers still await analysis.

The GPR survey undertaken by NIKU uncovered traces of a deeper drainage system that was probably connected to the Cistercian monastery (Kristensen & Meyer 2019:47). Some drainage ditches seem to be connected to a stone-built ditch leading from the abbey's southwest corner to the lower-lying fishpond in the garden (Kristensen & Meyer 2019:47, Figure 32).

Kalibreringskurvor

IOSACal v0.4.1; Atmospheric data from Reimer et al (2020)

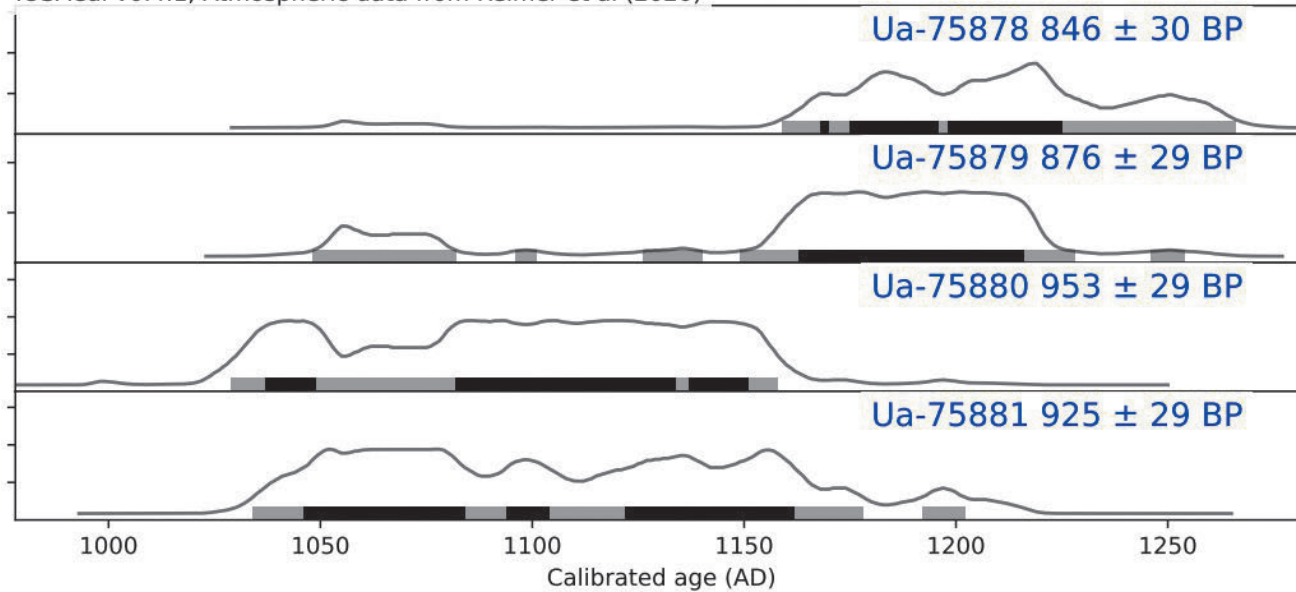


Figure 11. Results of radiocarbon dating of layers in the test pits at Hovedøya, Uppsala universitet 2021.

This was the lay brothers' quarters – their kitchen, and toilets. Another ditch seems to lead from the end of the presumed rectangular pond and into the drainage ditch, thereby connecting the two fishponds (Kristensen & Meyer 2019, Figure 18). The drainage system indicates that the monks on Hovedøya built an advanced system for the recirculation of food waste. Similar advanced water systems are known from other monasteries in the medieval period (see for instance Harvey 1981:68; Knapp 2020; Nybø 1987). We know from historical sources that the recycling of kitchen waste, such as vegetables and bread, dung, and even butchery leftovers, provided food for pond fish; it was believed

that this made the fish thrive, grow faster and multiply (Nordeide 2016:149; Svanberg & Chios 2014:126).

Bread and grain products

Looking closer into the rules of St. Benedict, we see that they indicate that bread was considered a very important source of nourishment at all times, including Lent. In Norway, however, cultivation of grain would depend heavily on a monastery's location. Hovedøya is situated in an area well suited for grain production by Norwegian standards, but it is a small island. As far as the consumption of grain is concerned, barley (*Hordeum vulgare*) and oats (*Avena*

sativa) have traditionally been the most common species in this region, while rye (*Secale cereale*) and wheat (*Triticum aestivum s.l* and *Triticum sp.*) were considered more exclusive and expensive due to import costs. Finds of grain in archaeological contexts in the cities complement and nuance the written sources to a certain extent. Wheat, oats and barley have been found in Norwegian urban contexts dating to the thirteenth century, and rye in contexts from the fourteenth and fifteenth centuries (Hjelle 2007). Significant amounts of wheat pollen have been found at excavations in Oslo (Oslogate 3 and 7), indicating that wheat was actually grown in the city's surroundings in the Middle Ages (Høeg 1979:146–147; Vedeler 2017:68–69).

The flour variety and the degree of grinding are crucial for both weight and nutrient content of bread. The degree of grinding determines the proportion of grain that has been used. The larger the proportion of grain, the healthier and more nutritious the baking will be (Norwegian Information Office for Bread and Cereals). The Cistercian order's rules issued in 1240 ordered monks to eat, exclusively, coarsely sifted bread. White bread from wheat should not be eaten,

not even on feast days (Wadell 1999:409). The ban on wheat bread could also have been associated with the oath of poverty. Unfavourable growing conditions for wheat in many parts of the country mean that wheat has been a relatively expensive import product in Norway (Vedeler 2017:69). A Norwegian price regulative dated 1302 forbids the sale of wheat flour on a regular basis (“Flur of hveiti er fyrirbodit at lata til utt solu” in Keyser *et al.* 1846–1895, III:13).

The daily rations of bread, which are specifically regulated in the monastic rule, are large by today's standards. It is possible that bread in many areas might have been more important for the monasteries than for ordinary people outside the orders. St. Benedict's Rules state that “*Of bread let one pound by weight suffice, whether there be but one meal, or both dinner and supper, though if they are going to sup let a third part from that same pound be kept back by the cellarer and served when they sup. But if by chance any hard work shall have been done, it shall be within the discretion and power of the abbot to make some addition*” (Benedict of Nursia 1931:57). How much is one pound of bread? That depends on whether it refers to a Roman pound or a

Figure 12. Baking with sour dough.
Photo: Signe Marie Andersen.



monastic pound. The Roman pound in the fourth to fifth centuries was the equivalent of about 327 g while the so-called Benedictine pound, or monastic pound, was the equivalent of 500 g. The Benedictines and Cistercians in Norway may also have related to the Norwegian mark pound, the equivalent of about 214 grams in the fourteenth century (Pettersen 2013, Personal message from Prof. Svein Gullbekk, Univ. of Oslo). If we, for the sake of argument, assume that an average slice of wholemeal bread weighs about 40 grams, a day's ration of bread for a monk measured by the lowest Norwegian mark standard gives approximately five good slices. Measured by the Benedictine pound, however, the ration would give over 12 slices of bread per day. Either way, the daily ration of bread would make

up a large part of the monk's nourishment. How did they get hold of flour?

Gardens were certainly part of the monastery on Hovedøya, and by Norwegian standards the growing conditions were good. Pollen analysis from the fishpond shows that cereals – mostly barley, also oats and rye – have been cultivated (Høeg 2002). Some plants also indicate the existence of grassing husbandry on the island. The herb *Myrica* was used in the production of beer, together with the wild herb *Filipendula*. Pollen analysis from the Cistercian property on Bygdøy shows these same cereals. It also shows, at both places, the cultivation of, probably, hemp, used to produce fibres or for medical purposes (Høeg 2006; Simonsen & Karlberg 2009).

On the small island of Hovedøya it is not possible to grow grain on any scale. However, looking into the tax income for Hovedøya in the year 1558 we can see that the monastery received 27,5 *skippund* flour as tax in kind from the surrounding area that year (Bowitz 2009:109). Converted to 1274 values, this would correspond to 4078.25 kg (see *skippund* in Store norske leksikon, Hofstad 2005–2007). If this amount was received at the monastery in an average year, it would have been enough to meet the monks' needs. If they used the monastic pound, the twelve monks and twelve lay brothers at this monastery would have needed 4380 kg of flour for their bread. Using the Norwegian pound, however, they would have needed only approximately 1874 kg.

Ideally, everything needed for food should be produced within the monastery's cloister area, mill and bakery included. This turned out to be impossible, and not only in Scandinavia. The rules had to be altered on a general basis. The institution of lay brothers opened the possibility of large-scale farming and the accumulation of land, and so-called breeding farms and the procurement of external mills became the

norm (Bowitz 2009:52; France 1992:259; Ortvéd 1927:103–109). The accumulation of land to the monastery was substantial. In 1190, the General Chapter of Cîteaux decided to prohibit monasteries in their order from buying land. Nevertheless, Hovedøya received considerable tracts of land as gifts. *Akershusregisteret*, a list made in 1622 of preserved medieval documents from eastern Norway, registered 810 letters concerning the monastery. The vast majority of these are land transactions, i.e. gifts or the purchase and sale of property (Krabbe & Høg 1916, nos. 56–107). The register shows that the monastery continued to increase its wealth in the late medieval period, even after the period of the lay brother institution was over in the first half of the fourteenth century (Bowitz 2009:66).

Both archaeological and written sources indicate that the monastery had its own bakery on the island, at least from the late thirteenth century onwards. The remains of a timber construction just outside the cloister wall to the south have been interpreted as a bakery and brewing facility (Fischer 1974:36, 47). A diploma dated to the year 1295 mentions a baker named Olve (Oluuær baksuæin), supporting the

interpretation that there was a bakery on the island at this time (*Diplomatarium Norvegicum* n.d., 2:36).

Greens and other vegetables

A substantial part of the monastic diet should, according to monastic rules, consist of vegetables. Few medieval farms in Akershus have been excavated. But excavations in medieval towns have shown that a large selection of fruit, berries, nuts and vegetables was available for their citizens, and there is no reason to believe that the selection available at the monastery should have been any narrower. In fact, the monastery had a “cabbage garden” in Oslo in the late medieval period, documented in a letter from 1437 (Krabbe & Høg 1916, no. 828). In this context, a cabbage garden should be regarded as a generic name for vegetable and fruit-gardens.

Traces of peas, watercress, cabbage, turnips and beans, apples, plums and pears, cherries, currants, hops and turnips have been found in medieval towns in Norway. In addition to garden-grown plants, it also seems that the town dwellers ate wild berries and nuts, such as gooseberries, wild strawberries,

raspberries, blueberries, lingonberries, blackberries, juniper berries and hazelnuts (Griffin 1988:91; Hjelle 2007:169; Vedeler 2017:66–67).

Does this correspond to the availability of fruit and vegetables on Hovedøya? So far, very little is known about the cultivation of food plants at the monastery. The approximately 530 acres of land on the island consist of slate and limestone soils that are rich in nutrients. The best area for cultivation is found in a depression of marine clay (Åsen 2016:168–169). A number of traditional food plants have been registered on the island in modern times, but their time of arrival is very difficult to detect. Among these plants are different types of onions and leeks, prickly lettuce, ground elder, parsnip, wild apples, sour cherries, currants, and gooseberries, in addition to various herbs (Åsen 2016:174–175). Records of rent paid to the monastery in the late sixteenth century show that at this time the only vegetable used as payment was 2,315 kg. of peas, collected in 1558 (Bowitz 2009:106–107). Rent income recorded in the late sixteenth century might, however, be not at all representative for the situation in the High Middle Ages. All in all, we know

little about how the monks obtained the vegetables and fruit necessary for their diet. The gardens on the island must have made a substantial contribution, but whether this was sufficient to meet the needs of the entire community is uncertain. The grangers probably also supplied the monastery with greens, but to what extent we do not know.

THE MEDIEVAL MONASTERY KITCHEN IN THE PERSPECTIVE OF SUSTAINABILITY

In a modern context, the food philosophy of the medieval monastery may seem very strange and exotic. Yet there are things that correspond well with a modern way of thinking. The Cistercian view of local agriculture and self-sufficiency as a fundamental factor in life corresponds very well with the modern movement for local food production and consumption. For example, in the Nordic countries a focus on seasonality, local foods and ecology in the “New Nordic Cuisine” has raised the status of typical Nordic products, resources and receipts (see Bugge in this volume).

Research on animal bones and other food waste found at medieval sites shows that it was not only a few selected parts of the animal that were consumed as food. On the contrary, a substantial part of food items was exploited, for different purposes, leaving very few leftovers. This corresponds well with traditional thinking in Norwegian food culture, where the concept of food waste is alien. Today, on the other hand, every Norwegian throws away on average approximately 43 kg of edible food a year (Bugge 2019). A renewed need and desire for increased sustainability has led to campaigns and measures to reduce this, including the development of methods for measuring and modelling food losses on a global scale (see for example Mingione *et al.* 2021).

The construction of closed fish farming facilities on land, allied to the recirculation of food waste, corresponds very well with the Cistercian ideals of moderation and self-sufficiency. It also helps ensure safe and predictable access to food. In recent years, food safety has again risen far higher on the agenda for both politicians and ordinary consumers, in line with the United Nations’ second sustainable development goal: “End

hunger, achieve food security and improved nutrition and promote sustainable agriculture” (United Nations Sustainable development goal 2, <https://sdgs.un.org/goals/goal2>). A survey of Norwegian consumers’ attitudes towards the production and consumption of fish and meat in 2021 showed that the question of how food is prepared is important to consumers. Nine out of ten preferred fish and seafood produced in Norway. Almost as many said the same about meat. The reasons given indicate that the corona pandemic caused consumers to have more confidence in Norwegian food, and to be more concerned about Norwegian workplaces and local communities (Bugge & Schjøll 2021).

Despite varying climate zones, the growing season throughout Norway is short. In a society where the preservation of food through freezing was until recently only possible during deep winter, techniques for food preservation through salting, fermentation, drying, and smoking were essential knowledge. Without mastering these techniques, it was simply not possible to make food last throughout the year in a part of the world where local climate conditions allow food to grow only during a few summer months.

With an increased focus on short-travel food and sustainability, these have again become current issues. The New Nordic food movement has contributed to making us prouder and more curious about our food history. Fermentation, sour dough and old techniques for smoking and salting have gained new interest among consumers, sometimes inspired by high-end restaurants.

Today, fasting and moderation are associated with a healthy life and the desire to keep one’s body in good shape. Fasting and moderation in consumption in the medieval period was often linked to religious thoughts about being a good Christian person. The practice is, however, the same.

CONCLUSION

To what extent did the monastery on Hovedøya have an opportunity to be self-sufficient and how did it take advantage of local conditions and opportunities?

According to the order’s rules and international instructions, the Cistercian diet should primarily consist of greens and other vegetables, fish, and bread,

with an increasing focus on fish from the late thirteenth century onwards (Jamroziak 2013:260).

Tax lists from the late Middle Ages show that the monastery on Hovedøya received enough flour to meet its needs, at least at this late stage of its existence. This was, however, not based on the monks' own labour. The monastery on Hovedøya was probably not self-sufficient when it came to bread, although it had its own bakery on the island. A substantial share of the grain needed was, according to tax lists, obtained from local and regional farms.

The pescetarian diet of the Cistercians also required a certain amount of fruit and vegetables. How much, had to depend first and foremost on the local conditions and climate in the region where a monastery was located. At the time of writing, our knowledge of the size of the crops of vegetables and fruit grown on Hovedøya is limited. The gardens on the island, and the monastery's farms on the mainland, must have made a major contribution to the

production of greens and other vegetables. Both written and archaeological sources are, however, sparse on this point.

As we have seen, various types of fish were almost certainly a fundamental part of the monks' diet on Hovedøya. The monastery owned extensive fishing rights both in the Oslo fjord and in rivers and lakes in the surrounding area. In addition, they had their own fish farm on the island. There is reason to believe that the Cistercians not only met their own needs for fish for daily consumption, but also probably sold a large surplus, which must have contributed to the monastery's growth and prosperity.

The medieval approach to local production, to food safety and to preservation methods is echoed in today's discussions of these issues. More research on the food culture of the Cistercians may bring a new understanding of how their international regulations were adapted to different climatic conditions and local factors in the Middle Ages.

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CHAPTER 3

THE USE AND PRODUCTION OF SALT IN EASTERN NORWAY TO CA. AD 1600

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ABSTRACT

The paper discusses the economic significance of the production of marine salt and the use of salt for the preservation of foods in Norway from the Viking Age to ca. 1600, with a focus on sources from the Oslo fjord area. It contests a commonly held belief that because of limited access to salt and the poor quality of domestically produced salt in medieval Norway, apart from being fed to livestock, it was mainly used to add flavour to foods, and only to a very limited extent as a preservative. By piecing together evidence from saga literature, legal texts, cadasters and other documentary sources, as well as archaeological finds from excavations in Oslo, the paper argues that in all probability the scope of

the salt extraction and the economic impact of salt, especially for preservation of fish, has been greatly underestimated, at least for the High and Late Middle Ages. Access to salt was evidently of great importance for the manorial economies of king, lay aristocracy and clergy, and probably also for the urban population at large. It is also suggested that the use of salt in seasonal fisheries may go back to the Viking Age.

Keywords: salt production, salt trade, fisheries, Norway, Middle Ages

This paper will address the use and domestic production of salt in Norway from the Viking Age to ca. 1600. Marine salt is known to have been extracted all along the Norwegian coast. This is particularly well attested both in extant written sources and modern research for two regions, the Hardanger fjord southeast of Bergen and the Oslo fjord (Viken). Although drawing on sources from different parts of the country, the present paper will focus on the salt production and the use of salt for preserving fish in the Oslo fjord

region. It will be argued that both the domestic salt extraction and the use of salt for preserving food, especially fish, was of greater economic consequence from the High Middle Ages onwards, if not earlier, than has been commonly believed, and that this was due to political and cultural as well as economic and demographic developments.

Access to salt is essential to the human body, and hence to human life. Internationally, a vast literature on the economic, social, and cultural importance of

salt is available. Ever since the agricultural revolution salt has been of paramount importance to social organisation:²

People living on a predominantly vegetarian diet, especially those who perform hard physical labour in warm climates, will normally need to add salt to their food to keep up their salt balance. Agriculturalists who have substantial amounts of animalia in their diets, may get sufficient salt from consuming fish, meat and milk, especially in temperate climates, like in Norway, but will need to feed salt to their livestock. In other parts of the world, the need for salt for cattle and other livestock triggered some of the earliest examples we know of interregional and long-distance trade. Until the use of natural ice for refrigerating became widespread during the Industrial Revolution and modern cooling and freezing technologies were gradually developed and employed on a large scale

from the latter half of the nineteenth century, salt was also essential to most of the techniques that were being used for preserving food: smoking, fermenting, salt-drying or brine salting fish and meat, and also to some extent for preserving dairy products.

Thus, salt has been of key importance for the capacity of pre-industrial and early industrial societies to transport perishable food over considerable distances and store it for considerable amounts of time, especially fish – meat and milk could to a much greater degree than fish be both transported and preserved as livestock. Salt has, moreover, also been put to other uses, like preserving animal hides that likewise were important produce from livestock and objects of trade.

Using salt for transporting and preserving fish, meat and other animal produce has thus until quite recently been essential not only for the development

² See Bergier 1982, Bridbury 1955 and Kurlansky 2003 with ample references to academic as well as popular science literature. For a brief preliminary introduction to salt production and the use of salt in the Oslo fjord region in the Middle Ages, see e.g. Norseng 2005:121–123; Norseng 2019: 198. For an overview of sources for and literature on Norwegian salt production and salt trade prior to ca. AD 1600, see KLN M XIV:696–697, 712; Loftsgarden 2018 and Lorentzen 1952. For the rise of the international trade in natural ice and the development of refrigerating techniques to preserve fresh foods in Northern and Western Europe cf. Norseng 2022 and Freeman 2023 with further references to an extensive international literature.

of trade in such commodities, but also for the capacity to collect and store provisions for soldiers and garrisons, and hence for developing military and political organisations of considerable geographical scope. In the Nordic countries, the only domestic source of salt is marine salt, extracted directly from the sea or more indirectly from seaweed, or, in some places, marine marshes. Due to low salinity in the Baltic Sea, marine salt has been far more accessible in Denmark and Norway than in Finland and most parts of Sweden (see Hildebrand 1954; KLN M XIV: 692–713; Yrwing 1968; Vellev 1993; cf. Østmo 2017).

It is hardly controversial to claim that widespread use of salt for preserving food and other perishable goods amounted to no less than a logistic revolution in Norway as elsewhere, comparable in significance only to the introduction in more recent times of cooling and freezing technologies. The question of when this “salt revolution” happened in Norway, however, has not been subject to much research, and is hence

more open for debate, as shall be demonstrated below.

Imports of salt to Norway are documented from ca. 1300 onwards, in the fourteenth century apparently mainly from Lüneburg in Northern Germany and from England, in the fifteenth century mostly from western France and from Spain, eventually also from Scotland. However, most of the salt consumed in Norway in this period is assumed to have been domestically produced, extracted from seaweed and saltwater. Salt was a common species in the so-called commodity-money system in Norway, facilitating exchange in a weakly monetarized economy. In this context, the value or price of Norwegian salt measured by weight seems largely to have been equal to that of cereals, while imported salt until the latter half of the sixteenth century can be seen to have been far more expensive (Benedictow 1970:55; Pettersen 2013:98–101 with further references; cf. e.g. Olafsen 1922:50–51).

BURNING SEAWEED OR BOILING SEAWATER?

The technique of burning seaweed to produce salt ashes – so-called black salt – is documented in many prehistoric archaeological sites in the North Atlantic region, especially from the first millennium AD. Until recently few finds of this kind have been made in Norway, but at the site of the medieval king’s manor at Avaldsnes in south-western Norway clear traces of salt production prior to ca. AD 600 have been found, in contexts that suggest that such black salt was being used for preservation of food (Skre 2017 chapters 8, 9, 18, 19; cf. KLNLM XIV:694–695) for this method of extracting salt). As we shall see below, this practice of burning salt from seaweed is not documented in written sources from Norway until the early thirteenth century, but it was in all probability in extensive use here far back in prehistoric times as well, as indicated by the excavations at Avaldsnes.

For the more advanced technique of extracting salt by boiling salt water, we are, in a Norwegian context, so far depending solely on historical sources. The earliest written evidence appears in the late thirteenth century, in legislation imposing tithes to be paid

to the church from the proceeds of, amongst other things, “salt kettles” (NgL II:354–355, 474–475). This no doubt refers to salt that was being boiled in large pans, in a way similar to a production process described in the middle of the sixteenth century, in the generously illustrated and famous historic-topographic work *Historia de gentibus septentrionalibus*, published in Rome in 1555 by the learned exiled Swedish Catholic Olaus Magnus (my translation):

The Norwegians, who want to live on the coast of the sea, when they wish to boil salt, usually split and hollow out long pine or fir logs and then join them together with strong ropes, placed like barrel bands. Then they attach heavy stones to them and sink them into the depths to reach the saltiest water, which then enters the end, which is therefore kept open. A pipe is then attached to the logs and placed as close as possible to the shore, where several boilers are set up. In this way, the water can now be brought up from the depths, transferred to a large pan, and boiled slowly at low heat to yield salt (OM Book 13, Chapter 43; cf. KLNLM XIV: 694).



Figure 1. Illustration of salt production in Norway in Olaus Magnus: *De gentibus septentrionalibus* (1555).

In his account of Norwegian salt production, Olaus Magnus also relates that this salt became harder and firmer if boiled during the winter, while salt boiled in the summer became softer and looser, and hence was of poorer quality. From later sources we also learn that salt production in winter had yet another advantage: by exposing the seawater to low temperatures before boiling it, the frozen and less salty top layers could be removed, leaving water with enhanced salinity in the pan, and thus saving both manpower and firewood (e.g. Berner 1924:40-142; cf. Walle 1993).

THE USES OF SALT – AN EXPENSIVE COMMODITY

It has been a common belief among historians and archaeologists that even the salt extracted directly from seawater in Norway in this somewhat more sophisticated way was of poor quality compared to imported marine or rock salt, and too weak for long-term preservation of food. Moreover, imported salt was a very expensive commodity, especially until the end of sixteenth century. Although considerably cheaper, the same applies to domestic salt extracted from seawater, due to the labour- and fuel-demanding

production technique, the costs of investing in salt pans, and, in areas far from the coast, also due to long overland transportation routes. This has all led to the assumption that salt in medieval Norway, when applied to food, in coastal areas as well as in the interior was predominantly consumed directly as “table salt”, to add flavour and cater for the basic physiological need for salt, and only to a limited extent used to preserve food. Instead, other preservation techniques for fish and meat were allegedly preferred, like drying and smoking.³

It has in fact been suggested that for fear of deforestation legal measures were taken in the thirteenth century to restrict domestic salt production, hence limiting the access to salt (Loftsgarden 2018:57). It has also been argued that the powerful Hanseatic merchants in Bergen, because of their interests in the important export of air-dried cod from northern Norway, for a long time effectively opposed an

emerging trend there in the late fifteenth century to experiment with new methods for preserving cod that would involve imported salt (KLNMXIV 712; Lorentzen 1952:45–46; Schreiner 1941:42–43; cf. Nedkvitne 2014: 272). Based on fish bone materials from extensive excavations of medieval Oslo in the 1970s, it has furthermore been suggested that the townspeople there mainly consumed fish that had been imported air-dried from northern Norway, western Norway, or the Bohuslän region in present-day Sweden, especially cod and ling, a suggestion that implies that the abundance of fish in the Oslo fjord region, local and regional fisheries and the consumption of fresh fish, as well as the use of salt for preserving foods, were of limited consequence for the urban population (Nedkvitne in Nedkvitne & Norseng 1991:156–157).

These rather sweeping conclusions combined to play down the significance of salt in Norwegian fisheries of the Middle Ages. They will, however, be up for discussion in the present paper. Both the scope of the domestic salt production and the uses of salt in the Middle Ages and the sixteenth century will be addressed, based on written and to some extent also

3 This view is quite commonly held both in general and local literature on the topic, e.g. Grøn 1927:156–157; KLNMXIV:712; Kolltveit 1963:210–212; Loftsgarden 2018:56; Lorentzen 1952:47–49; Olafsen 1922:50–53; Schreiner 1941:347; Ugulen 2015:127–128.

archaeological sources, mostly from Oslo and the Oslo fjord region. It will be argued that the domestic salt extraction in the area was of considerable and growing economic significance, at least from the latter half of the thirteenth century onwards, if not earlier, to some extent as an export industry, but more importantly as a source of salt for domestic use not only as table salt, or to feed to livestock, but also to preserve foods, especially fish.

As a point of departure, we should keep in mind the following observation made by the learned Olaus Magnus in 1555, offering a different approach to salt as a scarce and expensive commodity: He relates that salt was being produced in Norway for export to foreign countries as well as to cater for domestic needs, and also leaves the impression that salt was widely used for preserving fish and meat in Norway. At the same time he nonetheless complains, not of the poor quality of the salt, but of the Norwegians applying too little salt, making it impossible to get hold of such foods anywhere in the country that are not half-spoiled! Apparently in his view this was not because of salt not being commonly used for preservation purposes, but rather

because scarcity and high salt prices induced Norwegians to economize too much with salt in the preservation processes, which is a different matter altogether. And from what he writes about salt trade and the uses of salt in Sweden as well as in Norway, he seems to be quite well informed on the topic. He had personally visited salt quarries in Poland. As a contrast to Norway, the Swedes were to a very limited degree interested in extracting marine salt themselves, because in his day they had in most years ample access to imported salt, especially from England, western France and Iberia – according to Olaus Magnus brought to Sweden at affordable prices by Dutch and German ships, except when war interrupted trade (OM Book 13 Chapter 43–44; cf. however KLNМ XIV:702–703).

To the extent that this alleged contrast between the Norwegian and Swedish salt markets is valid for the first half of the sixteenth century, it may partly be explained by access to domestically produced salt in Norway, partly by differences in trade connections, and partly by royal politics actively promoting the import of salt to Sweden (cf. KLNМ XIV:702–703). The supplies of foreign salt in Norway were, however, soon

to grow as a result of changes in international trade relations that followed in the wake of expanding Norwegian timber exports.

DOMESTIC SALT PRODUCTION IN EARLY MODERN SOURCES

Not surprisingly, the evidence for a considerable domestic salt production is most compelling in sixteenth century sources. Salt has been produced along substantial stretches of the long Norwegian coast, especially in the fjords where access to firewood was easiest. However, two regions stand out in this picture: the Hardanger fjord southeast of Bergen, and all along the Oslo fjord, especially the innermost part of the fjord closest to the royal and ecclesiastical centre in Oslo (for a general overview, see e.g. Loftsgarden 2018:53–56; Lorentzen 1952:49–56; for salt extraction in Hardanger see Kolltveit 1963:210–212; Olavsen 1922:51–53; Ugulen 2015:127–129).

Cadasters, tax and customs registers, accounts from the commanders of royal castles, topographic literature, and individual charters in both these

regions reveal, as Olaus Magnus stated in more general terms, that a considerable salt production was taking place and a certain surplus of salt could be exported. More significantly, land rents, and also to some extent tithes, were apparently quite frequently paid in salt in these parts, especially in the inner Oslo fjord area, in some cases even at a considerable distance from the fjord, along the inland waterways west and east of Oslo, obviously reflecting a substantial trade with salt between the coast and the interior. As late as 1647 salt was the dominant land rent species in the inner Oslo fjord area according to a tax cadaster set up that year. At that time imports of salt had become more affordable and had been increasing for at least half a century. Domestic production had probably been in decline for some time, partly due to the competition from foreign salt – indicated by a facility that in 1602 had been constructed by royal initiative on the coast of Telemark to produce marine salt being soon converted to a mere refinery for coarse imported salt – and possibly at this point also due to deforestation in the rural areas along the Oslo fjord: There was increasing competition for firewood at a time when timber

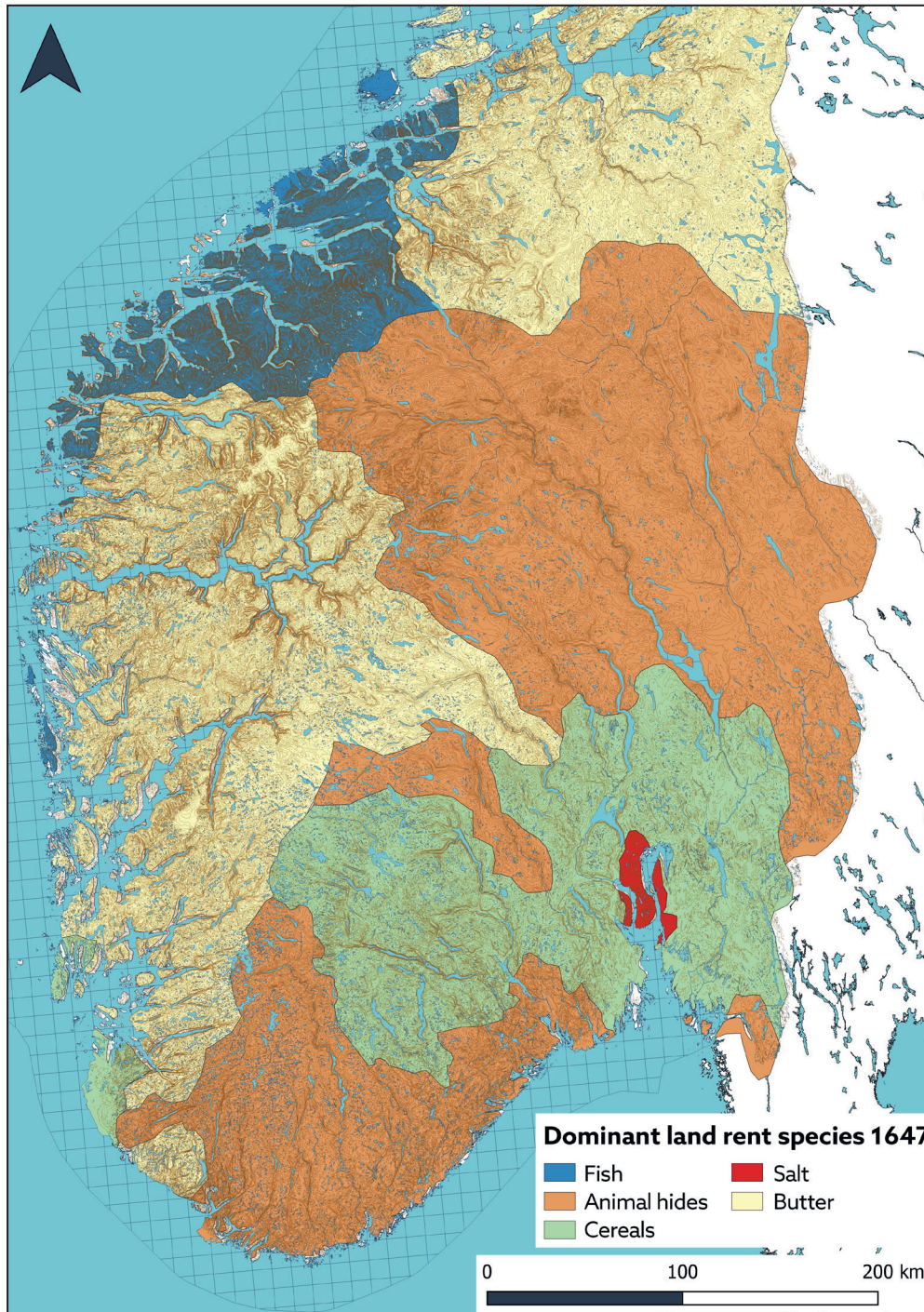


Figure 2. Dominant land rent species in different regions of Norway in 1647 according to tax cadasters. Source: Loftsgarden 2018.

exports were expanding and lime burning was also an important and fuel-consuming local industry (see Loftsgarden 2018:54–56; Kittelsen 2005:76; KLNLM XIV:696; Lorentzen 1952:55–56; Walle 1993; cf. Norseng 2005:121–123; Norseng 2019:198; Norseng 2023:259–261).

Admittedly, far from all the coastal farms that, according to the cadasters, had their land rents calculated in salt were located where they could actually have been producing salt. Furthermore, the annual land rents may often have been paid in other species than what was submitted in the cadasters, in kind or in money. Nevertheless, there can be no doubt whatsoever that salt production in the Oslo fjord region was very substantial in the sixteenth century, involving numerous people and catering for a considerable part of the consumption there as well as in the interior of eastern Norway.

The extant sources do not allow us to quantify the overall output, but for the estate of the former Cistercian monastery on Hovedøya in Oslo alone, the income accounts for 1558 report a total of 70 *skippund*, or ca. 13 metric tons, of salt received as land rent from 82 farms on both sides of the Oslo fjord. According to a cadaster

from 1578, an even greater amount of salt was then due from these farms: 90 *skippund*, or ca. 17 metric tons (Bowitz 2008:94–95).

The vast herring fisheries in Bohuslän from 1556 to 1589 may have caused both the domestic production and import of salt to expand in the Oslo fjord region (see e.g. Norseng 2023:257–263). However, evidence for salt production being abundant in the entire Oslo fjord region as well as in Hardanger can also be found in sources from the preceding decades (see e.g. KLNLM XIV: 694–697). But how about the Middle Ages?

SALT PRODUCTION ACCORDING TO MEDIEVAL WRITTEN SOURCES

Prior to the early sixteenth century, sources are generally more limited, and quite different in character. The thirteenth and early fourteenth century Icelandic saga literature offers the earliest references to salt burning or salt boiling in Norway.

For example, the hero of the legendary *Friðþjóf's saga*, put to writing in Iceland ca. 1300, but set in early Viking Age Norway, on one occasion pretends to be

a “salt burner” in a place called *Angr*, apparently in Vestfold on the western side of the Oslo fjord (Munch & Holtsmark 1967:276–277; cf. KLNIV XIV:696–697). In the early thirteenth century Icelandic saga of Eigil Skallagrímsson, “salt burners” are mentioned in more general terms among occupations and groups of people that in late ninth century Norway were made subject to the oppressive royal authority of King Harald Fairhair (ÍF II:12, chapter 4). And in a passage in the probably slightly earlier saga compilation *Morkinskinna*, set in the early 1030s, a Norwegian merchant appears before the court of “king” (= Grand Prince) Jaroslav in Kyiv. He tells the king that he was a simple *saltkarl* (“salt man”) who through his trade had come by some economic means. According to the saga, he had shared this occupation with his brother. They had both been capable and enterprising men, done well and become merchants (ÍF XXIII:7, chapter 2). No matter how we look at the authenticity of this tale from the late Viking Age, we must at least concede that the author of the saga no doubt has regarded this as a plausible occupation and career in his own day, in the High Middle Ages.

Far more informative and interesting in our context, however, is Snorri Sturluson’s accounts of St. Olaf who, when taking control of the land east of the Oslo fjord, allegedly founded the town Borg (Sarpsborg) in 1016 or 1017. According to Snorri, King Olaf, in the course of his attempt to conquer more land on this side of the fjord, was attacked by people from Götaland (present-day western Sweden). He therefore banned the export to them of herring and salt, commodities from the Oslo fjord region that they “could not do without” (OH chapter 61, for example in ÍF XXVII: 81; *Saga Olafkonungs saga hins Helga*:117–118). Snorri wrote his sagas more than 200 years after the events he was describing, but he visited Viken in 1218–1220. If he was not passing on a genuine oral tradition of Viking Age herring and salt trade in this region, we must at least assume that such trade had been established no later than the early thirteenth century when Snorri could observe it himself (cf. Pedersen, Stylegar & Norseng 2003:467–469; Norseng 2005:121).

Snorri Sturluson does not relate how the exported salt was being produced. Legal sources from the thirteenth century are somewhat more specific in this

respect. The earliest extant reference is a stipulation in the provincial law code for Gulatingslag, or western Norway, transmitted in a redaction from the first half of the century, where the rights of tenant farmers to collect birch bark was restricted to the amount that they needed to cover the roofs of their farm buildings, or to buy black salt, unless the landowners gave them permission to collect more. By the same token, tenants were not entitled to burn more salt than they needed to feed to their livestock, or to buy birch for their roofs, without the explicit permission of the landowners (G 75).

These rules have recently been interpreted as a measure to prevent deforestation, as briefly mentioned above (Loftsgarden 2018:57). They appear, however, in a wider context of rights and duties of tenants and landowners, limiting the tenants' exploitation of the farm outfields and forests to a minimum necessary for running their landholdings, and reserving the bulk of these resources for the landowners. It seems also evident that they relate only to small-scale burning of black salt – that is, salt produced from seaweed. The amount of firewood needed for that purpose was obviously more modest than what was needed to boil

salt from seawater. Hence, this early law text in no way bears witness to a general concern for deforestation caused by salt extraction at this stage.

Fairly similar stipulations are also to be found in the provincial law code for Frostatingslag – the Trøndelag region and northern Norway – known in a redaction from ca. 1250, but with less specific references both to the method applied to extract salt and the purpose: the tenant was in more general terms allowed to extract what he needed for the farm, which may have included salt for household use as well as for the livestock (F XIII 4). The Christian law section here reflects the fact that salt at this time was part of everyday household consumption by ordaining that everybody above the age of twelve should fast on all holy days on “salt and bread” (F II:32, 39).

There are no extant provincial law codes for eastern Norway, apart from the Christian law sections. However, the tenants' right to collect birch bark and extract salt is likewise limited to what they needed for their “houses” in king Magnus the Lawmender's national law code, or Law of the realm, from 1274, as well as in a somewhat revised law code for Norway

issued in Danish in 1604 by the Dano-Norwegian king Christian IV, and a new Norwegian law code issued by Christian V in 1687 (L VII:52; Chr. IV *Norske Lov* VI:50; Chr. V *Norske Lovbog* III:14, 35).

We may safely assume that these rules all refer to the same context of limited farm production and barter to cover the needs of the tenant farmers' own households and livestock, and that this kind of small-scale household production of salt was a widespread practise all along the coasts and fjords of Norway, probably often performed by extracting black salt from burnt seaweed, wherever the farmers had access to the sea.

Nevertheless, the lawmakers of the late thirteenth century were also familiar with salt production and salt trade of a different character and scale. In the 1274 law code, which was to be applied in rural areas all over the country, there are stipulations imposing very severe punishments for causing damage to other people's property by arson. Similar stipulations are known from the extant provincial law codes, but in the 1274 code, for the first time, "salt kettle sheds" appear on the list of property that could suffer such damage (L VII 28). It may have been a novelty in 1274,

but may also be an inheritance from the lost law code for Borgartingslag, or the Oslo fjord region. Furthermore, both in the 1274 law code for the countryside and in a similar national town law issued by Magnus the Lawmender two years later, in the sections on buying and selling, it is stated in a paragraph on fraud that honey, cereals, butter, salt and other commodities should be of the same quality on the inside as on the outside (L VIII:10; BL VII:5).

We also have indications of Norwegian salt being exported in this period. In early seventeenth century excerpts from an otherwise lost town law for Söderköping in eastern Sweden from the late thirteenth century, "Norwegian salt" is mentioned among different types of salt that was imported there at that time (Yrwing 1968:223). The transmission of this source is late and somewhat uncertain. Anyway, if not earlier, salt extraction was indeed now becoming an economic pursuit of some importance in Norway. As we have already touched upon, in 1277 a tithe to the church was imposed on the proceeds of salt pans. Price regulation on the salt trade in Bergen is known from the 1280s (NgL III 2:16); cf. NgL III 59:142, undated

fourteenth century). Several other regulations of the salt trade appear in the fourteenth century. Customs duties on export of salt are known from 1316, in a royal ordinance issued in Bergen but transmitted to us in redactions for the two major towns on the Oslo fjord, Oslo and Tønsberg (NgL III 47:118–120). Restrictions on the sale of salt and other commodities to foreigners or directly from the rural population to merchants travelling outside the towns also demonstrate the interest taken by the king and royal officials in the salt trade in the fourteenth century (NgL III 59; NgL III 114a:203).

From the first half of the fourteenth century the king also seems to have taken an interest in securing the quality of commodities that were being preserved by salt. A fragment of what may have been a royal ordinance from Magnus Eriksson (1319–1355), apparently stipulated how much salt a *laup* (a measurement of 15–20 litres or kilos) of butter should contain (NgL IV: 510). Lack of context, however, prevents us from knowing whether this relates to butter that the king would receive as payment of taxes, fines, or land rents, or to butter that was to be marketed in the towns or exported to foreign countries. Nevertheless,

it indicates that salt played an important part in the production, storing and transport of butter in this epoch.

Neither the medieval sources nor modern secondary literature always distinguish clearly between extracting salt from salt ash by burning seaweed, on the one hand, and evaporating saltwater, on the other (see e.g. Olafsen 1922). These were nevertheless very different activities. They produced salt of very different character and quality, had different economic, legal, and organisational implications, and probably also served different needs and uses. Large scale salt plants for producing marine salt of the kind we know from England, Scotland and the Continent, are admittedly unknown in Norway in the Middle Ages. But even salt extraction facilities like the ones described by Olaus Magnus, with big iron or copper salt pans, were also obviously an investment that could not be made by just any farmer or tenant in the coastal districts, and it was manpower-demanding and fuel-consuming to operate them. For some people, salt extraction seems to have been a specialised occupation. Moreover, charters from the early fourteenth century onwards

reveal that both the salt pans and suitable locations for erecting them were valuable assets and important elements in the estate economies of several members of the lay and ecclesiastical elites – assets that they took great pains in protecting, apparently especially in the Hardanger and Oslo fjord regions.

The earliest extant Norwegian charter mentioning a salt producer or salt worker is a diploma from Hardanger, issued in 1311 or 1312, concerning the borders between two farms. One of the men involved was called Elling, with the nickname *saltkarl* or “salt man” (DN XXI 11). An early example of salt pans becoming both an object of royal taxation and an economic interest of large ecclesiastical institutions is a charter issued by king Magnus Eriksson in 1337 to the church of St. Mary’s, the royal chapel in Oslo, confirming donations and privileges given by his grandfather king Håkon V (1299–1319). These include the right to tax salt pan sites in several rural parishes surrounding Oslo which the dean and the canons of St. Mary’s had been enfeoffed with (DN II 224).

Numerous salt pan sites along the Oslo fjord are also mentioned in other charters from the first half

of the fourteenth century onwards, but especially from the latter half of the century, as well as in the only extant ecclesiastical cadaster from the Middle Ages in this region, for the estates of the bishop’s see in Oslo and the parish churches in the entire bishopric. This cadaster was compiled in the late 1390s, but it sometimes includes information that is going several decades back. Place names that can be dated to the Middle Ages also indicate the widespread practise of boiling seawater in pans to extract salt (see Indrebø 1929:230; Norseng: 2005:121–123; Norseng 2019:198).

Some of the salt pans and sites belonged to the king, some to other laymen, who in some cases could own several pans (see e.g. DN III 482, dated 1389). Many more are registered as belonging to ecclesiastical institutions.

There is obviously a bias in these sources. Documents from ecclesiastical institutions are more likely to have been preserved and transmitted to us through the centuries, and are hence overrepresented in the extant body of documents. It nevertheless seems well documented that, in addition to the bishop, other ecclesiastical institutions were also keen on salt. Particularly striking were the Cistercians in the Hovedøya

monastery in the immediate vicinity of medieval Oslo, who apparently were pursuing a conscious strategy in their estate management to acquire salt pan sites or incomes from salt production through land rents from tenants with access to salt pans (see Bowitz 2008:87–97 and Table 3; cf. Iversen & Norseng in print 2024).

This great interest in salt corresponds to a similar well documented policy of the monastery to acquire properties with fishing rights. Both reflect the particular importance of fish in the monks' diet that is addressed in another article in the present anthology, by Marianne Vedeler and Margrete Figenschou Simonsen, based on zoo-archaeological evidence from Hovedøya. The only extant lay Norwegian cadaster from the Middle Ages, covering the estates of one of the wealthiest landowners in Norway, Hartvig Krummedike, for the years 1456–1474, however also testifies to the significance of salt (and fish) in the manorial economy of the lay aristocracy of the Oslo fjord region (see Benedictow 1970:17, 55, 65–66; cf. Lorentzen 1952:43; Norseng 2015: 216–30).

To quantify the scope of the salt production in the Oslo fjord area in the High and Late Middle Ages is not possible. As for the size of salt exports, we know even less. It was probably mostly going to Sweden. However, an episode in a conflict between Dutch and German merchants in 1447 has been interpreted as evidence of the export of salt from Norway to England (see Bridbury 1955:118; cf. HR Abt. 2 Band III nr. 283:167–169). The circumstances seem unclear, though, and this interpretation may reflect a misreading of the primary source referred to. Nevertheless, we cannot leave out this possibility. Even England and other great producers and exporters of salt were importing salt as well. This can be explained partly by fluctuations in price and availability, partly by other trade and trade routes that made salt trade a convenient side trade or by salt being used as ballast, but partly also by the fact that different types and qualities of salt, from different sources, were used for different purposes, and even in some cases at different stages of the conservation processes (see Bridbury 1955; Woolgar 2016; cf. Norseng 2023:257–263).

FISH AND SALT

The need for salt to feed to livestock may have counted for a significant part of the overall salt consumption in Viking Age and early medieval Norway, maybe especially the less attractive black salt extracted from seaweed ashes. At an early stage, such “burnt” salt, in addition to “boiled” salt from seawater, may, as far as human consumption is concerned, mostly have been used for table salt, as an additive to flavour food, rather than as a means of preserving it. However, the evidence of the widespread production of salt by the more advanced method of boiling seawater, from the latter part of the thirteenth century onwards, makes it hard to believe that salt, at least from then on, was not also widely used for preserving food, not only butter, but also meat and especially fish, by brine salting or by adding salt in varying quantities in other preservation processes like drying, smoking, and fermenting.

From the middle of the sixteenth century a certain export of salted cod from northern and western Norway is recorded. The sources leave the impression that such export was a novelty at the time, sponsored

by the king and modest in scale (see e.g. Schreiner 1941:346–347). However, this by no means implies that the salting of cod and other species for domestic uses was not already a well-established practice.

Indeed, in the very earliest extant account books from royal castle commanders in Oslo and Bergen from the second and third decades of the sixteenth century, there are ample mentions of dried, salted, and smoked as well as fresh foods. Some of the fish is explicitly referred to as being salted. In other cases, including herring and mackerel in barrels, we may quite safely assume that they were either salted or fermented with the use of some salt (for Akershus castle in Oslo 1528–1529, see NRJ IV:256–271). Moreover, at Akershus castle in Oslo, herring, mackerel and salmon were stored in barrels, according to an inventory made there in 1488 (DN II 940; cf. DN II 939). And a charter from 1433 mentions a servant at the castle who was both a fisherman and a cooper, probably making barrels to preserve brine salted or fermented fish (DN III 720; cf. Nedkvitne & Norseng 1991:156).

Recent analyses of some of the cod bone material from archaeological excavations in the medieval city,

carried out with DNA (aDNA) and stable isotope methods, have supported the hypothesis that a fair amount of the cod that was consumed there was Atlantic cod (*Gadus morhua*) originating in northern Norway, or even Iceland, and must have been transported to Oslo as a result of trade in dried fish from the eleventh century onwards (Garcia 2022). This was no doubt also the case with at least some of the dried cod that was stored and consumed at the nearby royal castle in the late Middle Ages and sixteenth century.

Part of the salted and smoked fish that was consumed at Akershus in the early sixteenth century may have been brought there from western Norway by way of trade, but some of it had probably been caught and processed in other parts of south-eastern Norway and brought there as payments of taxes and land rents. At the same time, however, the Oslo fjord itself was rich in fish, with a great variety of species. As with salt pan sites, fishing rights in rivers and lakes in the area surrounding Oslo and along the Oslo fjord were subject to private property, in saltwater especially places where anadrome and fat species like mackerel, herring, trout and salmon could be caught with nets thrown from

land or attached to the bottom on poles close to land. Charters from the High Middle Ages onwards not surprisingly reveal that both the crown and the lay and ecclesiastical elites took a great interest in such seasonal fisheries which they partly exploited directly by servants, like the one we met above at Akershus castle in 1433, and partly more indirectly by collecting rents, probably mostly in kind (see Norseng 2015: 219–232).

It goes without saying that such catches only to a very limited extent could be consumed immediately. Most of them would have had to be preserved in one way or another. For these species, often caught in the summer, air-drying with no salt added was hardly much of an option.

Even in northern Norway, where stockfish – cod and ling caught and dried under optimal climatic conditions during the spawning season in the winter – was a great export commodity, an alternative was adopted no later than the end of the sixteenth century that made it also possible to exploit and preserve the cod that was caught in the summer: air-drying was considered impossible in the warm season because of the flies. Therefore the summer catch was salted and

dried on rocks, according to a contemporary observer (Storm 1895:204).

This seems to be a procedure quite similar to the method for producing “clipfish”, well known in the cod fisheries of other countries in Western Europe, especially with the transatlantic cod from the sixteenth century onwards, but also on a lesser scale in the fifteenth or even late fourteenth century. In Norway, a possibly similar practice with drying *vlachen Rotscher* on rocks was, it seems, the cause of fervent complaints from the German Kontor in Bergen in 1494. The Germans probably feared that it would threaten their dominance in the lucrative cod trade from northern Norway if access to salt were to become an important factor in the business, giving the English and the Dutch an advantage. Apparently the Germans managed to suppress any further experiments with clipfish there for several decades (see Lorentzen 1952:44–45; Schreiner 1941:42–43; cf. Nedkvitne 2014:272).

The episode nonetheless demonstrates that this method of preservation was known in Norway by the end of the Middle Ages, and may have been used elsewhere in the country, where the economic interests of

the powerful German Hansa were not so strong. Based on the terms *flatning* (“flat fish”) and *berge(r)fisk* (possibly “rock fish”), which occur in a few documents prior to 1500, it has been suggested that the method may have been used in Norway even earlier in the Middle Ages, from the late fourteenth century (Vedeler & Garnier 2024; cf. Lorentzen 1952:45). The occurrence of *bergefisk* as a common land rent species in certain mountain areas in eastern Norway from the early sixteenth century onwards may also indicate that trout and other inland fish by then were being treated in the same manner (cf. Kjelland 2016 with further references to an extensive debate over the meaning of this term).

The written evidence is far from compelling (cf. Pettersen 2013:110–113). It stands to reason, however, considering the character and scope of both the fisheries and salt extraction in the Oslo fjord region, that some sort of combination of salting and drying, salting and smoking or salting and fermenting has been applied here, to enhance the effect and durability of these different preservation techniques.

Depending on the season, even fat species like herring could be air-dried without any salting, in the same

way as stockfish produced from cod. This practice is in fact described in a paragraph on holidays during the herring fisheries in the provincial law code for the Trøndelag region and northern Norway, extant in a redaction from ca. 1250 (F II 27; cf. Grøn 1927:117). Nevertheless, the term *meisasild*, or “herring in baskets”, that occurs in the 1276 town law and an early fourteenth century royal ordinance for Bergen, has traditionally been interpreted as referring to herring that had been subject to some kind and degree of salting (Grøn 1927:118; cf. BL VI 16; NgL III 13). This was apparently an article both of domestic trade and of export. In April 1307, in the customs roll for Kingston upon Hull, Ravensworth and Scarborough, a cargo of 20 *mayzes* of herring from Norway is recorded (DN XIX 454).

With regard to the export of herring to eastern England that is recorded from the former Norwegian and present Swedish province of Bohuslän and other parts of the Outer Oslo fjord region in the early fourteenth century, the Norwegian historian Arnvéd Nedkvitne, in an early work on the trade between Norway and England in the High Middle Ages, argues that the herring seems to have been caught in the autumn and

preserved over the winter, since it was predominantly recorded as imported to England on ships coming from Norway in the early spring. Hence it could have been preserved by air-drying during the winter. Characteristically, it fetched lower prices than salted herring from the North Sea (Nedkvitne 1977:40–42).

In a more recent work, however, Nedkvitne pointed out that in the 19th century the Bohuslän herring fisheries normally took place in March and April. He therefore concluded that the herring exported to England from the Oslo fjord region in the early fourteenth century could have been lightly salted, but possibly was sold cheaper in England than herring from the North Sea because the quality suffered from longer transport (Nedkvitne 2014: 59–60).

When their economic basis and estate economies are taken into account, it is in fact hard to imagine how the elites in Oslo and other parts of the Oslo fjord region in the fourteenth and fifteenth centuries could have done without salt. Fish was, moreover, an important part of the diet, and not only for the inhabitants of the royal castle in Oslo and the great ecclesiastical institutions. The archaeozoological evidence from

several excavations in Oslo shows that fish in the Middle Ages was also being consumed in ordinary urban households. Some of it admittedly was air-dried cod from northern Norway or elsewhere, as was first indicated by the fish bone material in the extensive archaeological digs in the 1970s, and has now been confirmed by DNA and isotope analyses, as pointed out above. More recent excavations, however, have also yielded fishbones from a much greater range of species, with far more bones from the obvious regional suspects – mackerel, herring, and salmon – as well as from a lot of other species that may also have been caught in the Oslo fjord, often quite locally by the townspeople (see Norseng 2015:201–210 with further references; cf. Iversen and Norseng in print 2024).

Considerable finds of fishing tools in large earlier excavations have unfortunately not been systematically analysed yet. But finds from the most recent excavations in the medieval harbour have revealed that people in medieval Oslo possessed a great variety of fishing nets, sinkers, traps, lines, hooks, and other fishing gear, and were probably taking part in many different sorts of fishing all year, for all sorts of species.

Apparently, fishing for eel was very common. Some of the all-year fishing activities would have depended less on access to salt or other means of preserving the catch than others, but these archaeological finds prove that townspeople also took part in seasonal fisheries with nets that presumably yielded big catches, making some kind of preservation necessary (Nordlie & Wammer 2023).

A recently published comparative analysis of food residues in soapstone vessels, commonly used for preparing and storing foods, has thrown new light on different aspects of cooking culture from the late eleventh century to the early seventeenth century in Norway, both in urban and rural settings, and in different social strata. In our context it is particularly interesting that the biochemical evidence indicates that these pots were largely used to cook processed fish, more often salted fish or fish preserved with a combination of salting and drying or fermentation, than air-dried fish. The earliest samples from Oslo are dated to the late eleventh or early twelfth century. This corroborates the view that preservation techniques involving salt may have been practised earlier than

has been believed by most historians and archaeologists, and were almost certainly more common in Norway in the High Middle Ages than previously thought (Vedeler & Garnier 2024).

EARLY COMMERCIAL FISHERIES IN THE OSLO FJORD REGION?

To try to put these observations in perspective and widen the geographical scope again towards the end of the present discussion, it should be pointed out that the kind of commercial fisheries in the early eleventh century in the Outer Oslo fjord region that Snorri Sturluson implied, may find some support in other sources. The importance of fishing resources in the Viking Age manifests itself most clearly in archaeological finds from two localities, although in very different ways: Kaupang on the west side and the Hvaler archipelago on the east side of the fjord:

The emporia or trading town at Kaupang was active from ca. 800 until well into the tenth century. Extensive archaeological excavations here have revealed both a year-round settlement of craftsmen

and a significant influx of traders during the sailing season in the summer. Finds of fishing tools bear witness to local fishing. And the osteological material from the excavations includes significant amounts of fish bones, mostly of cod and herring, followed by pollock and ling, but also of mackerel and other species, all of which may have been caught in the vicinity of Kaupang or elsewhere in the Outer Oslo fjord (see Barrett et.al. 2007:306–309; Tansøy 2001; cf. Larsen 2014:153–155). Kaupang may have formed an early local market for fish supplied by the surrounding rural population once it had satisfied its own needs.

In the same period, we find clear traces of large-scale fisheries on the east side of the fjord, especially on the islands in the south-east of Hvaler. Here, 30 boat ramps have been found, and ruins of 300 buildings – that is, stone walls that are all that is left of simple sheds or cabins. The boat ramps may have been established and used in the period 800–1200. The buildings may have been constructed over an even longer period of time and were used throughout the Middle Ages. Few artefacts have been found, and no other finds that shed direct light on their function, but these

structures must by all accounts have been linked mainly to fishing. They may partly have been used by local farmers on Hvaler, both for seasonal fishing, such as for herring and mackerel, and for fishing other species all year. However, the ruins are so numerous and geographically concentrated that, at least to some extent, they must also have been used by visiting fishermen who came from the mainland for the seasonal fisheries (see Larsen 2014:152–153; Norseng 2005:137–144; Stene 2003 with further references; cf. Nordeide 2019).

In the High Middle Ages, in a near-contemporary account of Danish crusaders who visited Tunsberg on their way to the Holy Land in 1191, the great abundance of fish in the surrounding area is noted. The author relates that a large quantity of fish was caught there (*De profectione danorum in terram sanctam* Chapter 10; cf. Engelién 1996:75–76; Norseng 2005:125). Features of the parish division in the area around Tønsberg in the Middle Ages may in fact indicate that in the archipelago along the fjord southeast of the town there was a fairly specialized fishing population that belonged not to the adjacent rural parishes, but to a church in the town. Three churches there had parishes both

within and outside the town boundaries. This parish structure is believed to go back to early Christian times, before the parish division was fixed in the decades around 1100. Two of the town churches' rural parishes included areas with good agricultural conditions, but one of them, St. Laurentius, according to information from the time after the Reformation, consisted of islands and islets with very limited agricultural resources. For people who lived there, fishing must have been the most important livelihood (see Brendalsmo 1994:62–72; Brendalsmo & Molaug 2014:165–166, 169).

CONCLUSION

Against this background, we cannot totally exclude the possibility that salt was being used in the fisheries of the late Viking Age and early “Christian Middle Ages” in the Oslo fjord region, although probably in more modest quantities than later on, and in combination with other preservation methods.

At any rate, from what we have seen, it is far more than an educated guess to assume that salt increasingly

became a necessity of human consumption, not only as an additive, but also for preserving foods during the High Middle Ages and Late Middle Ages. In fact, as hinted by a local historian writing about the ancient salt industry in Hardanger, the widely held idea that Norwegian marine salt was too “weak” to be used extensively for preserving food in the Middle Ages may have been influenced by comparisons with imported salt made and reported by people who experienced the years of blockade and crisis during the Napoleonic wars, when people were forced to revert to boiling salt locally again (Olavsen 1922: 51).

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It seems fair to conclude that, as elsewhere, the growing use of salt in the Oslo fjord region, especially in the fisheries, amounted to a veritable logistic revolution, based, until the end of the sixteenth century, mostly on locally produced salt. The driving forces were numerous: the introduction of the Christian religion and its diet restrictions, monastic life, urbanisation and trade, state formation, demographic pressure (until 1350), and hence an ever greater need to exploit the amply available marine resources of the region more extensively and effectively.

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CHAPTER 4

THE DAILY GRIND – EVIDENCE OF FOOD PRODUCTION AND CONSUMPTION AT A MEDIEVAL FARM IN LINDESNES, AGDER

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ABSTRACT

Our knowledge about food and food culture in medieval Norway predominantly stems from written sources and the archaeological material from excavations in the medieval towns. Although this comprises rural areas in the town's periphery, we have little knowledge about the farm settlements in the medieval countryside as these are rarely made subject to archaeological excavations.

Situated on the near-coastal moors of Agder County, the abandoned farm Bjerland lies nestled in a rough and rugged terrain – dominated by rocks and boulders, bogs, and lakes. Radiocarbon dating has determined the occupation period to span the thirteenth century, after which the farm was abandoned and never re-established. The excavation of the farm complex and the sum of artefacts, biofacts, and scientific analyses has provided insight into animal husbandry, cultivation, and food processing that took place on the farm, giving a rare and valuable addition to our knowledge about life in rural and marginal areas in the High Middle Ages. The results of the excavation add to the knowledge which can be used in a comparison of food culture through time, as well as between local, regional, and international communities.

Keywords: medieval food culture, medieval farm-sites, excavation, medieval rural archaeology

INTRODUCTION

In 2021, archaeologists from the Museum of Cultural History, University of Oslo, excavated a farm complex from the High Middle Ages on the coast of southern Norway. Medieval farms are seldom excavated in Norway, and the investigation of this farm represented a rare opportunity to expand our knowledge of medieval rural life.

Bjerland encompassed several features making up the farm complex including the remains of a long-house, old fields, stone fences, clearance cairns, and sunken roads. Amongst the finds assemblage, there are artefacts and biofacts⁴ tied to the production and processing of food on the farm. The findings were mainly concentrated within the remnants of the long-house, but patches of old fields on the site yield insight into cultivation practices as well.

This article will aim to present and discuss the farm and its finds in order to establish what they can tell us about rural, medieval culinary practices. Hopefully this will not only add to our understanding of

culinary practices in a long-term perspective, but also contribute towards discussions of cultural development, stagnation, and influences on a local, regional, and international scale.

BETWEEN A ROCK AND HARD PLACE: THE BJERLAND FARM

Bjerland is situated on the near-coastal moors of Lindesnes, Agder, about six kilometres north of the modern town of Mandal, flanked in the east and west by the historically rich salmon rivers Mandalselva and Audna (respectively three and nine kilometres away as the crow flies). The surrounding landscape is characterised by rocky hills, erratic boulders, bogs, and lakes – of which many contain fish (the closest being Moslandsvannet about 300 metres north of the site). The name of the farm itself – *Bjerland*, meaning bergland (Rygh 1898:43, 1912:98) – mirrors the topography, with boulders and protruding rocks surrounding the farm as it lies in a short and narrow valley delimited by rock outcrops on either side (Fig. 1).

4 Biofact: Faunal and floral objects of cultural importance.



Figure 1. Overview of the Bjerland site with archaeological structures related to the medieval farm marked in red. In the far background you can see the neighbouring farm Hageland. Photo: Steinar Kristensen/MCH (CC BY-SA 4.0).

Despite the overall rugged terrain of the moors, they contain a rich cultural landscape, and on the nearby farm Hageland (less than a kilometre north-west of Bjerland) pollen analyses indicate farming as early as in the Neolithic (Høeg in Wintervoll 2018). Iron Age graves have also been documented in the area – on the Hageland farm, on an island in Moslandsvannet

and along the north-eastern shore of the same lake, as well as in the north-western part of the Bjerland site (a small cairn dated to the Migration Period, AD 400–570 [Hårstad 2023:67]). It should however be stressed that despite being surrounded by a rather rich and old cultural landscape, the local topography of the farm itself is not as agreeable as on the neighbouring

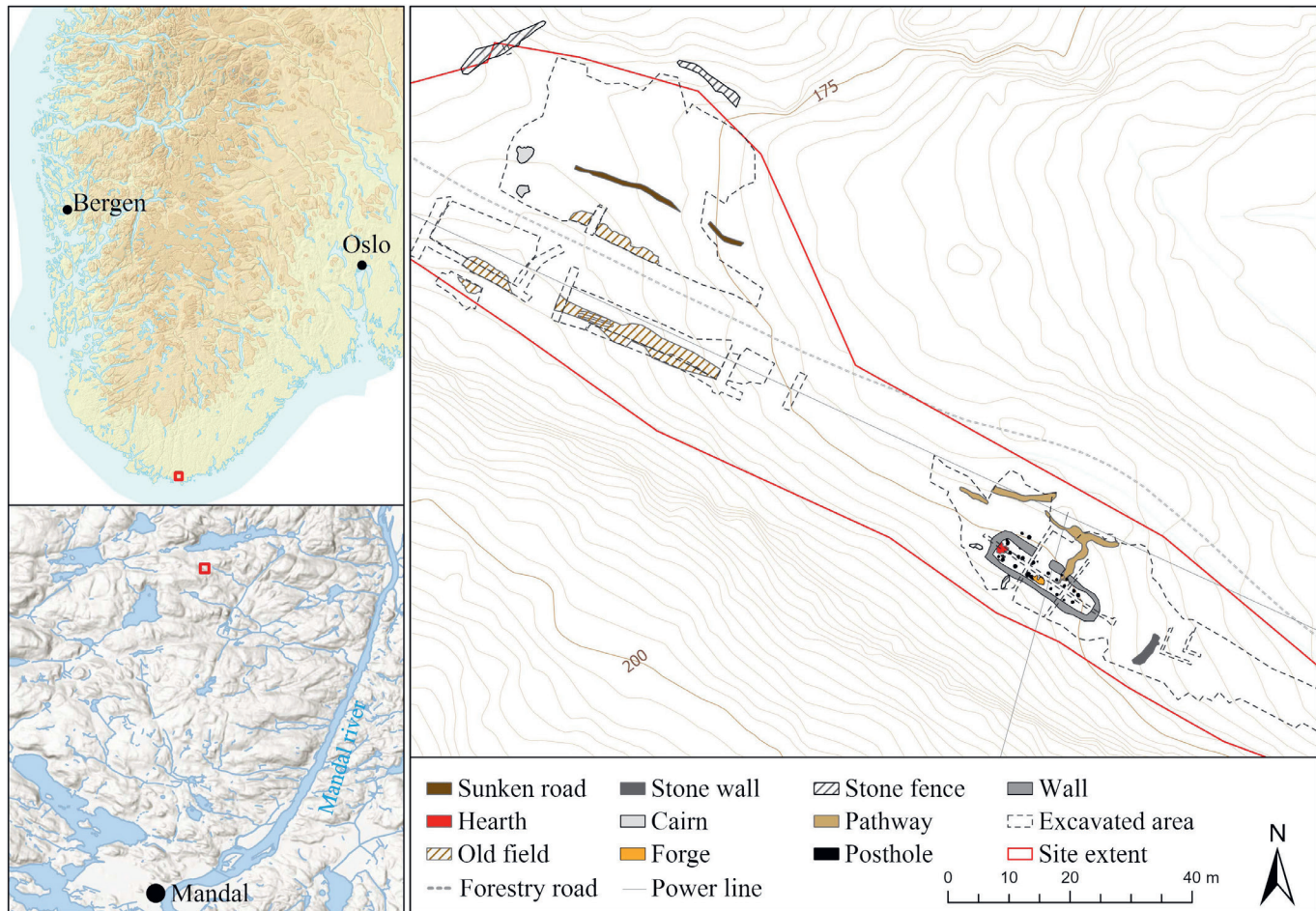


Figure 2. The placement of the Bjerland farm in Lindesnes, Agder. The farm lies in the rocky moors between the river Audna and Mandalselva, both historical salmon rivers, and close to Moslandsvannet. Illustration: Silje Hårstad.

farms. The nearby lake is not readily accessible as the landscape slopes steeply downward from the Bjerland site, and the stony valley in which the farm lies leaves but a few patches of soil for cultivation.

The farm is briefly mentioned in diplomas from 1492 and 1502 (DN. VI 648; DN. XVIII 183). The former account concerns a border dispute between

neighbouring farms, where Bjerland constitutes a point of reference for the border in question. The present-day farms of Spettelund, Haddeland (*Halleland*), and Unndal (*Onnedal*) are mentioned as well. The latter diploma reports the sale of Bjerland and the neighbouring farm *Motland* (Mosland – located on the south-eastern shore of Moslandsvannet), this time

explicitly referencing both as abandoned farms. Based on this information, the site was rediscovered and registered in 1998 by the Head of Cultural Heritage in Vest-Agder County, Frans-Arne Stylegar (Riksantikvaren n.d.). In 2021 the Museum of Cultural History excavated the site in connection with the establishment of the new E39 highway between Kristiansand, Agder County, and Ålgård, Rogaland County (Hårstad 2023). About 2250 m² of the 8700 m² large site (c. 25 %) were excavated. The remainder of the site was characterised by modern disturbances – like utility posts, ditches, and a forestry road – as well as difficult terrain, and was not prioritised for excavation (Fig. 2).

The most prominent feature of the farm complex was a three-aisled longhouse (Fig. 3) measuring 21 metres in length and around 5–6 metres in width. It consisted of four internal rooms (a hearth room, a smithy/production room, an entrance room, and a possible storage room) in addition to an external shed (*skut*). The house contained most of the archaeological artefacts and biofacts found during the excavation, consisting among other things of several fragments from stone griddles; a quern-stone; slag,

hammerscale and an anvil stone; as well as burnt bones, grains, and seeds of different varieties. Most of the finds are related to a floor layer that covered the entire house as well as filling postholes, but it is worth mentioning that burnt bone was discovered in what is interpreted as a forge, and the quern-stone and majority of the grains were found near this structure as well (Hårstad 2023:75–85). Both the number and variation of finds were, however, rather limited, and certain finds categories one would expect – e.g., soapstone vessels, spindle whorls, or loom weights – were not present. Neither was medieval pottery, but this does not seem to have become common in the countryside until the Late Middle Ages (Nesset 2022:333). Bjerland seems to have been inhabited within a rather limited time span – from the latter part of the twelfth until the end of the thirteenth century. This coincides with the first part of the Norwegian High Middle Ages (1130–1350), a period characterised by civil wars and struggles between the ever more powerful institutions of church and crown (Helle 1974; Øye 2004:103–109). Throughout this period the concept of tenancy tied to the expanding

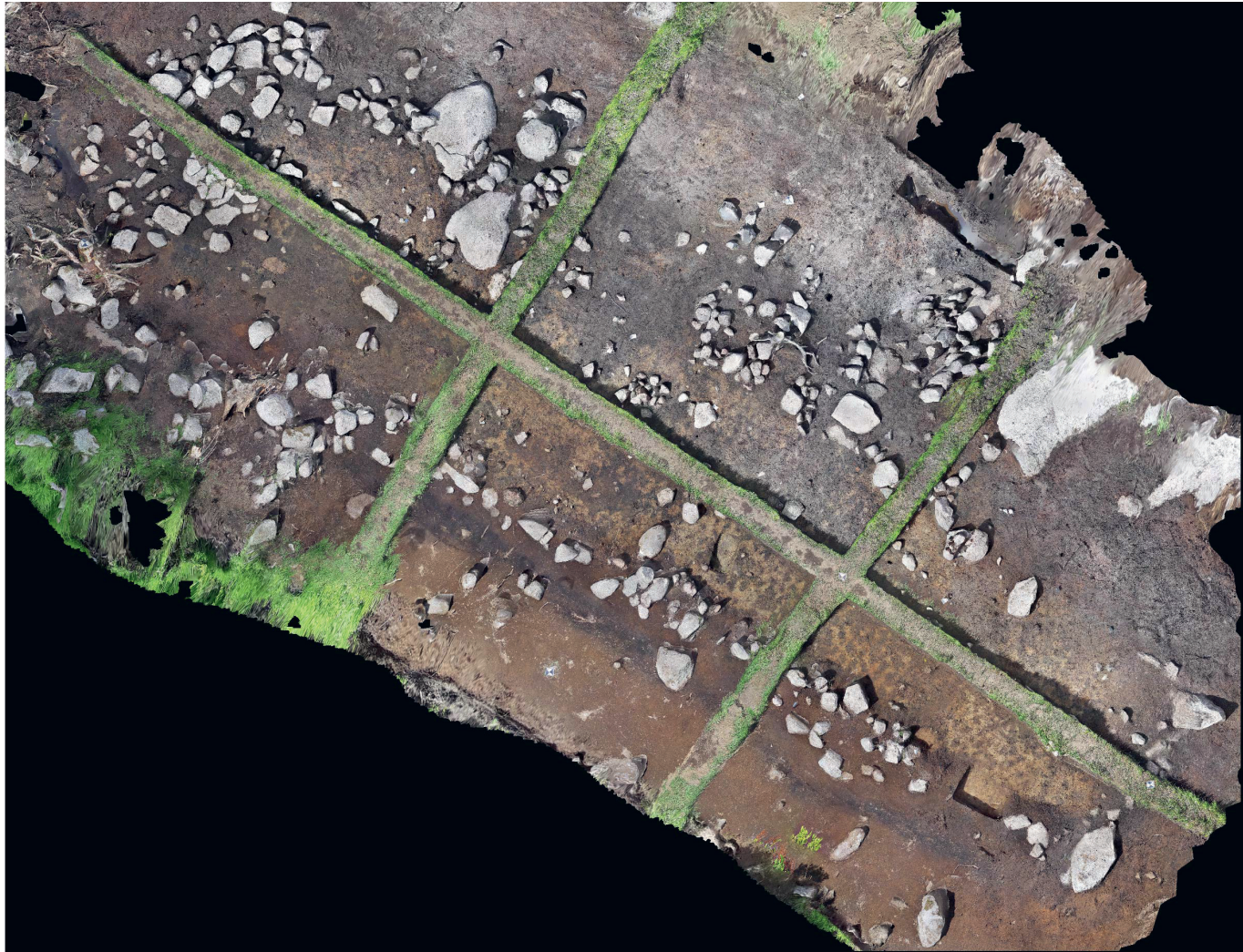


Figure 3. Ortophoto showing the remnants of the longhouse where most of the artefacts and biofacts were found. Photo: Silje Hårstad.

properties of church and crown was on the rise and by the 1300s it is believed that most of the farming in general was done by tenants, as opposed to self-owning farmers with inherited land rights (Helle 1974:158; Øye 2004:89–90). Frans-Arne Stylegar (2009:98–99) points out how farm names give an indication of

organisational aspects of rural society in former Vest-Agder County. For example, many of the hill farms with the suffix *-land* seem to have functioned as satellites under larger farms situated down in the valleys, which could also hold true for both Bjerland and the surrounding *-land* farms mentioned above.

OUR SOURCES TO KNOWLEDGE ABOUT NORWEGIAN MEDIEVAL FOOD CULTURE: A QUESTION OF REPRESENTATION.

Our knowledge about medieval food production and consumption stem from different textual and archaeological sources.

We have a large corpus of written material from the Middle Ages, some of which give insights into food availability and traditions. We know of several medieval cookbooks, mainly from the courts of France,⁵ England,⁶ and Italy⁷ – but also cookbook manuscripts written in Danish and Old Norse (*Libellus de arte coquinaria*) – which contain information about ingredients, cooking utensils, and cooking methods. Other written sources that give information about food culture are the medieval law codes. For example, *Bjarkøyretten*, the oldest law regulating life in medieval towns, mentions gardens containing cabbage, onion, and angelica (Hagland & Sandnes 1997:88). The *Frostathing law* mentions apple cultivation and apple gardens, as do

King Magnus Håkonsson's Town (1276) and Land (1274) laws. The laws also contain guidelines on when and what one was allowed to eat, as well as precepts to produce certain items, such as beer. Customs records offer insight into the availability – or lack thereof – of rare commodities like spices, nuts, and fruits as well as exported resources, while land registers and tax records give information about goods that were common and taxable.

One aspect of these sources, perhaps with the exception of the laws and registers, is that they rarely provide a perspective into the lives of the common people. The continental cookbooks are often written by cooks associated with courts, like Maister Chiquart (1420, *Du fait de cuisine*, chef at the court of Amadeus VIII, Duke of Savoy), or the unnamed “chief master cooks of King Richard II” (*The Forme of Curey*, c. 1390), or the like, and cannot automatically be regarded as relevant for the lower classes of the period. As for the Old Norse texts, the recipes require equipment

5 *Du fait de cuisine, Liber de Coquina, Le Ménagier de Paris, and Le Viandier.*

6 *The Forme of Cury, Utilis Coquinario, and Liber Cure Cocorum.*

7 *De honesta voluptate et valetudine and Liber de Coquina.*

and ingredients that would not have been accessible to most people, pointing toward the recipes being intended for a certain segment of the population. The fact that the recipes were written down is in itself an indication that they did not represent everyday dishes, as these probably would be committed to memory. It also implies that they were not for the illiterate segment of society, which would encompass most of the medieval population. As for customs accounts listing imported goods, the very act of importing something implies scarcity and limited accessibility, insinuating that the imported wares were out of reach for the majority of the population. This means we cannot automatically expect the written sources to reflect the reality of common food culture, and as such they do not mirror everyday subsistence strategies or resources available to the general public.

The archaeological source material makes up for some of the shortcomings of the written sources. In the last 50 years we have seen an increase in excavations in urban settlements, where large scale investigations have been performed in Norway's medieval towns – most notably Oslo, Bergen, and Trondheim.

The cultural layers of these contexts have provided good conditions for the preservation of organic matter (Hartnik & Bergersen 2010:4–9), such as wood, hide, bones etc. In addition, a heightened interest and knowledge about the potential of scientific analyses like macrofossil and pollen analyses have encouraged large-scale soil sampling, resulting in a greater archaeobotanical and zooarchaeological insight into medieval life (e.g., Krzywinski 1983; Schia 1979, 1988; Selvik 1986; Øye 2002:15). This has greatly increased our knowledge about food traditions in urban and near-urban settlements in areas which are now engulfed in the larger, modern towns. This offers an alternative approach to the material that to a larger scale reflects everyday life in medieval Norway (Vedeler 2017; Øye 1998).

In any case, be it written sources or archaeological material, our knowledge of the Middle Ages mainly stems from the towns of the period. Our knowledge is still scarce concerning life in more rural areas and settlements located far from the more continentally oriented towns of the time. In the case of the written sources, they are not – as implied above – vehemently

oriented towards everyday rural life, while for archaeology the main reason for the lack of source material is that the medieval farms are often situated in the same location as current farms (Gjerpe 2023:149, Grønnesby & Heen-Pettersen 2015; Rønne 2009:37; Sandnes & Salvesen 1978:93–106; Stylegar 2003, 2009). Traces of these medieval farms are sometimes present in the archaeological record, but they are often sporadic and mixed with both older and younger material (e.g., Friis 2020; Melgaard 2021; Reitan 2009; Wenn 2019).

Systematic investigations have, however, been conducted on several farm complexes with medieval dates, predominantly on the west and southwest coast of Norway (Myhre 1969; Nettet 2013, 2022; Øye 2002; Petersen 1933, 1936), a few in the mountainous inner parts of Telemark (Martens 1973, 1979), as well as on *farm mounds* in northern Norway where long-term habitation has accumulated in “tells” with preservation conditions comparable to the cultural layers of the medieval towns (Munch 1966). Of these studies it is worth highlighting Therese Nettet’s doctoral thesis which discusses aspects concerning food and food culture on five medieval farms on the west coast (2022).

BEASTS AND BARLEY: EVIDENCE OF FOOD RESOURCES AT THE BJERLAND FARM

As mentioned above, a heightened interest and focus on archaeobotanical and zooarchaeological data is prevalent in modern archaeology. During the Bjerland excavation, soil sampling for scientific analyses played an important part in the excavation strategy. It should be noted, though, that compared to the oxygen-poor cultural layers of the medieval towns, preservation conditions at Bjerland were inferior. Even so, the excavation resulted in the collection of pollen, faunal and floral macrofossils, and micromorphological observations that give information about subsistence strategies on the farm. The biofacts mainly stem from the floor layer of the house structure on the farm, where they predominantly occurred close to the house entrance as well as in an adjacent room containing a forge.

Seeds, fruits, grains, and tubers

Even though old fields in the shape of cultivation layers were investigated at the site, no traces of cereal grain were found in these contexts. This could be explained

by the fact that grains left on the field would simply rot away and disappear. Usually, the grains found on archaeological excavations are burnt or charred, which helps the preservation of the material. Grains are thus usually found in secondary contexts where they have been heated, and not in their primary contexts. This is also the case on Bjerland.

Although grains were not found in the old fields, some pollens were encountered in the cultivation layers. The concentration and preservation of the pollen were, however, deemed to be of poor quality (Pliikk *et al.* in Hårstad 2023). Apart from one occurrence that was unidentifiable – although possibly being from oats – all cereal pollens were determined to originate from rye. Rye pollen differentiates from other grain pollens in that it is far more numerous than that of other grains, resulting in it spreading more readily and over larger distances (Behre 1992). The identification of rye pollen – and absence of other types of grain pollen – should therefore only be regarded as evidence that rye was cultivated on the farm, not that other varieties of grain were not. In addition to grain pollen, the samples contained pollen from other plants and trees

– representing both the local flora at the time as well as indicating the presence of nearby pastures.

Even though they were absent in the fields, cereal grains were, however, found within the longhouse on the site in the floor layer and in postholes, probably from post-depositional backfilling of the same layer. The variety in grain species is notable: oats (*Avena sativa*), barley (*Hordeum*), and rye (*Secale*) were identified, with barley being by far the most plentiful. This largely corresponds to the importance of barley as a crop throughout agricultural history. Rye is on the other side of the spectrum, and it is believed that it only gained widespread recognition as a food crop in the course of the Middle Ages. At this point the records reflect large-scale imports of rye, mainly from the Baltic region (Øye 1998:28, 32). We do, however, have traces of the cultivation of rye as early as in the Iron Age in Rogaland (Bjørnstad 2021) and it is suggested that the name *Rogaland* derives from “rye” (Store norske leksikon n.d.). It should also be mentioned that Lindesnes is only c. 120 km away from Jutland, where rye cultivation seems to have gotten a foothold already in the Migration Period (Behre 1992:148).

MACROFOSSILS			
Name	Latin name	Plant part	#
Cereal	<i>Cerealia indet.</i>	Seed	24
Oat	<i>Avena cf sativa</i>	Seed	3
Rye	<i>Secale cereale</i>	Seed	10
Barley	<i>Hordeum vulgare</i>	Seed*	387
Fat hen	<i>Chenopodium album</i>	Fruit	49
Oak-leaved/red goosefoot	<i>Chenopodium glaucum/rubrum</i>	Fruit	10
Sun spurge	<i>Euphorbia helioscopia</i>	Fruit	1
Wild buckwheat	<i>Fallopia convolvulus</i>	Fruit	2
Pale persicaria	<i>Polygonum lapathifolium</i>	Fruit	35
Lady's thumb	<i>Polygonum persicaria</i>	Fruit	7
Common knotgrass	<i>Polygonum aviculare</i>	Fruit	1
Common fumitory	<i>Fumaria officinalis</i>	Fruit	2
False cleavers	<i>Galium spurium</i>	Fruit	15
Black nightshade	<i>Solanum nigrum</i>	Seed	1
Corn spurry	<i>Spergula arvensis</i>	Seed	6
Field pennycress	<i>Thlaspi arvense</i>	Seed	2
Curled dock	<i>Rumex cf crispus</i>	Fruit	5
Hemp-nettle	<i>Galeopsis sp.</i>	Fruit	1
Raspberry	<i>Rubus idaeus</i>	Fruit**	?
Common starwort	<i>Stellaria cf graminea</i>	Seed	2
Chickweed	<i>Stellaria cf media</i>	Seed	2
Juniper	<i>Juniperus communis</i>	Seed	7
Hazelnut	<i>Corylus avellana</i>	Nutshell	5
Blackberry	<i>Rubus fruticosus</i>	Fruit	1
Lesser spearwort	<i>Ranunculus cf. flammula</i>	Fruit	1
Creeping buttercup	<i>Ranunculus repens</i>	Fruit	4
Red campion	<i>Silene dioica</i>	Seed	6
Dropwort	<i>Filipendula vulgaris</i>	Tuber	2
Ribwort plantain	<i>Plantago lanceolata</i>	Seed	4
Beak-rush	<i>Rhynchospora sp.</i>	Fruit	2
Sedge	<i>Carex sp distig.</i>	Fruit	1
Sedge	<i>Carex sp. trisitg.</i>	Fruit	4
Club-rush	<i>Scirpus sp.</i>	Fruit	1
Violet	<i>Viola sp.</i>	Seed	3
Mountain melick	<i>Melica nutans</i>	Seed	1
Wood millet	<i>Milium effusum</i>	Seed	2

Table 1. List of macrofossils found at the Bjerland site.

*Minimum amount of barley grain from the site, as the exact number is not noted in samples with very high occurrences.

**Raspberry is not counted in the analyses report, but marked as occurring.



Figure 4. Burnt grains from barley and seeds from fat hen (pictured on the left), a plant not immediately recognised as a food source today. Photos: Wikispecies CC0 1.0/S. Hårstad.

In addition to the above-mentioned grains, there were also remnants of several different ruderal and pasture plants found within the house (Table 1, Fig. 4).

Bones

Like the above-mentioned plant remains, bone tends to preserve better if burnt, and all the osteological material found at Bjerland was burnt.

With few exceptions, the bones were found in the floor layer of the house, and the trampling and activity on this floor throughout the house's lifespan – in addition to the already brittle condition of the burnt material – would explain the degree of fragmentation that characterises the material overall. All the bones (267 pcs.) together weigh about 55 grams, which gives

Table 2. List of burnt bones found at the Bjerland site.

BONE		
Species	Weight (g)	#
Animal (Mammalia)	19.7	165
Sheep/goat (Ovis/Capra)	2.4	6
Medium sized Animal (Mammalia)	17.1	64
Small Animal (Mammalia/Aves)	0.5	4
Cattle (Bos taurus)	1.2	1
Larger sized animal (Mammalia)	15.2	27
Total	56.1	267

an indication of the minute dimensions of the individual bone fragments. The heavy fragmentation, together with the damages from burning (all fragments are burnt white), have posed a challenge in

determining the species and subspecies. With the exception of four uncertain fragments, all the bones have been determined to be of mammal origin. The four bones that do not unequivocally fit in this category could possibly stem from birds, or they could be from a small mammal like cat or hare.

The determinable species are sheep/goat (*Ovis/ Capra*) and cattle (*Bos taurus*), of which sheep/goat is the predominant species represented by six secure fragments (Table 2). It should be mentioned that it has not been possible to distinguish goat from sheep in the material since these two animal species share a lot of osteological similarities (Boessneck 1969). No certain remnants of pig were found in the osteological material, but microscopic analyses of soil samples (*soil micromorphology*) from a pathway on the farm showed traces of possible pig faeces (Macphail 2022 in Hårstad 2023), indicating that some of the medium-sized mammal bones might belong to pigs. Animal faeces were also detected in soil samples of the floor layer of the hearth room, indicating that animals were to a certain degree held indoors.

Only one bone could securely be attributed to cattle, while the remaining material could not be determined more accurately than to large mammal (cow/horse – 27 pcs.), medium mammal (sheep/goat/pig – 64 pcs.), or small mammal/bird (the above-mentioned four fragments). Medium-sized mammal bone constitutes the largest category, indicating that this represents the main livestock on the farm, be it sheep/goat, pig, or both.

Great hopes were tied to the possibility of finding fish bones at the site, considering its status as a medieval Catholic household that would adhere to the Catholic rules concerning Lent and fasting, and also due to its proximity to lakes and well-known salmon rivers. Although the soil was thoroughly sieved through 2-mm meshed sieves, no bones from fish were found or identified. This does not mean that fish was not consumed at the farm, as post-depositional processes at the site might have caused these to deteriorate.

Indisputably, the osteological material tells us that livestock consisting of at least sheep/goats and cattle was held at the farm, providing the inhabitants with dairy products, wool, hide, and meat.

Figure 5. Fragments of stone griddles found at the site. The grooves are intended to prevent cooked food from sticking to the surface of the stone during cooking. Photo: Silje Hårstad.



THE DAILY GRIND – EVIDENCE OF FOOD PROCESSING AT THE BJERLAND FARM

The artefact material procured from the site during the excavation displayed a rather narrow diversity both in object categories and object material. Most artefacts collected were stone artefacts, mainly in the form of whetstones or griddles, and no remnants of organic material were found. Some iron objects were collected but most were unidentifiable as artefacts with the exception of what appear to be the teeth of a wool comb or a flax hatchel. Despite the rather uniform finds assemblage collected during the excavation, the variety in both materiality and type of objects must originally have been much larger and have contained textiles, hides, and woodwork as well.

Stone griddles

Altogether 24 fragments of what appear to be at least seven different stone griddles were found scattered around the farm. Stone griddles are a common artefact category in medieval contexts in Norway. They were used for cooking food over an open flame and can be seen as a precursor to the skillet. The griddles are usually made from soapstone or chlorite schist (Baug 2018:62–63). The flat stone slabs are usually covered in mostly parallel grooves, whose function could have been to prevent sticking and thus ease the removal of the cooked product from the surface (Fig. 5).

The griddles from Bjerland have not been subjected to geological analysis but a visual assessment suggests they are of a slate-like rock type, in accordance with



Figure 6. Fragments of a quern-stone made from garnet-micha schist. The furrows made from the grinding motion is visible in the softer schist, while the tougher garnets can be seen as little warts on the surface. C64288/11. Photo: Justin J. L. Kimball/MCH.

the above-mentioned chlorite schist. It is possible that they originate from Ølve in Vestland County, which is the largest known griddle production site in the country (Baug 2018:67; Weber 1989), although this cannot be claimed for certain without more thorough analyses of the material.

Stone griddles like this are usually seen as connected to the making and baking of both soft and hard flatbreads (*lefse* and *flatbrød* respectively, Baug 2015:37), but there is no reason why it should not have also been used for cooking meat, fish, or vegetables (Vedeler 2017:72). For example, food residue analyses performed on fragments from northern Norway have identified possible traces of milk fat and oilseed crops,

suggesting a more versatile use of the baking stones than mere flatbread baking (Baug 2015:38, 2018:71; Reiersen 1999:74–75). Fragments of stone griddles were found all over the farm complex at Bjerland, both inside and outside of the house. Inside the house, most of the fragments were found within a room containing a forge and stone anvil.

Quern-stone

During the High Middle Ages, the watermill made its entry into the process of flour production in Scandinavia. Up until this point the rotary hand-mill was the preferred tool for milling flour, and even though it was far more efficient and easier to operate than

Figure 7. Near complete parts of a rotary quern from the Late Iron Age. C51629/a. Photo: Ulla Schildt/MCH.



the preceding saddle quern, it was still a strenuous process, and usually only a day's worth of flour was ground at a time (Baug 2015:34).

At Bjerland, parts of a quern-stone belonging to a hand-mill were discovered in the same room as most of the stone griddles (Fig. 6). The heavily fragmented quern-stone is made from garnet-mica schist. This type of rock is common in the Caledonian mountain range, and large-scale quarries are known from several locations in Norway. Quarries dating from the medieval period are located in Hyllestad in Vestland County, Sjernarøy in Rogaland County, Vågå in Innlandet County, and Saltdal and Brønnøy in Nordland County, and of these Hyllestad is the biggest and best-known (Baug

2006; Hauken 2018). This is a rock type well-suited for milling, as the hard garnets resist the constant abrasion of the milling and remain on the surface of the schist as little teeth that help crush the grain into flour. The schist, however, is a weaker rock, often prone to breaking. As such, few of the quern-stones produced from garnet-mica schist found in archaeological contexts are intact (Hauken 2018). (Fig. 7)

The quern-stone from Bjerland has not been analysed for provenance, but it is likely that it originated in one of these quarries, Sjernarøy and Hyllestad being the most plausible candidates due to the relatively short distance from the site, respectively c.165 km and c. 360 km as the crow flies.

IT'S A HARD KNOCK LIFE: RURAL LIFE IN THE MIDDLE AGES

The Bjerland farm presents an interesting glimpse into a marginal, medieval farming complex, far removed from the contemporary larger towns of the High Middle Ages. Although the farm was located on the moors, it was not isolated, and we know of several contemporary neighbouring farms that are still in use, and the overall landscape itself has a long, cultural history. Bjerland, however, seems to have been established, used, and abandoned within a fairly short time span, and the farm was never re-established. This is probably due to poor conditions for farming at that exact location. As mentioned above, the farm itself is located in a steep and rocky area, with few possibilities for establishing fields, and the nearby – still operative – farms are located in more favourable areas.

In addition to this, the house at Bjerland was a three-aisled longhouse, a house-type long believed to have gone out of style by the start of the Middle Ages. It shows traces of different activities, both food production, ironwork, and animal husbandry, all taking place within the same house.

I would argue that the size, placement and topography, short lifespan, and the limited artefact material from the site suggest that Bjerland was a small, impoverished farm that did not provide the best circumstances for maintaining a livelihood. Thus it is likely that it represents a tenant farm (and/or satellite farm) of the type mentioned earlier. The poor conditions for agriculture could explain why it was never re-established, unlike many other abandoned farms towards the end of the Middle Ages and onwards.

Grains of all three varieties found at Bjerland were radiocarbon dated and showed a large degree of overlap spanning from AD 1220 to 1297. It is therefore possible, and probable, that all three grains were used for food and drink production within the same time span, showing a contemporary variety in cereal crops. Even though the crops could have been cultivated on different fields, it is possible that oats and barley were to a certain degree co-planted to secure the survival of at least one crop (Bjørnstad 2021:66). The patches of old fields at Bjerland were small, likely resulting from the rocky topography of the area. Co-planting of crops

would thus have been a means to maximise the utilisation of the limited cultivation areas.

Even though grains are to a large degree associated with the making of substantial foods like bread and porridge, they also constitute the main ingredient in beer. No malted barley was observed in the archaeobotanical material during the analyses (Håkan Ranheden, pers. comm.), but it must be noted that no particular attention was paid to the subject at the time. Whether or not beer was brewed at Bjerland might not seem like a relevant question if we assume the brewing of beer to have been obligatory, but the *Gulathing law* states that for a household to be legally obliged to brew beer it must have six cows and six *såldså* (one *såld* equalling 74.07 kg. [Steinnes 1936]). For smaller households, it was voluntary (Robberstad 1952). Another indicator of beer brewing would be the occurrence of large numbers of “brewing stones”⁸ (Grønnesby 2016:134), but these, too, are missing at Bjerland. Therese Nessel (2022:323) also comments on the lack of brewing stones on the smaller farms in her study as a possible reflection of sub-par

cultivation conditions. In Bjerland’s case, it is so far unknown if it met the requirements for compulsory beer brewing, but a more thorough analyses of the grains from the site might reveal more information about possible beer brewing on the farm.

No traces of wheat were found at the farm. Whereas barley, oats, and rye are grain varieties that are well-suited for the general climatic and topographical conditions in Norway, wheat is more finicky. Even though wheat was cultivated to a certain degree, it has been suggested that in the Middle Ages it was a pricey import product available mainly to people of means (Nessel 2022:293; Øye 1998:32; Vedeler 2017). This fits well with the lack of wheat at Bjerland, where the climate and topography were unsatisfactory for wheat crops, and the farmers probably did not have the resources to obtain imported grain. Barley, on the other hand, seems to be the most abundant grain variety, not restricted by social boundaries (recently demonstrated by Nessel 2022:310–311). As mentioned earlier, there is evidence of rye cultivation on Bjerland.

8 Discarded fire-cracked stones presumably used to heat water during beer brewing (Grønnesby 2016, see also Garshol in this volume)

It has been suggested that rye only became mainstream through large-scale import during the High Middle Ages resulting from – primarily – German cultural influence and its reliance on rye bread (Viklund 2007:127–128). The rye at Bjerland could thus be seen as an early example of the cultivation of this crop. I would, however, argue that Bjerland’s close proximity to regions known to have earlier rye cultivation (Rogaland and Denmark) could mean that its rye belongs to an older tradition. This is a matter that would benefit from closer study.

Cereal grains are very visible, distinguishable, and easily identifiable as a food resource in the archaeological material. They have been modified and developed to meet human nutritional needs, and grains found in archaeological contexts are therefore always considered a result of human activity.

Apart from grain, no domesticated fruits or vegetables were found in the archaeobotanical material. This could, of course, be because the plants were harvested and eaten before they produced seeds, but it would be natural to suppose that letting some plants go to seed would be an investment in future crops. Fruits require

pollen to develop, and no pollens from fruit-bearing trees or plants were discovered. This could in part be explained by the poor preservation conditions mentioned earlier, but a variety of pollens were identified, and the lack of fruit-bearing trees and plants among the charcoal samples from the site seems to confirm their absence. Thus it seems probable that the reason for the absence of vegetable traces could be either that vegetable crops were very difficult to get hold of, or that there was no tradition for them.

Seeds, fruits, and shells of wild food plants present more of a challenge when it comes to determining their cultural importance. In the house remains at Bjerland we found – amongst other things – hazelnut shells, raspberry, blackberry, and seeds from juniper (known to have been used as a spice, for brewing, and for cleaning), to mention well-known present-day resources from the wild. These show possible food sources gathered on or near the farm, but since these are commonly occurring wild plants, we cannot claim for certain that they constituted an important part of the Bjerland subsistence. A lot of other seeds and fruits from unlikely food plants were found in the same context, and these

could have ended up in the house through collected fodder for the animals on the farm, or through collection of bog turf for fertiliser or fuel. This could also be the case for the wild food plants. It is, however, likely that berries and nuts were consumed by the inhabitants at Bjerland, as these wild species are both easy to come by and nutritious. This assumption is strengthened by the rather common occurrences in medieval urban contexts as well (Øye 1998:24-25).

Equally uncertain are, first, the remnants of plants we do not normally think of as food today, but that are edible and could have been used for food in the past; second, plants that could have been used as famine food, like bark and moss; and third, plants that were intentionally gathered for animal fodder. In the first and third of these categories we have plants from the goosefoot genus, perhaps most known for *quinoa*, which is a well-known food item today. The variety sometimes called “fat hen” (*Chenopodium album*), in particular, was found in relative abundance in the Bjerland house (49 seeds). This is a plant best known to have been used for animal fodder (thus the name “fat hen” and the Swedish denomination *svinmålla*),

but it is also well-suited for human consumption. Its seeds were found in the stomach contents of the Iron Age bog body Tollund man (Nielsen et al. 2021). It also occurs regularly in the material from medieval towns (e.g., Griffin 1979:124-133, 1988:15-108; Griffin & Sandvik 1989:28; Marini 2019; Sandvik 2001). As such it is possible that the seeds found at Bjerland were indeed intended for human use. The same goes for chickweed (*Stellaria cf. media*), wild buckwheat (*Fallopia convolvulus*), and dropwort (*Filipendula vulgaris*). These plants have also been used for both animal fodder and human food (Arnesen 2004; Fægri 1970).

Although it is impossible to prove that these plants were collected for human consumption, it must be deemed possible and probable that the farmers of Bjerland would make use of nearby wild – and bountiful, tasty, and nutritious – resources to add to their diet, especially since the access to cultivated greens seems to have been limited. A closer comparison with the archaeobotanical material from towns could help clarify this matter.

The presence of a quern-stone in garnet-mica schist, as well as the griddles found at the site, show

that Bjerland was interwoven in networks outside of the immediate community. These are artefact types well known from medieval towns, as well as from rural contexts, and their provenance reflects large-scale, industrial production and distribution tying town and countryside together in far-reaching trade networks. The fact that they appear in different contexts related to different strata of society indicates that certain elements of food culture were shared between urban and rural societies, and between farms of different stature (Nesset 2022:298, 310, 312). It is reasonable to believe that the networks would also encompass trade in other kinds of goods, e.g., food items like domesticated fruit and vegetables, but, as mentioned above, there are no traces of such resources at Bjerland.

There is no trace of fish either (neither bones nor fishing equipment such as sinkers), even though Bjerland is in relatively close proximity to rich salmon rivers and fish-containing lakes, and Bjerland's inhabitants probably adhered to Catholic customs of fasting. Whether or not this is due to post-depositional

factors, restrictions tied to land management, or a relaxed attitude to religious doctrine is impossible to say for certain at this point. An approach to this question that has not yet been explored is further analyses of the stone griddles that could reveal if fish was cooked on top (Garnier & Vedeler 2021).

Other kinds of protein resources are identifiable through the osteological material, and medium-sized mammals, mainly sheep or goats, seem to have constituted most of the livestock. In addition, traces of cattle and pigs are also present on the site. This, in extension, means that the farmers at Bjerland probably would have had access to meat, milk, and other dairy products.

As mentioned earlier the spatial distribution of both biofacts and artefacts points toward one room in the house being a multi-purpose production room. Here the quern-stone, several fragments of stone griddles, as well as large amounts of grain and burnt bone, were found in close proximity to a forge containing a syenite anvil, slag, and hammerscale. It seems likely that both food processing and iron

work have been performed in the same room. I would suggest that the heat source in the room could therefore have served both as a forge and a fireplace for cooking (as fragments of burnt bone were present in the forge itself), and perhaps also for drying grains prior to milling.

CONCLUSION

Information concerning food cultivation and consumption at the Bjerland farm strengthens the interpretation of the farm as small and impoverished, although contact with trade networks shows that life at the farm was interwoven with society at large. The presence of stone griddles and a hand quern shows food culture traits at Bjerland that were shared with urban society and farms belonging to different social strata. It does, however, lack other common artefacts – like soapstone wares – that would have been accessible through trade networks as well.

Except for grains, no domesticated plants seem to have been cultivated on the farm, but evidence points towards the farmers utilising wild plants to add to their diet, including plants we do not necessarily see as food plants today. In addition to this, protein has been available through domesticated animals like cattle, sheep/goats, and perhaps even pigs, which in turn would also have produced milk and secondary dairy products.

Several steps tied to food processing and preparation at Bjerland seem to have taken place within one specific room of the longhouse that has also functioned as a smithy, showing a possible multi-purpose use of one of the house's heat sources.

The excavation of the Bjerland farm offers some nuance to the picture of the Norwegian High Middle Ages, with the livelihood of a marginal, rural household adding to the knowledge we have about the medieval period and helps balance out the otherwise urban focus of current research.

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CHAPTER 5

STIRRING THE SOURCE STEW

CHALLENGES AND OPPORTUNITIES IN THE RECONCILIATION OF WRITTEN AND ARCHAEOLOGICAL SOURCES FOR FOODWAYS IN MEDIEVAL NORWAY

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ABSTRACT

When investigating the materiality of food and of other domains, medieval archaeology and text-oriented fields, such as history and medieval literary studies, face challenges reconciling their methods. This article introduces an attempt at mitigating this disconnect by reintroducing the ideas championed by the *Wörter und Sachen* movement of the early twentieth century. It gives an overview over the role *Wörter und Sachen* has played in cultural history studies and proposes a reintroduction of its focus on individual words as a way to investigate historic materiality independent of historical genre. A case study involving the words used to describe cooking pots in medieval Norwegian narrative and non-narrative texts demonstrates how this can be related to the archaeological record.

Keywords: medieval archaeology, food studies, materiality, interdisciplinarity, cooking pot use

INTRODUCTION

Visiting a museum dedicated to a Viking Age trading site, one will almost certainly be treated to a map showing the site's connections to the wider world in the form of a series of lines or arrows leading to the site like the spokes of a wheel from places near and far. The line originating in Norway will inevitably be labelled with products such as whetstones, furs, and maybe walrus hides and teeth. That these were the main exports of the country in the Viking Age is borne out by written sources and archaeological evidence.

Towards the end of the Viking Age, this changed with the intensification of marine fishing. Throughout the High and Late Middle Ages, Norway's export economy was geared towards feeding Europe's hunger for

less-perishable foodstuffs through dried fish (Barrett 2016:260–261; Figenschow 2022).⁹

Food is thus what placed Norway on the medieval map. As an integral part of life, food and drink also shaped Norwegian politics and society in the Middle Ages. Thus, medieval foodways are of interest to all academic disciplines dealing with the Norwegian Middle Ages. However, these disciplines have historically differed in their approaches to the topic and interest has waxed and waned in the different fields at different rates. In archaeology, the increasing availability and sophistication of bioarchaeological methods has led to a renewed interest in the topic, and to projects such as the one producing this volume. By contrast, the interest in the studies of foodways in literary and

⁹ Butter is also named in medieval sources as a desirable Norwegian product, but it is unclear how important an export commodity it was (Nedkvitne 2014:59, for example, argues against it playing a major role).

historical studies arguably reached an apex in the second decade of this century.¹⁰

This complicates the establishment of interdisciplinary dialogue. While both sides successfully reach over the aisle at times (e.g. Evans Tang *et al.* 2021; Vedeler 2017), truly wholistic approaches to the study of medieval food culture remain rare.¹¹ Another—arguably the main—reason for this is the fact that it is difficult to reconcile the different categories of written and material sources in a way that holds up to methodological scrutiny from both sides. This article argues that this is a problem that has already been partially solved by previous generations of scholars. Building on their work, it is possible to productively use narrative sources alongside the non-narrative written evidence and archaeological data, in the study of foodways and beyond. As an archaeologist with one foot in Old Norse studies, I plead for philology to take an “old-fashioned”

interest in the material world in order to achieve this interdisciplinary dialogue. To illustrate the utility of this approach, a case study matches the word evidence for different kinds of cooking vessels used in medieval Norwegian sources of different genres and compares it to the material known from archaeological investigations. Matching the words used to describe the things found provides insight into the use of the objects and the minds of the users.

RECONCILING MATERIAL AND WRITTEN SOURCES

The problem of the reconciliation of written and material sources is not confined to the domain of food studies. It has accompanied the field of archaeology since the inception of the discipline, grounded as it was in the investigation of classical civilisations, which left

10 In 2016 “Food, Feast & Famine” was the theme for the entire Leeds International Medieval Congress, while the 2023 edition only had one session dedicated to the topic — organised by the author.

11 The recent appeal by Blakeney *et al.* (2023) for the incorporation of medieval ontologies into the study of archaeozoological datasets exemplifies both the need for such context-aware studies and a promising way forward. Their recommendation no. 8 (p. 10) can be seen as a call for the adoption of the same methods discussed here.

a big corpus of writing. Historical archaeology, and medieval archaeology as a subset, are relatively young disciplines.

By definition, written sources play a big role in historical archaeology, and the discipline has grappled with how to incorporate them as a question of methodology from the beginning (e.g. Schreg 2010:307–308). While the integration of historical scholarship with archaeology has been practised in Norwegian medieval archaeology for a long time,¹² identifying concrete object types known from the archaeological record in historical texts has not been a priority for historians and probably held little interest, at least until the advent of the “material turn”, the reorientation in the social sciences and the humanities towards considering the materiality of both the object of their inquiries and of the sources they use (see e.g. Karagianni *et al.* 2015:33–36).

For written sources to shed new light on the objects in the material record has, however, always been something archaeologists wanted. The engagement

with materiality in medieval writing is further complicated by the fact that many of the early texts from or about medieval Norway are narrative in nature. These hagiographical and saga texts demand a different approach to source criticism than documents or annals do. Where the latter try to (or purport to) convey information about the lived experience of their writers (although, especially in the case of annalistic writing, often based on secondary oral or written sources), the former follow the rules and needs of storytelling.

Approaching individual objects from the perspective of the semantics of individual words simplifies the complexity of source criticism and it incorporates the evidence value of texts written in, but not necessarily about, Norway, such as biblical translations. This is a method of approaching texts which is by no means new, but which is often used without methodological reflection. It is thus worth looking in the history of scholarship for similar approaches.

¹² The chronology of the Bryggen excavations in Bergen was, for example, principally based on fire layers cross-referenced with historically known fires, later supplemented with dendrochronological and typological dating (Herteig 1990:13; Øye 1998:10).

WÖRTER UND SACHEN

In the introduction to his 1848 *Geschichte der deutschen Sprache* the philologist Jacob Grimm noted that “Linguistics, which I follow, and in which I am grounded, has never been able to satisfy me in such a manner that I did not always want to come from the words to the things.”¹³ (Grimm 1848; Vorrede: XIII). This short utterance was elevated to almost the status of a manifesto when it was taken up by a group of linguists dissatisfied with the increased specialisation of their field. Wanting to create a linguistics that contributed to and was a part of a wholistic discipline of cultural history, and explicitly rejecting the positivist approach of the neogrammarian school of thought, which envisioned a linguistics divorced from the humanities and based entirely on universal laws of sound change (Schuchardt 1885), they adopted

Grimm’s turn of phrase to describe a loosely defined method or philosophy.¹⁴

The emergence of this line of research was in its beginning characterised by disagreement between Hugo Schuchardt and Rudolf Meringer, both of whom worked at the University of Graz. Schuchardt described his interpretation of the method in an article entitled *Sachen und Wörter* as his interpretation of the concept (1912), while Meringer founded a journal named *Wörter und Sachen* (Meringer *et al.* 1909), which did not welcome contributions by Schuchardt. The disagreement between the two was mostly about priority in the establishing of the method and about its name,¹⁵ but their common goal, as well as that of the other contributors to both the journal and the wider line of research, was the integration of linguistics into a wider field of cultural history and the merging of the studies of language and of material culture. The establishment of the eponymous

13 My translation. “Sprachforschung, der ich anhängen und von der ich ausgehe, hat mich noch nie in der Weise befriedigen können, dass ich nicht immer gerne von den Wörtern zu den Sachen gelangt wäre”.

14 Noting previous descriptions as a ‘direction’, ‘method’, or ‘school’, Auroux *et al.* (2001:1628) settle on ‘line of research’ (*Forschungsrichtung*), which is probably an appropriately neutral description (see also the title of Schmidt-Wiegand 1999c).

15 See Lochner von Hüttenbach (1999) for a comprehensive account of the development of this feud.

journal brought wide recognition of the method in the German-speaking areas of Europe and those closely linked to German-speaking scholarship, such as the Nordic countries (e.g. J.J. Mikkola, Hjalmar Falk) and the Balkans (e.g. Matija Murko). However, with the death of its founding editors Meringer and Wilhelm Meyer-Lübke in the 1930s, it increasingly fell in line with the *völkisch* ideology of the national-socialist regime. This development ended in the re-establishing of the journal as a *neue Folge* under the editorship of Hermann Güntert and Walter Wüst with a new stated goal of “service for our people” (Güntert 1938:11). The last issue of the journal was published in 1944, and an attempt to re-establish it after the war was blocked by the publisher (Auroux *et al.* 2001:1633). With the loss of its main publication channel, and the associations with the genocidal regime some of its official adherents had cultivated, *Wörter und Sachen* lost currency in scholarship. The line of research was abandoned almost entirely in the decades following the war. This does not mean that its methods were not practised anymore, but when they were, they could not point to previous work and put themselves in the tradition of an established framework.

In the 1990s, with interest in the history of the method rising, several conferences on the topic led to the republication of key texts from the movement, studies on its history, but also to new attempts to use *Wörter und Sachen* approaches (Beitl *et al.* 1992; Schmidt-Wiegand 1999c). After the demise of the journal, studies utilising *Wörter und Sachen* methods have continued to be published. Some of these see themselves explicitly in the earlier tradition, while many others could be considered as similar in methodology and outlook, but do not position themselves as such (e.g. Frantzen 2017; Jesch 2001) or are categorised as belonging to the movement by others (e.g. Vansina 2006, commenting on Klein-Arendt 2004). The same pattern can be observed within archaeology (explicitly e.g. Capelle 1999; Schmidt-Wiegand 1981).

The production and preparation of food has been of interest to *Wörter und Sachen* practitioners from the beginning. Indeed, the very first article published in the eponymous journal was concerned with mortars, mills and the relationship of words related to these objects in flour production (Meringer 1909; as an

example of later engagement with the topic, see e.g. Schmidt-Wiegand 1999a).

When it comes to medieval Norwegian food, Fredrik Grøn's *Om kostholdet i Norge indtil aar 1500* (1927) is the most comprehensive study on the topic from a *Wörter und Sachen* perspective. Grøn did not explicitly position himself as a member of the movement. His work is very much in the tradition and spirit of this school, however. This is most clearly visible in the author's patronage by Hjalmar Falk.¹⁶ Falk is probably the most important Norwegian adherent of *Wörter und Sachen*. His study of Old Norse seamanship was published in the eponymous journal's fourth issue (1912).

THE METHODOLOGY

As a "line of research", *Wörter und Sachen* did not consist of a single defining and defined method. Rather, it welcomed a variety of studies as long as they had the goal of combining the study of material culture

with that of its word evidence into a study of cultural history (Meringer *et al.* 1909:1). Nevertheless, a number of different methodologies are visible in the contributions to this line of study, all of which are related. One is the usage of etymology as a window into the history and prehistory of material culture, often beyond the boundaries of an otherwise accessible written record. Another is linguistic geography, the mapping of linguistic variation. Indeed, the establishment of ongoing word atlas projects, especially in the German-speaking countries, is probably the most enduring legacy of the *Wörter und Sachen* movement (Schmidt-Wiegand 1992:23). A third method is a focus on onomasiology, the study of the names of things. This is the aspect of *Wörter und Sachen* that seems especially fruitful for Scandinavian medieval archaeology. Focussing on individual words and their meaning and immediate context largely divorces the evidence value from a text's genre. While a narrative text and a legal document demand different approaches to source criticism,

¹⁶ Falk was a member of the committee which awarded Grøn the Norwegian Academy of Sciences's Fridtjof Nansen prize but is also thanked for having helped the research (Grøn 1927:5–6).

Figure 1. The principal cooking vessel types used in medieval Norway. a) Large rim fragment of a shelly ware ceramic pot imported from England. b) Broken soapstone pot with iron repairs. c) Small cast copper alloy pot. Images licensed under Creative Commons from a) Universitetsmuseet i Bergen, Photo: Angela Weigand, b) NTNU Vitenskapsmuseet, Photo: Ole Bjørn Pedersen, c) Kulturhistorisk museum, Photo: Eva Brænd.



it can be argued that writers still used agreed-upon definitions to make themselves understood. Even when translating a text, an author relies on their own cultural context to choose the most appropriate word for the object the original text describes, or that they think is being described. If the same word thus appears in different texts, even those of very different genres, it is at least an indication that an object¹⁷ that was meant by it existed. The nature of that object can be investigated by a careful and critical reading of the source texts. A look at the Old Norse onomasiology of cooking pots can serve to demonstrate the utility of a *Wörter und Sachen* approach in disentangling the material properties of medieval cookery vessels.

CASE STUDY: CONNECTING MATERIALITY AND WORDS IN THE CASE OF COOKING VESSELS

The archaeological evidence

A variety of cooking vessels were in use in Norway during the Middle Ages according to archaeological sources (see Figure 1). It is difficult to judge which vessels were the most common in daily use. While they are preserved in wildly different numbers, their different materials governed the degree to which they entered the archaeological record and how they were preserved in the ground. Being very resistant to accidental breakage and being able to be repaired, recycled, or reworked when damaged, stone and metal vessels are underrepresented in the archaeological record. Ceramic vessels break relatively easily and are generally only of limited value for reuse.¹⁸ Even a carefully handled cooking pot acquires micro fissures

17 It should be noted that the *things* with which *Wörter und Sachen* concerned itself weren't confined to literal objects but encompassed non-material concepts as well (Meringer *et al.* 1909:1; Schmidt-Wiegand 1999b:8). The restriction of the concept to the physical world is a function of this article's scope (and perhaps its author's disciplinary myopia).

18 Although the reuse of broken ceramic cooking pots is known ethnographically (e.g. Deal *et al.* 1995).

during use due to repeated heating and cooling cycles and thermal gradients within the material. While these cracks can be controlled to some extent through temper choice during production, they weaken the pot over time, leading inevitably to breakage (Varien *et al.* 1997:147). This limited lifespan and disposability are the reasons why pottery is the material for which there is most evidence for kitchen use in medieval Norway, but this does not necessarily mean it was the most commonly used material at the time.¹⁹ This state of affairs is further complicated by the fact that pottery finds are abundant in town sites, while being relatively uncommon in the countryside (Demuth 2019:128).

There was probably no indigenous pottery production in Norway in the Middle Ages; ceramic cooking pots were thus imported. While trade contacts differed in eastern and western Norway, both parts of the country used various unglazed greywares and redwares, mostly in the form of jars. Globular

cooking pots with three legs became available in the late Middle Ages (and especially the post-medieval period, when they occur internally glazed). There is a wide variety of imported ceramics for other purposes than as cooking pots, especially in the form of glazed and stoneware jugs.²⁰

In contrast to the pottery, stone cooking pots were native to Norway. The production of pots from the soapstone deposits found all over the country (see Hansen *et al.* 2017:15, Figure 4) began in the Bronze Age (Bunse 2016:45) and probably became an established part of cooking culture in the Viking Age. In the Middle Ages, the repertoire of soapstone pots comprised thick-walled, relatively shallow open bowl forms of various types (Vangstad 2017:189, Figure 4).

Cast copper alloy vessels imitated the globular three-legged ceramic pots. In Norway, they were most likely imported, although there is evidence that local production would have been possible and is known from written sources from the Renaissance

¹⁹ However, note that Fuglevik (2024) argues that at least for late high-medieval Oslo, the importance of pottery might have been underestimated before.

²⁰ There is to date no general overview publication over the medieval pottery material found in Norway. Sources for the above thus include publications of the pottery material from larger medieval towns, such as Molaug (1977; 1979; 1987), Lüdtkke (1989) and Reed (1990), as well as the author's own research.

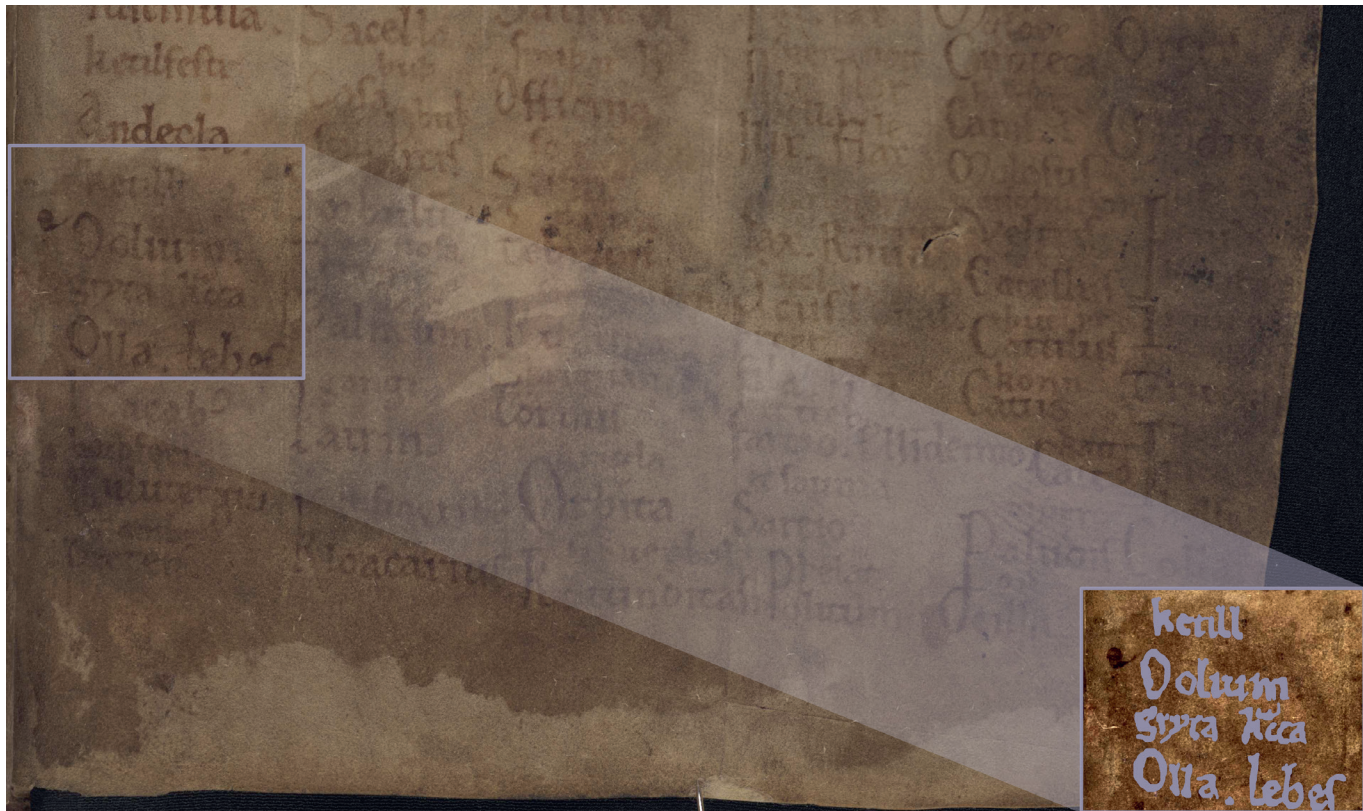


Figure 2. The glosses for *dolum*, *olla* and *lebes* in GKS 1812, 4to, 24r. Image: Mathias Blobel, modified from an image licensed under Creative Commons from Stofnun Árna Magnússonar, GKS 1812, 4to, 24 recto, handrit.is.

(Cadamarteri *et al.* 2022:79–80). Vessels made from riveted or brazed copper-alloy or iron sheet metal were in use as well, but their origins and circulation in Norway are little understood.

The word evidence

The word evidence considered below is based on the lexical material from medieval Norwegian prose sources, regardless of genre. It thus incorporates

evidence from documents as well as from narrative sources and to some degree from translated texts. It does not consider poetic language, which regularly employs a different vocabulary to prose texts. The sources providing the words investigated here are from Norway. To a lesser degree, Icelandic sources are also used, mostly where they describe scenes taking place in Norway or can be assumed to be based on Norwegian material.

The words *grýta*, *pottr*, *ketill*, and to a lesser extent *krukka*, are the ones used for cooking vessels in medieval Norwegian prose texts.²¹

The etymology of *grýta* from *grjót*, (stone, Fritzner 1954:654), might suggest that the word designated stone vessels, i.e. soapstone vessels.²² However, there is no indication from the medieval Norwegian corpus that *grýta* was used for stone vessels. It is unclear whether the word had undergone a semantic shift towards earthenware pot by then, or whether the somewhat stone-like properties of fired clay would be enough to allow a word derived from *grjót* to apply to such a vessel.

An interesting insight is provided by a 1429 document listing archbishop Aslak Bolt's loose possessions on the occasion of his move from Bergen to Trondheim (Lange *et al.* 1860:409, DN V dipl. 586). Among the items

are a dozen pots designated *kollgrýtur* and two designated *fótagrytur*. It is clear from the context that the *kollgrýtur* (from *kollr*: the top of the head) are defined in opposition to the “foot pots”, i.e. they are pots without feet. What is not clear is the material of these pots. Pots with feet, i.e. three attached spacers keeping the rounded bottom off the ground, were made from both clay and from cast copper alloy in the fifteenth century. The fact that many of the surrounding objects are made of metal (such as tin and copper) suggests that the *fótagrýta* could be a cast copper alloy vessel. However, vessels in this material were not produced without feet, so it is possible that the *kollgrýta* could be a sheet metal cauldron or an earthen vessel. In this context, the corresponding *fótagrýta* could be an earthen tripod vessel (a pipkin) as well.²³

21 The word *hverr* seems to be used exclusively in a poetic context. In the following, normalised Old Icelandic is used for Old Norse words where they are not cited *verbatim*.

22 Indeed Søgaaard (1963:451) conjectures that it must be the original word for soapstone vessels.

23 Two very slight pieces of evidence support this interpretation. First, the surrounding objects aren't all made of metal; leather bottles are also named, making earthen pots not unique in the collection. Second, two pans are mentioned directly between the two pots. In the fifteenth century, these would probably, but not necessarily, be made from clay. An argument against this interpretation is the fact that, in general, pottery is seldom mentioned in inventories.

A clear distinction is made between the objects described by the word *ketill* and *grýta*. In a 1373 document (Lange *et al.* 1855:293, DN III dipl. 382) both are named as distinct objects in a household. Even more insight is provided by GKS 1812 4°, an Icelandic compilation manuscript that contains one of the few glossaries in the Old Norse corpus (see Figure 2). It glosses the Latin words *olla* and *lebes* with *grýta* and *krukka*, while providing a separate gloss for *dolium* with *ketill*. It is unclear from the structure of the manuscript whether the scribe's intent was to apply the gloss *olla* only to *grýta* (and, correspondingly, *lebes* to *krukka*), or whether both Old Norse words were glossed with both Latin words. However, it is clear that *ketill* receives its own entry, and is thus considered distinct from the other two.

Apart from this gloss, the word *krukka* is not used on its own to designate a cooking pot, or any other vessel. In *Veraldar saga*, a work of world history, it is combined with the word *leir* (clay) (Benediktsson 1944:30). This passage is a translation or retelling of the biblical story of Gideon using lit lamps inside easily smashable clay pots to allow his forces to succeed in

a night raid. The material properties of clay pots are therefore stressed. Even if it were deemed necessary to supplement the word *krukka* with *leir*, it seems clear that the word choice for this episode implies that *krukka* was seen as primarily designating a clay pot.

That a clay pot is meant by *pottr* most of the time is made explicit by a passage in *Augustinus saga*, where the production of *pottar* and *grýtur* from fired clay is specifically mentioned. Since *Augustinus saga* is a translation from Latin into Old Norse (Kalinke 1994:435) the word choice makes it clear that strong association existed between the material and these words. Indeed, the compositum *leirpottr* can be found in the Old Icelandic medical miscellany *MS Royal Irish Academy 23 D 43* (Larsen 1931:75) and in the didactic text *Konungsskuggsjá* (Holm-Olsen 1945:82). There is, however, at least one instance of a *pottr* not made from fired clay: both Icelandic annals (Storm 1888:263) and the hagiographic *Lárentius saga* (Árni Björnsson 1969:21) record an earthquake in Italy in the year 1300 which broke a *malmpottr* set into a church wall. The word *malmpottr* designates a metal pot, although it is unclear whether an iron vessel or one made from

copper, bronze or brass is meant. In either case, this does not seem to be a cooking pot, but rather part of the church furnishings, possibly a lavabo. It seems that the semantics of *pottr* are defined by the form rather than the material of the object. *Pottr* regularly shows up in documents in opposition to the word *ketill* (Hødnebø 1960:127, dipl. 82; Lange *et al.* 1855:91, DN III dipl. 88; Lange *et al.* 1858:263, DN IV dipl. 328; Lange *et al.* 1858:352, DN IV dipl. 457)

While there is no indication that the words *krukka* or *grýta* were used for anything other than a cooking pot, the picture isn't as clear for the word *pottr*. Culinary and medical use is documented in the aforementioned medical miscellany, where a pot is used for cooking in making almond butter (Larsen 1931:131) and as a rudimentary extraction device for the production of juniper oil (Larsen 1931:74–75). However, *pottar* also served as drinking vessels. They appear as such in translations of chivalric literature (Blaisdell 1979:21; Unger 1860:67), and in *Sverris saga* a *pottr* of wine plays

a fatal role in the conflict between Norwegians and price-dumping German merchants (Indrebø 1920:110).

It seems fairly clear, then, that *grýta*, *pottr* and *krukka* designated pottery vessels in the majority of cases. The same cannot be said for the word *ketill*. As mentioned above, *ketill* glosses the Latin word *dolium* in GKS 1812 4°. The exact meaning of *dolium* to a medieval Norwegian is difficult to reconstruct, it certainly wouldn't have been the large globular storage vessel the classical world understood from that word. In fact, *Stjórn*, a translation of parts of the Old Testament, translates the Latin word *olla* with *ketill*.²⁴

In *Hákonar saga Hákonarsonar*, the word describes vessels which are used to put out flames during a city fire in Bergen in the thirteenth century (Kjær *et al.* 1986:609). The anecdote describes the king requisitioning vessels from trading ships in the harbour. The ships are explicitly described as cogs hailing from Gotland, i.e. from within the Hanseatic sphere of influence. It is not clear from the text whether the

²⁴ “Dauði er i katlinum” (Unger 1862:615) from “Mors in olla” (Weber *et al.* 2007:2, Kings, 4.40). Note that *olla* is one of the words with which *grýta* and *krukka* are glossed in opposition to *ketill* in GKS 1812 4°.

katlar represent trading goods, or whether they are part of the ships' equipment, but in either case they are unlikely to be stone vessels, which were virtually unknown in the Hanseatic world. They are explicitly described as big, one of the only times size is mentioned in connection with cooking vessels. Pottery was traded widely through the Hansa network, but the emphasis on the vessels being big makes it more likely that what is being described here are metal vessels. *Katlar* are mentioned in lists of trade goods both in King Sverrir's speech against the pernicious influence of German trade (Indrebø 1920:110) and in King Magnus Hákonarson's town law for Bergen (*Bjarkeyjar-réttr hinn nýji*. Munch *et al.* 1848:250).²⁵ Metal *katlar* are mentioned several times in documents. It is doubtful that the distinction between copper (e.g. *kaparkætil* in a 1458 document: Lange *et al.* 1861:592, dipl 818; for an overview see Pettersen 2013:284) and brass (*messinges*

kjætul in a 1419 document: Magerøy 1970:215, dipl. 280) actually reflected metallurgical distinctions in the alloy composition of the described vessels.²⁶

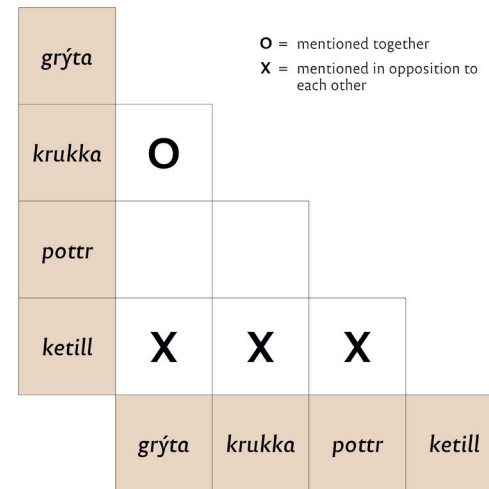
It is clear from the compositum *steinketill* that the word *ketill* could also describe stone vessels. It is used in a scene playing out after the battle of *Stiklastaðir* in 1030, which is described both in *Óláfs saga Helga* (Johnsen *et al.* 1941:585) and in *Fóstbræðra saga* (Björn K. Porolfsson 1927:211) and features a woman operating a field hospital. While *Óláfs saga helga* describes the vessel as a “*steinketill*”, a stone *ketill*, the different versions of *Fóstbræðra saga* differ substantially in this passage. The *Hauksbók* version uses the same *steinketill* designation, while *Flateyjabók* only mentions a *ketill* in which water is heated, and AM 142 fol. mentions a “*grautarketill*”, a porridge *ketill*.

Porridge (*grautr*) is also associated with the word *ketill* in the short narrative *Sneglu-Halla þátrr*, which

25 As well as in the Icelandic law code *Grágás*, which is less relevant for Norway (Vilhjálmur Finsen 1974:Part 2:251).

26 The alloys used to cast medieval tripod vessels are relatively well understood (e.g. Drescher 1982:158–159; Butler *et al.* 2003:18–22). They did not contain appreciable amounts of zinc and would therefore be considered bronze more than brass. Archaeologists usually sidestep the issue by using the general term “copper-alloy”. Sheet metal vessels would have a different alloy composition to allow cold forming (Butler *et al.* 2003:18) but would not be considered brass either.

Figure 3. Correlation matrix showing the Old Norse words occurring in opposition to each other or together. Image: Mathias Blobel.



takes place in Norway, but describes the making of porridge as a particularly Icelandic activity (Evans Tang *et al.* 2021:234–5). *Katlar* are used to feed an army with (presumably boiled) meat (*slátr*) in a miracle attributed to King Olaf in *Óláfs saga helga*, while the compositum *matketill* (from *mat* = food) in *Hákonar saga Hákonarsonar* (Kjær *et al.* 1986:467) does not allow any conclusions to be drawn on the nature of the food. *Ketill* occurs in a large number of other composita, many of which describe different sizes of vessel (e.g. *fjórðungsketill*: Jón Þorkelsson 1899:322, Dipl. 57). This is a distinction that seems to be especially common in Iceland, while uncommon in Norwegian documents.

Combining Words and Things

It cannot, of course, be expected that every author and scribe that contributed to the evidence summarised above had the same understanding of the semantics

of the words *grýta*, *krukka*, *pottr* and *ketill*. However, extracting general tendencies from the assembled data allows an approximation of what medieval people would have called the objects recovered by archaeologists today.

As Figure 3 shows, a semantic distinction between *ketill* and the other words under investigation is pretty clear. There are several different characteristics that could have determined which name would have been used for any of the objects presented in the archaeological overview above. The analytical mind of the archaeologist would probably put material first. Archaeological finds are often studied as groups of objects made from the same materials. This is especially true in the case of cooking vessels and tableware, because pottery plays an important role in the history of archaeology and in the modern archaeological process. Due to the outsized importance of pottery to the

Figure 4. The materials named in connection with different Old Norse words for pots. Image: Mathias Blobel.

Material \ Word	Clay	Metal	Stone
<i>grýta</i>	x	?	(?)
<i>krukka</i>	x		
<i>pottr</i>	x	?	
<i>ketill</i>		x	x

modern analyst, which was probably not shared by the original users, ceramics are usually studied separately from other finds, and with an eye towards chronology rather than use.²⁷ It is not a given, however, that material is what users of pots looked to first when categorising their vessels, and this has to be tested against the semantic evidence collected above. As Figure 4 shows, the word *krukka* describes exclusively ceramics, while *ketill* can describe a metal or stone vessel. *Pottr* and *grýta* describe ceramic pots as well. Both may also describe metal vessels, but in the case of *pottr* this is an ecclesiastical (and foreign) object, while identifying *fótagrýta* as a metal vessel relies on circumstantial evidence. There does not seem to be any medieval evidence for *grýta* describing a stone vessel, but due to the etymology of the word, a pre-medieval use of this

designation cannot be excluded. The relatively clear separation between words shows that material seems to have indeed played a role in the thinking around cooking pots.

Another distinction that can be made between vessels is that of size. Vessel size is rarely mentioned directly in the sources (see above). Ethnographic data from other places suggests that users of traditional cookware with wooden fires would have considered size an important category with which to differentiate between pots. Due to the particular affordances of earthenware pots, which can only be used safely when completely filled with liquid, different portion sizes need different pots. Size was therefore a main criterium when buying new pots for the inhabitants of Átány in Hungary who still used earthenware by

²⁷ Fortunately, this is a changing trend, see e.g. Kjellberg (2021), Fuglevik (2024).

an open fire when ethnographers studied their community in the 1950s (Fél *et al.* 1972:253–255, 1988:21). It is conceivable that similar categorisation would have governed word choice in medieval Norway, but this is not recoverable from the written sources.²⁸

Form is a category that is probably an important way in which cooking vessels were categorised by their users. However, there is not much information on form in the word evidence gathered above. This does not necessarily mean that this wasn't an important consideration in classifying pots for medieval people. The form of cooking vessels is determined by material affordances, intended use case and the method of heating (Linton 1944:370). The archaeological material shows that two basic forms were used for cooking pots in medieval Norway. A closed form, which constricts towards the opening, is almost universal among the ceramic material. Cast metal vessels share this general form. It is likely that their form developed as a

skeuomorph of the pottery pipkin or *grapen* (Drescher 2017:11), which in turn developed from the globular greyware pots of the Low Countries and northern Germany (Löbert 1991:484). Vessels made from sheet metal, on the other hand, probably tended to have an open form, a feature they shared with soapstone pots, which are difficult to form into more closed forms without the help of a turning bench, a method that was not used in medieval Norway to make vessels from soapstone.²⁹ It is thus first and foremost the material that shapes the form of different cooking pots and governs how they were used. (Some) metal vessels and (all) stone vessels share an open form, and they also share the word *ketill* in written sources. It is entirely possible, then, that *ketill* only applied to these often-large open cooking vessels which were often suspended over a fire (and which were incidentally made from sheet metal or stone), while the other words were used for (generally smaller) pots used beside the fire and

28 With the exception of noting that *katlar* are mentioned as being “big” in at least one instance and are categorised by size in (primarily Icelandic) documents.

29 And even the turned soapstone vessels found in Alpine Switzerland and Italy tended to be open forms. However, it should be noted that the oldest soapstone forms in Norway are skeuomorphs of contemporary pottery, and as such are relatively closed round-bottomed pots (Skjølsvold 1961:8–11).

additionally, in the case of three-legged pots of clay or cast copper alloy, over coals.³⁰ That cast three-legged pots could also be suspended over the fire somewhat complicates this supposition, which cannot be definitively proven from the word material.

SOME CONCLUSIONS

The case study shows that certain conclusions can be drawn. The word *ketill* describes a different cooking vessel than any other words used in Old Norse. It applies to stone and metal vessels, and it might specifically mean an open vessel meant to hang over an open

fire. The words *grýta*, *krukka* and *pottr* apply mainly to ceramic vessels and were used largely interchangeably to describe vessels of a closed form meant for cooking beside the fire. It is possible that cast metal pots were also given these names. Despite the etymology, there is no evidence that *grýta* was used to describe stone vessels, at least in the Middle Ages. Some of these results may not come as a surprise to students of the material culture and language of medieval Scandinavia, but I believe there is value in putting them on a methodological footing, and that a *Wörter und Sachen* approach can provide this.

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30 For contemporary representations of cast copper-alloy vessels next to hearths and over coals, see Drescher (1982:163–169).

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CHAPTER 6

FIRE-SHATTERED STONES: REMAINS OF BEER BREWING?

Lars Marius Garshol

ABSTRACT

Fire-shattered stones are found in the archaeology of many countries, yet what produced these stones is not known. In Norway it has been assumed that some of them may derive from beer brewing, because metal cauldrons were historically so expensive that most brewers could not afford them. These brewers resorted to heating stones in a fire and dropping them in the brew instead. The ethnographic literature shows that hot stones were a general heating technology that was also used in brewing in at least ten different European countries. It therefore appears likely that brewing is only one of the activities that produced these stones. Hot stones continued to be used, because of the unique flavour they added, after metal cauldrons became available, and, indeed, knowledge of this method enables today's brewers to introduce new flavours to beer.

Keywords: beer, brewing, fire-shattered stones, cauldrons, cooking vessels

Figure 1. Woman using brewing stones in the mash. Painting by Thorolf Holmboe, Norway, 1922. Photo: Mjøsmuseet, with permission.

INTRODUCTION

Fire-shattered stones are a very common artefact type in archaeology, but identifying which processes cracked the rocks is difficult, and the origins of these rocks are hotly debated among the archaeologists of many countries. In Norway the debate has largely focused on two specific types of fire-cracked rock: the so-called brewing stone layers and the cooking pits.

This article investigates what processes created these rocks by combining data from archaeology, ethnography, and basic brewing science.

Ethnographic accounts make it very likely that at least some of these stones derive from beer brewing, because of what this author has taken to calling “the cauldron problem.” In brief: to brew beer it’s necessary to heat the ingredients, but historically most people did not have access to cauldrons. All modern beer brewing is based on metal cauldrons, but in earlier times brewers had to find other methods, and the lack of cauldrons has been a key driver in the evolution of beer brewing processes (Garshol 2020:165–171). To see how and why, some explanation may be needed.

Heating in Beer Brewing

Heating is a key part of brewing to the point that one Old Norse word for brewing was *heita*, which also literally means heating (Fritzner 1867:256). The brewer’s main instrument for heating is the cauldron, and it’s fair to say that the cauldron is among the brewer’s most important tools.

Beer stands out among alcoholic drinks because the main ingredient it is produced from, grain, contains starch, but next to no fermentable sugar. Other alcoholic drinks such as wine (made from grapes, fruits, or berries), cider (apples), mead (honey), and palm wine (tree sap) are made from ingredients that contain large amounts of fermentable sugar. Thus, wine, cider, and mead can be produced by fermenting the available sugars to alcohol directly, but beer cannot be made this way.

Beer brewing requires converting the starches to sugar, a process known as saccharification (Palmer 2006:147–150). In Europe this has universally been done by malting and mashing (Oliver 2012:559), although as we’ll see alternative methods exist. Malting is making



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the grain germinate in order to produce the enzymes necessary to break down the starch. Malting is followed by mashing, which is steeping the malt in hot water at temperatures around 65–67°C to activate the enzymes that do the actual saccharification. For complete saccharification the mash must be maintained at this temperature for at least an hour.

Only about 2% of barley grains are fermentable sugar (Henry 1988), so without saccharification there will be only marginal amounts of sugar available for the yeast to ferment. No saccharification, no beer.

Heating also has other uses in beer brewing, some of which are discussed below, although these are less important.

The result of mashing is a sweet liquid known as “wort”, which is what is fermented into beer. In modern brewing the wort is nearly universally boiled, but the wort was often not boiled at all in traditional farmhouse brewing (Garshol 2020:142), and in older historical brewing (Cornell 2021; Oliver 2012:123; Sambrook 1996:136). Boiling is thus not a necessary part of the process.

Hops are nearly universally used in beer today to provide aroma, bitterness, and protection against microbial contamination of the beer. However, to extract bitterness and get full protection the hops need to be boiled, and so the use of hops is closely connected with the introduction of cauldrons. Usually the hops are boiled together with the wort. However, until the High Middle Ages most brewers did not use hops at all (Behre 1999), and in nineteenth to twentieth century traditional farmhouse brewing 9% of accounts report using no hops (Garshol 2020:220).

Boiling water was historically used to clean the brewing equipment to avoid contamination, and in traditional brewing this is still quite common. It is difficult to see how brewers can have made do without hot water for cleaning and not ended up with beer that was sour. However, there are examples of traditional brewers who claim to have used only cold water (EU 8367). So while hot water for cleaning was not absolutely necessary, brewers must nevertheless have had a strong incentive to use hot water when cleaning.

If the wort accidentally gets too cold before the yeast is added it may need to be re-heated to reach the

right temperature, but this, too, is more of a secondary issue (Garshol 2024).

In short, heating is absolutely necessary in order to be able to brew beer with malt, and before electricity and gas the easiest way to heat liquid was to use a metal cauldron over a fire. Without a cauldron, brewing would be considerably more complicated, and, as we will see, in older times brewers were forced to find other solutions.

The Affordability of Cauldrons

Cauldrons large enough to be practical for brewing remained very expensive into the modern era, and thus many brewers did not have access to them. Showing this is not a simple matter, as older cauldron prices are not easy to come by, but some evidence can be found.

The Old Norse mythological poem *Hymiskvida* recounts the trials the gods Thor and Tyr must undergo in order to procure a brewing cauldron large enough to brew for the gods (Larrington 2014:74-79). Implicitly, it must have been believable that even the

gods themselves might find it hard to get hold of a brewing cauldron.

Four valuations of brewing cauldrons are known from medieval Norway, ranging from 2 ²/₃ to 3 ¹/₂ cows for one kettle, meaning a single cauldron would have been unaffordably expensive for an ordinary farmer (Pettersen 2013:284). Several researchers have concluded that brewing cauldrons were highly valuable in the Middle Ages (Grieg 1934:19; Grøn 1927:205; Ropeid 1957:281).

The use of hot stones appears to come to an end in the sixteenth to seventeenth centuries, possibly due to a transition to metal cauldrons (Grønnesby 2016; Pilø 2005:140). From the data available, prices for cauldrons appear to have remained high, however. As late as the 1770s, a relatively small copper cauldron could cost almost as much as a cow (Østby 1982:34). Similar figures are reported from eighteenth century inheritance protocols in Sogndal (Midtbø 1998). As late as the nineteenth century, in Telemark in Norway, farmers exhibited large copper cauldrons as tokens of their wealth (Hansteen 1969:42).

Figure 2. Copper cauldron currently being used in farmhouse brewing. Dale farm, Voss, February 2020. Photo by author.



Figure 3. Ugis Pucens adding a hot stone to the mash. Aizpute, Latvia, July 2015. Photo by author.



In general, metal containers of all kinds appear to have been scarce, in some cases into the twentieth century. Wooden buckets for water were highly impractical, yet metal buckets only seem to have been introduced in the countryside from the 1880s (Weisser-Aall 1953:24). In Leikanger, Sogn they were not used before 1920, and apparently wooden buckets were still in use in the 1950s.

The situation is unlikely to have been different elsewhere in Europe. In late medieval Holland “the cauldron was undoubtedly the most valuable piece of equipment in the trade” (Unger 2001:20). In medieval Europe generally “copper brewing cauldrons required significant capital expenditures” (Meusdörfer 2009).

In 1878 Gustav Radde estimated the value of a very large brewing cauldron used by the mountain Khevsurs in Georgia for communal brewing at 100–200 rubles (Radde 1878:221). 150 rubles, the halfway figure, would be well over a year’s wages for an agricultural worker at the time (Mironov 2010).

If cauldrons were so expensive, how did those who could not afford them brew?

HOW TO BREW WITHOUT A CAULDRON

As stated above, the key problem is to convert the starch in the grain into fermentable sugar. Although European brewing today relies on using metal vessels to heat the mash there are other methods that could have been used in earlier times.

Theoretically Possible Methods

Hot stones The mash could be heated by placing the malt in cold water in a wooden vessel, then heating stones in a fire, and dropping the stones in. By adding stones at intervals the mash could be heated gradually, ensuring that the correct temperatures for mashing are reached and maintained long enough for sugar to be formed. There is substantial evidence that this method of brewing – summarized in a later section – was practised.

Brewing water could also have been heated with hot stones and then poured on the malt. There is evidence for this method, too, although it is very limited.

Ceramic cauldrons Cauldrons made of ceramics have been used for boiling, and there is evidence that they have also been used in beer brewing. We know that ceramic cauldrons were used in brewing in late medieval Holland (Unger 2001:20; Van Vilsteren 1996), and there is evidence of ceramic cauldrons being used in brewing in ancient Egypt (Wang 2021). Ceramic cauldrons that can contain large volumes and withstand repeated heating are difficult to make, however. Using them is thus risky, as the brewer risks losing the entire batch of beer if the cauldron breaks while in use. This may be why evidence for ceramic cauldrons in brewing in Europe outside the early medieval Netherlands is not known. Evidence for ceramic boiling in general is sparse, although there is a mention of meat being boiled in ceramics in the eighteenth century in the Outer Hebrides in Scotland (Martin 1716:2). To what extent Norwegian ceramics was fire-resistant is not fully clear. Iron Age Norwegian pottery is described as primitive, and as consisting mainly of storage vessels and tableware (Rødsrud 2017). A cookbook published

in Copenhagen in 1799 recommends not using ceramics for cooking “as they burst over the fire” (Anonymous 1799:15).

Soapstone cauldrons In Norway cauldrons were produced from soapstone from roughly 500 BC (Skjølsvold 1961:8–9), with some limited production going back to the late Bronze Age (Vangstad 2017). When production ceased is difficult to say, but it appears to have dropped off sharply in the seventeenth and eighteenth centuries, and finally ended in the nineteenth (Heldal *et al.* 2006; Vangstad 2017). In theory these cauldrons could be used in brewing, but in practice most have been very small. Most have been less than 4 litres in size, but larger vessels do exist, although one survey found only 4% were larger than 8 litres³¹ (Skjølsvold 1961:21; Vangstad 2017). Using them in brewing must thus have been impractical, and entirely incompatible with the brew sizes from the eighteenth century onwards, which were generally above 100 litres (Garshol 2023:63). However, truly large specimens, while

31 This assumes the height of the soapstone vessels is 1/3 of their diameter.

rare, do exist, such as the one found at Vesle Hjerkin, which was about 45 litres (Weber *et al.* 2007:124). There is no evidence that soapstone cauldrons were ever used in brewing, but it is possible. There is evidence of cider being fermented in soapstone containers, but this cannot be used to draw inferences about brewing, as cider volumes were probably different (Vedeler & Garnier 2024).

Bark or leather bags Surprisingly, water in bags of bark or leather can be heated to boiling by suspending the bag directly over a fire (Speth 2015). In trials even novices have been able to heat water in a leather bag to temperatures suitable for mashing on their first attempt (Zhang 2020). No evidence for this method in brewing is known, although it is possible that it has been used.

Ovens It has been hypothesized that ovens might have been used to heat the mash for brewing in Mesopotamia (Hayden *et al.* 2012), and this method of mashing is still in use in parts of Eastern Europe (Garshol

2020:161–162). Suitable ovens for heating the mash are not known from the Nordic countries, however, although there are indications that they may have been used in Germany, at least in the eighteenth century (Germershausen 1809:191–194).

Chewing In some regions alcohol has been produced from grain by chewing, for example sake in Japan (Rath 2021) and chicha in South America (Hayashida 2008; Hornsey 2003:27–28). Human spit contains enzymes which break down starch to fermentable sugars, and so this method provides an alternative to malting and mashing, and thus avoids the heating issue altogether. However, the oldest finds of beer remnants from the Middle East, Raqefet at 11,000 BC (Liu *et al.* 2018), and Europe, Hornstaad-Hörnle IIA at 3900 BC (Heiss 2020), both show signs of mashing and malting, which would make chewing unnecessary. Chewing is hard work and also known to be less effective than malting and mashing. This, plus the absence of any evidence for chewing in beer-making in Europe, makes it unlikely that chewing was ever practised in

European beer-making. Other researchers had drawn the same conclusion even before these recent finds (Hayden *et al.* 2012).

Mould In East Asia the predominant method for producing alcohol from grain before the introduction of European-style beer was not to malt and mash, but instead to use different species of mould to break down the starches to fermentable sugars. This method of brewing is still in use in sake brewing in Japan (Hornsey 2003:29), huangjiu production in China (Chen *et al.* 2021), and in Southeast Asian farmhouse brewing (Corbin 2022; Thibault 2017). There is no evidence that it has ever been used in Europe, however, and the results from the Raqefet and Hornstaad-Hörnle IIA finds (above) make it unlikely that it was ever practised in Europe.

Evidence for Stone Brewing

In short, a number of these methods are unlikely, and in Europe there is only positive evidence for two of them. The evidence for ceramics in brewing is very

limited, but for the last method, stone brewing, the evidence is so extensive it requires a brief summary.

Stone brewing has been documented in Norway, Sweden, Denmark, Finland, Austria, Belarus, Estonia, Latvia, Lithuania, and Russia (see Figure 4) from the seventeenth to the twenty-first centuries, and the tradition remains alive to this day in Finland, Latvia, Lithuania, and Russia. (For a more in-depth review of the evidence, see Garshol 2024).

In nearly all documented cases, the stones were used in the mash, as one would expect if the purpose were to heat the mash in the absence of a cauldron. However, nearly every single account available describes stone brewing by brewers who also use a cauldron. The stones were thus no longer strictly necessary, but appear to be a leftover from an earlier tradition from the time when stones were necessary. The brewers themselves say they used hot stones to give the beer colour, for the flavour, and to make the beer stronger (Garshol 2024). The beer did not become stronger, but the darker flavour and stronger flavour likely made many brewers believe it did.

Figure 4. All locations where stone brewing has been documented, adapted from (Garshol 2024). Locations where stone brewing is described as the main brewing process and an in-depth description of the process exists are marked in red, while weaker and less detailed evidence is marked with a white dot.





Figure 5. Mash boiling after a large stone has been added. Aizpute, Latvia, July 2015. Photo by author.

T. Hiärn, writing in the 1670s, writes of the Latvians that “when they can obtain no cauldron or iron pot, they place their food in wooden containers, and boil it with glowing stones that they place therein; how also they still brew beer today, when they put malt in a tub, pour water on it, and throw glowing stones therein, whereof the beer is boiled” (Hiärn 1835:45). Here it is explicitly clear that the stones are being used to heat the mash directly; they are thrown into a mix of malts and cold water.

E. Sundt relates asking a Norwegian farmer what the heaps of fire-cracked stones in the fields nearby were. “Brewing stones,” the man replied, adding that the stones were used for “boiling when they brewed – in the time when they did not have metal cauldrons.” (Sundt 1865:322)

In Carinthia in Austria the first brewery using a cauldron was reportedly established in 1753, implying that all beer brewed up until then was stone beer due to a lack of cauldrons. A complete inventory of a stone beer brewery in Carinthia from 1690 lists no cauldron. Stone beer remained in commercial production in Carinthia until 1917 (Grömmner 1962).

Other researchers have also concluded that stone brewing was originally practised because brewers lacked access to cauldrons (Dumpe 2001; Nordland 1969:123). That the use of hot stones in brewing is a holdover from the time when brewers did not use cauldrons is indicated by the fact that nearly all accounts from brewers with cauldrons describe using the stones in the mash (Garshol 2024).

Given that cauldrons must be assumed to have been even more expensive in the periods prior to the earliest evidence (from 1350), and, if one goes back far enough, not available at any price, it must be considered very likely that stone brewing was considerably more widespread in earlier periods from which no documentation has survived.

Hot Stones for Other Purposes in Brewing

Heating the mash was, as described earlier, not the only purpose for which heating was useful in brewing.

In parts of Denmark and Norway, a method known as “stone baking” was used for vessels that needed a particularly thorough cleaning. Cold water was added to the vessel, and hot stones dropped in to make the water boil inside the vessel. The heat would then kill unwanted micro-organisms. In Norway juniper branches were also added to the vessel so that the stones would make juniper infusion in it (Garshol 2020:195, 2024).

As mentioned earlier, the wort may accidentally get colder than what is ideal for adding the yeast, and hot stones or metal objects might then be used to reheat

it. This practice is reported from Norway, Denmark, Sweden, Finland, and Lithuania. It is also reported from Serbia, but it is not clear if this last report refers to beer brewing. From the documentation it is clear that the practice was very widespread, and it was very likely common in many other countries, where documentation is missing (Garshol 2024).

When making malt it is first steeped in water, and then laid out to grow. If it becomes too cold the malt may not grow as needed, and in this case hot stones could be used to heat the malt. This practice is known both from Denmark and from Norway (AFD 1004; Nordland 1969:17).

As this shows, hot stones were not a method reserved for a specific purpose, but more of a general heating technique.

The oven in the Scandinavian sauna was essentially just a pile of stones with an opening in which a fire could be made (Talve 1960:77, 259). The sauna was one of the most common methods for drying malts, but it was also used to dry grain, linen, and to smoke fish and meat. The Uppåkra find from the fifth to seventh centuries AD shows that these saunas are very

old (Larsson *et al.* 2018). This is not use of hot stones in the traditional sense, but presumably these stones would also eventually crack from the heat and leave archaeological traces.

Hot Stones Outside Brewing

As should be expected for a general heating technology, hot stones found many uses outside of brewing.

The Icelandic saga *Ljósvetninga saga* (Magerøy 1950:99) describes hot stones being used to heat milk before it is served to a guest. Porridge was made with hot stones in Norway (Hande 1871). In Sweden one informant claims the bath water for Christmas was heated with hot stones (EU 42103). T. Hiärn described unspecified food being boiled in wooden vessels with hot stones in 17th century Latvia (Hiärn 1835:45). There is also evidence of hot stones being used to dry grain (Garshol 2024).

Magnusson Olsen argues convincingly that the Old Norse word *seyðir* meant cooking meat by placing it under soil together with hot stones; then he cites many examples of its use from the sagas (Magnusson Olsen 1909).

This list could be extended dramatically, as shown by the much more comprehensive review in (Dittmann 1990:19–163). In modern era Europe, hot stones were used to heat milk, cook meat, make tar, fry pancakes, make soup and porridge, heat cleaning and bath water, to mention but a few uses. Heating milk with hot stones was a particularly common use of hot stones among people who had acquired metal vessels, and the reason almost universally given was a preference for the flavour of milk heated with stones, which makes for an interesting parallel with the continued use of hot stones in brewing after the acquisition of metal vessels (Dittmann 1990:195; Garshol 2024).

THE ARCHAEOLOGY OF FIRE-CRACKED ROCK

As stated at the outset of this chapter, in Norway archaeologists generally group fire-cracked rock artefacts into two main types: those known as brewing stone layers and, second, cooking pits. In addition, there are a number of types found in other countries which may or may not overlap with these two.

Brewing stone layers

In Norwegian archaeology this term refers to a specific type of fire-cracked rock: thick layers of heat-shattered rock mixed with ash. The stones are roughly cube-like and 3–6 cm across. On one or two sides they are typically reddened by heat, while the other sides are untouched (Pilø 2005:136). They are usually located under or near farmyards, and may be found as single heaps, or as large, continuous layers. In many cases they have been flattened deliberately (Grønnesby 2014). They can also be found in medieval towns, where they appear to date roughly to the period AD 1000–1400 (Skre 1998:17).

These layers have not been systematically surveyed, but when dated they appear to always fall roughly in the range AD 540–1600 (Grønnesby 2016; Pilø 2005:138). It is thought that these layers are probably present on most old Norwegian farms (Grønnesby personal communications), and in many cases the layers are enormous, up to 1500 cubic meters (Grønnesby 2014). 24 farms in central Norway were surveyed for brewing stone layers, with positive or probable results in 90% of them (Grønnesby 2016).

It has generally been assumed that these stones have been used in beer brewing (Grøtberg 2010; Herteig 1973:31; Pilø 2004). However, archaeologists appear to assume that when brewing the rocks were usually dropped in water, although it is, as we have seen, far more likely that they were used in the mash.

In any case, the assumption that they were used in brewing is reasonable, given that beer brewers in this period clearly had difficulties obtaining cauldrons, and that hot stones seem the most likely solution used in Norway. The testimony of E. Sundt, as well as ethnographic evidence for stone brewing, only strengthens this argument (Sundt 1865).

One objection that could be made is whether there really was enough beer brewing in this period to leave brewing stone layers on just about every farm, and of such sizes. A reply to this is that in the nineteenth century beer brewing was practised on just about every farm in Norway south of the Arctic Circle (Garshol 2023:12, 25; Nordland 1969:1). Beer brewing was engrained in social customs to the point that beer had to be brewed for every childbirth, wedding, and funeral (Nordland 1969:7; Gjærder 1982:45–46). Just

Figure 6. Drone photo of brewing stone layers at the farm Vik in Ranheim in Trøndelag, Norway. The big black field in the middle is a brewing stone layer, while the black dots above are cooking pits. Photo: Geir Grønnesby, NTNU Vitenskapsmuseet.



Figure 7. Brewing stones cracked after use. Aizpute, Latvia, July 2015. Photo by author.



about every farm brewed for Christmas, and many also for the haymaking (Garshol 2023:61).

Documentary testimony of beer brewing among farmers from the seventeenth and eighteenth centuries shows that beer brewing was common then, too (Hannaas 1911:47; Wilse 1779:372–377, Wille 1786:221–222). In addition, two medieval laws show that brewing was near-universal in the Middle Ages, too. The Gulathing law required farmers to brew twice a year (Robberstad 1981:19–20), while the Frostathing law required brewing once a year (Hauge 1998:22).

There is thus every reason to believe that beer brewing produced large amounts of fire-cracked rock in the period AD 540–1600. Even if this is correct, however, it does not mean the stones were necessarily used

in the mash. One must reckon that at least some of the shattered rock is a result of heating the cleaning water for brewing, while some may derive from heating wort that accidentally got too cold. Some could be from heating the sprouting malt, or from other processes in brewing.

However, from the ethnographic evidence it seems very unlikely that the list of uses ends there. Heating milk, heating food, heating cleaning water for other purposes, and perhaps even heating bath water seem very likely to be other purposes for which liquid was heated far into the modern era (1500–1945). From the use of hot stones in malting and drying grain it seems likely that hot stones were also used for purposes not involving liquids.

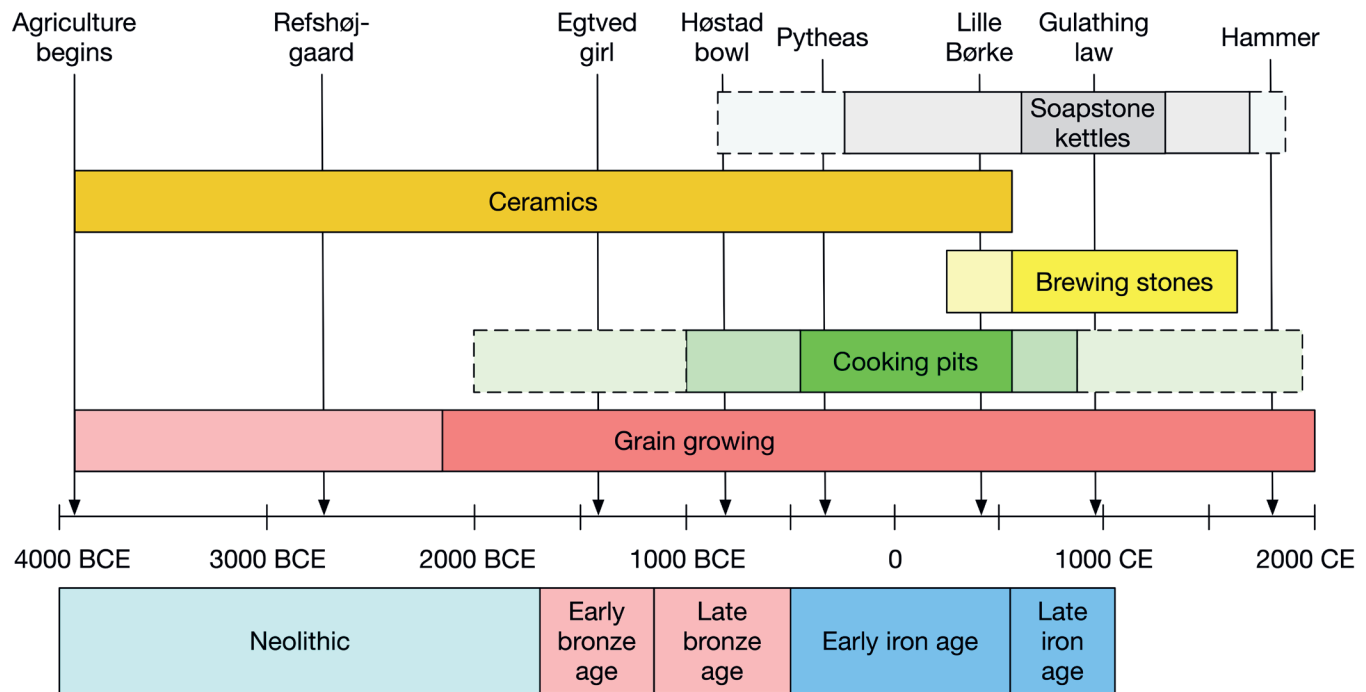


Figure 8. A timeline showing what cooking technologies relevant to beer brewing were available (or at least used) at various times. The events listed along the top pinpoint specific events from the archaeological and documentary records.

The cooking pits (described below) have a varied morphology, while the brewing stone layers appear uniform. However, if hot stones truly were a general heating technology used for over a millennium, then a farmyard covered with a thick layer of shattered stone is exactly what one would expect to find. In other words, the seemingly uniform morphology of the brewing stone layers cannot be taken to mean that they were necessarily produced by a single process.

The exact proportion of rocks deriving from different activities is impossible to judge from the available

evidence, but it would be surprising if the rocks were not at least to some degree the result of multiple functions. Gaining further insight without chemical and morphological analysis seems impossible, analysis that will need to be performed with care, bearing in mind the multitude of possible uses that might have caused the stones to shatter.

For all of these types of fire-cracked rock it seems that a survey of what rock types were used would be beneficial. Is there any sign that the users of the stones wanted to avoid stones that would split easily?

For some of the users of heated stones in brewing this has clearly been a concern (Garshol 2024).

The morphology of the cracked stones is also relevant. When this author observed stone brewing in Latvia in 2015 the stones cracked with very sharp, precise fracture surfaces (see Figure 7). There is little sign in the literature of attempts to identify what caused the rocks to fracture by analysing the fracture patterns, except a 1991–1992 experiment mentioned in (Pilø 1995) but apparently never published.

Cooking pits

The so-called cooking pits are pits of heat-impacted stones, usually with a layer of burnt wood at the bottom (Gustafsson *et al.* 2005:7). They differ from the brewing stone layers in that they are much smaller, and often circular or oval. Like the brewing stones they are found near farms, but unlike the brewing stone layers they are also found in locations where there appear to have been no farms (Gjerpe 2008:47). The stones in the pits are generally larger than those

in the brewing stone layers, and all sides of the rocks tend to be reddened by fire, unlike the brewing stones, which are usually just fire-impacted on 1–3 sides (Pilø 2005:140). The morphology of the cooking pits is also more variable (Gjerpe 2008:54). The processes that produced the cooking pits thus give every indication of having been different from those that produced the brewing stone layers, although there is no *a priori* reason why at least some of the activities they were used for cannot have been the same.

The cooking pits are generally dated between 1000 BC and AD 540 when they appear on farms (Gundersen 2020). The heyday of the cooking pits appears to be the period 500 BC to AD 300 (Gustafsson *et. al.* 2005:103), but the full chronology is wider. One survey found the main concentration of cooking pits dated to 200 BC to AD 600, but there were pits dating as far back as 2000 BC and as late as the twentieth century (Gjerpe 2008:48).

On the farms, however, the use of cooking pits appears to end right when the brewing stone layers



Figure 9. Left, stones from a cooking pit. Right, stones from a brewing stone layer. Photo: Geir Grønnesby, NTNU Vitenskapsmuseet.

begin. This transition appears to have happened at the same time that Norway transitioned from the Early to Late Iron Age, so the transition coincides with many other changes in Norwegian archaeology (Grønnesby 2019; Gundersen 2019).

What activity produced the cooking pits has long been debated (Gustafsson *et al.* 2005), and no conclusion has yet been reached, although there is now something close to consensus that the pits are multi-functional (Gjerpe 2008:46; Nilsson 2022). This chapter has already concluded the same is likely the case for the brewing stone layers (see above).

Connecting the cooking pits with brewing via documentary and archaeological evidence is difficult, given the scarcity of both forms of evidence for

brewing in this period. As noted above, documentary evidence from the Middle Ages shows that beer was a very important part of society back to at least AD 1000, making it highly likely that beer brewing had by then already become an old and established tradition. The reference to “funeral ale” on the Tune stone, dated AD 200–450, indicates that beer had much the same role in the Early Iron Age (Spurkland 2001).

This raises the question of how beer was brewed in this period. The domestic production of ceramics in Norway appears to cease just as the cooking pits disappear from farms (Bukkemoen 2016). This means that in the cooking pit era ceramic boiling could in theory have been practised in Norway, but no evidence that it was is known to this author. The use of leather or

bark bags is also a possibility. The production of soapstone cauldrons begins around 500–300 BC (Skjølsvold 1961:8–9), which means they could also have been used in at least parts of the period, although this would have severely limited brew sizes.

However, there is no *a priori* reason to assume that beer brewing technology changed dramatically at the transition from the Early to Late Iron Age. This makes it likely that hot stones were used in brewing in the cooking pit era as well, not least because there are abundant archaeological remains of heat-shattered rock from this period.

To put it another way, if hot stones were a general heating technology in the Late Iron Age up to modern times, why not also in the Early Iron Age and Bronze Age? If hot stones were not used in beer brewing in this period, it raises the question of what technology was used in their place.

Before the cooking pits

Beer brewing in Norway is likely far older than the cooking pits. In neighbouring Denmark the oldest archaeological finds of beer pre-date the beginning

of the cooking pit era in Norway: Egtved from 1370 BC (Thomsen 1929) and Refshøjpgård from 2800 BC (Klassen 2005). As the invention of beer brewing predates the invention of agriculture (Liu et. al. 2018) it seems likely that the farmers who emigrated into Europe took the knowledge of brewing with them. Agriculture in Norway appears to have begun about 3950 BC (Hjelle et al. 2018; Solheim 2021). Beer brewing may well have been introduced to Norway together with agriculture, much in line with what Spanish archaeologists think may have happened in Spain (Edo et al. 2016).

If there was beer brewing in this era, how was the beer brewed? Containers of ceramics, leather, or bark are all possibilities, but so are hot stones in wooden containers. There is evidence in Norway of fire-cracked rock from this era, and there have been claims that much of this evidence has been overlooked by archaeologists (Brysting Damm 2021). The find of a cooking pit dated ca. 4000 BC at Bjerland in southern Norway does seem to suggest that the chronology of cooking pits extends further back than is usually assumed (Hårstad 2023). If so, closer examination of fire-cracked rock from this era seems required. In any case there

are obviously unanswered questions here: was beer brewed or not? If it was brewed, how? A broader question is equally relevant: how did people heat liquids and other substances in this period? Was there really a transition to rock-based heating when the cooking pits appear, and, if so, why?

In other countries

Similar debates are taking place in other countries that might well cast light on the open issues in Norway, and vice versa.

In Sweden, *skärvstenshögar* (shattered stone heaps) are a well-known archaeological artefact type. Already in 1949 it was suggested that these might be the remnants of stone brewing (Gustawsson 1949), in part based on (Sundt 1865) and (EU 8702). No consensus on what these heaps are the remnants of appears to have been reached among Swedish archaeologists (Nilsson 2022).

In the United Kingdom the so-called “burnt mounds” are likewise heaps of heat-shattered stones, usually with a nearby hearth and trough (O’Neill 2009) while in Ireland what is effectively the same

artefact type is known as *fulacht fiadh* (Hawkes 2015), and the origins of both have been the subject of prolonged debate without any consensus being reached. It has, however, been suggested that they might have been used in beer brewing (Mullally 2012; Quinn & Moore 2007).

In all of these cases, from Norway to Ireland, the fundamental problem is the lack of concrete evidence, such as chemical analysis or finds of other remains in among the stones that might explain their origin. An example from the United States makes an instructive contrast.

In Texas a common artefact type is the so-called “burnt stone midden”, which is a low, hollow, circular mound of fire-cracked rock. These mounds are very similar to the British burnt mounds, but lack the trough. The first theory for what might have caused these was postulated in (Kelley and Campbell 1942), and several alternative explanations were proposed over the decades to follow (Sorrow 1969). Eventually, however, ethnographic accounts from nearby areas and finds of plant remains convinced researchers that the middens are the result of earth ovens used to bake

starch-rich plants for food (Black & Creel 1997). What eventually settled the issue was, in other words, use of ethnographic data and systematic analysis yielding concrete evidence.

In Germany, fire cracked rock artefacts similar to the Norwegian cooking pits were eventually discovered to have been used to cook meat, by means of chemical analysis of the residue inside the pores in the rock (Steinert 1978).

It seems likely that similar breakthroughs could be made in other countries. Could chemical analysis similar to that carried out on soapstone vessels cast light on the use of these stones (Vedeler & Garnier 2024)?

CONCLUSION

Rather than ask “what produced these fire-cracked rocks” it may be equally productive to approach the issue from a different angle, and instead ask “how did people cope with not having access to cauldrons?”

In Norway there is reason to believe that access to cauldrons was relatively general in towns by AD 1400

(Skre 1998:17), while in the countryside it may have taken another two centuries (Grønnesby 2016). The continued production of soapstone cauldrons into the nineteenth century suggests the complete transition to metal may have taken even longer. There are indications that the transition may have happened later in some parts of Norway than in others. Particularly Sunnfjord, Nordfjord, and Sunnmøre may have been late (Garshol 2023:114–116). The timing of the transition to metal cauldrons may prove to be a potentially valuable indicator of general economic status if explored more.

Beer brewing is relatively well documented in Norway from the Middle Ages, though documentation in fact extends back to the fourth century AD. Brewing must therefore be assumed to have been widely practised before that time. Evidence for beer brewing in Denmark dates back not just to the Bronze Age but also to the Neolithic, and, as argued above, beer brewing in Norway may well date all the way back to the beginning of the Norwegian Neolithic.

This opens the question of how beer was brewed throughout this time. The only firm evidence that

exists is for the use of cauldrons, starting with the medieval *Hymiskvida*, although there is also twentieth century evidence for the use of hot stones as an ethnographic relic of older times. (Sundt 1865) remains the only direct Norwegian evidence that hot stones were ever used in the absence of cauldrons.

Still, it must be considered very likely that hot stones were used to heat the mash in beer brewing for a very long time. The exact timeline of the replacement of hot stones by cauldrons remains very little known, and whether other methods were ever used before the stones, or even in addition to the stones, is almost entirely unknown. It seems unlikely that

any discipline other than archaeology will ever be in a position to answer these questions, either in beer brewing or more generally.

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32 Authorship given thus on the title page.

CHAPTER 7

CULINARY HERITAGE AND TOURIST EXPERIENCES IN SWEDISH KUKKOLA

Jenny Högström Berntson

ABSTRACT

This article draws attention to culinary traditions, culinary tourism, and heritage entanglements in Swedish Kukkola, a small village in the Northeast of Sweden, located beside the Kukkola Rapids in Torne River. Based on fieldwork, interviews and studies of restaurant menus and cookbooks, and on participant observations of culinary tourist activities at the site, the aim is to shed light on how Kukkola culinary traditions are presented and transmitted.

Kukkola village is known for the traditional way of fishing and grilling whitefish. The whitefish is caught by hand net, and the fishing tradition in the Torne Valley is listed in *Living Heritage*, the national website of the UNESCO Convention for the Safeguarding of the Intangible Cultural Heritage in Sweden.

It is argued that the intangible and tangible parts of the Kukkola foodways on display through tourist activities function as a link between past, present and future. In experience-based tourist activities that aim to give memorable experiences to participants a second aspiration can be seen – a wish to spread knowledge about the local cultural heritage, of which culinary aspects are an important part. It is suggested that this results in a form of dynamic tourism where culinary heritage tourism has consequences both for the tourists and for the local community.

Keywords: Kukkola whitefish, hand net fishing, culinary heritage tourism, experiential tourism, knowledge transmission

STUDYING FOODWAYS AND CULINARY TOURISM IN SWEDISH KUKKOLA

Fishing and food practices in the small village Kukkola in Norrbotten County in the northeast of Sweden have a long history. The availability of salmon and whitefish has shaped the local food culture in the area around Kukkola both in historical times and today. Nowadays, the fishing traditions and culinary practices are an

important part of the district's tourist attractions as well as branding Swedish Kukkola.

The whitefish is caught by hand net and the fishing tradition in the Torne Valley is listed in *Living Heritage*, the national website of the UNESCO Convention for the Safeguarding of the Intangible Cultural Heritage in Sweden (Isof 2021a, 2021b). In 2023 the Swedish Institute for Language and Folklore proposed that Sweden and



Figure 1. View towards the Kukkola rapids showing a wooden river boat and wood bridge, a *pata*, both used for hand net fishing. The fishing tradition in the Torne Valley is listed in *Living Heritage*, the national website of the UNESCO Convention for the Safeguarding of the Intangible Cultural Heritage in Sweden. Photo: Jenny Högström Berntson.

Finland should jointly nominate the hand net fishing culture in the Torne Valley for inclusion in UNESCO's Representative List of the Intangible Heritage of Humanity (Isof 2023). This initiative was supported by Finland and the aim was to submit the application to UNESCO in March 2025 (Valtioneuvosto 2024).

This study is based on a bricolage of ethnographic material such as interviews, participant observations,

archive material, and cookbooks.³³ The study draws on theories on culinary heritage, experiential tourism and participatory approaches to learning. The main interest lies in how Kukkolaforseen Tourist & Conference Ltd. (hereafter referred to as Kukkolaforseen Centre) works with tourist activities focusing on food and heritage. The study wants to shed light on how culinary heritage and tourism experiences

- 33 The empirical data for this study were collected through a combination of participant observations, interviews, literature studies, studies of websites, and Facebook content and cookbooks published in connection with the Kukkolaforseen Centre.
- Fieldwork in Kukkola July 2021, 2022, 2023 and 2024 (during the Whitefish Festival).
 - Participant observation including heritage activities with tourists and guides, and interviews conducted in July 2022 and July 2024. All interviews were conducted in Swedish, all citations in this text are my translations.
 - Interviews with representatives of the Kukkolaforseen Centre and tourists participating in heritage activities with guiding. In-depth, personal interviews were conducted with the informants using an interview guide. The interview guide covered aspects focusing on heritage and tourism, whitefish and fishing traditions, generational learning and transmission of traditions, and food concepts in Swedish Kukkola.

Figure 2. Kukkola – two villages with the same name on either side of the Torne River. The photo is taken from West Kukkola (Sweden) with a view over to East Kukkola (Finland). Photo: Ted Logart, Swedish Lapland Visitors Board.



can contribute to knowledge transmission and to sustaining intangible heritage traditions in Swedish Kukkola. The main questions posed are: How are Kukkola food traditions presented and transmitted via tourist activities? What are the potential effects of the culinary heritage activities for tourists? What effects can be noticed for the local community?

The article draws attention to culinary traditions, culinary tourism, and heritage entanglements in Swedish Kukkola, focusing on how culinary heritage is presented and transmitted via tourist activities at the Kukkolaforsen Centre and in its restaurant.

SETTING THE STAGE: PLACE, HISTORY, AND THE CULINARY HERITAGE SCENE

Kukkola is a small village situated in Haparanda municipality, in the Torne Valley in the northeast of Sweden, and located right beside the Kukkola Rapids. The Kukkola Rapids (Swedish: Kukkolaforsen, Finnish: Kukkolankoski) are part of the Torne River located between the Swedish Kukkola and Finnish Kukkola villages (see Figure 2), 15 kilometres north of the larger cities Haparanda in Sweden and Torneå in Finland. Locals often refer to the Swedish and Finnish villages as, respectively, West and East Kukkola (Niskala 2018a; also noticed in interviews conducted in Swedish Kukkola).



Figure 3. Kukkola heritage village viewed from the south. The Torne Valley flag is visible in the foreground. The colours in the flag are inspired by the flags of Sweden and Finland and the colours in the tricolour represent the bright yellow sun, the white winter snow and the blue summer sky. Photo: Jenny Högström Bertson.

The border between Sweden and Finland was drawn along the deep furrow of the Torne River in 1809 when Sweden and Russia signed the Treaty of Frederikshavn. The treaty marked the end of the so-called Finnish war, as well as the end of the Sweden-Finland era. When the peace was concluded the village Kukkola was overnight split in two, and thereafter seen as two separate villages belonging to separate countries. Thus, the new national border broke up a shared linguistic and cultural area. However, the two villages still share, after more than 200 years, several aspects of cultural heritage (Alatalo 2010; Niskala 2018a; Reinholdt 2019:26–27).

Swedish Kukkola consists of a small number of households, and located close by the rapids is the Kukkola heritage village (Kukkola kulturby, Figure

3), and adjacent to that, the Kukkolaforseen Centre, well known for its restaurant and local cuisine where, according to the White Guide Sweden, “the freshly caught whitefish is the thing” (White Guide Sverige 2024). The Kukkola heritage village includes several old buildings, some of which are still in use, whilst others are reused with new functions, like one of the former mills which is now used for art exhibitions, but with a lot of the old furnishing and objects still in place. Two buildings that still have the same function as before are, for example, the old timber smoke hut, and the so-called “freeze house” used for storing and weighing fish. One of the buildings now hosts the fishing museum, which focuses on the history of fishing traditions in Kukkola.

Alongside the heritage village is the Kukkolaforseen Centre, which is a conference, experience and knowledge centre that includes a restaurant and hotel offering tourist activities, several aimed at the culinary tourist. The Kukkolaforseen Centre is owned and operated by the Spolander family who have lived in Kukkola for five generations and have owned the Centre since 1986 (Interviews conducted 2022; Spolander & Stenros 2015:6). The Spolander family and the Kukkolaforseen Centre are actively involved in presenting and preserving the local heritage in several ways, for example through book publications, such as the cookbooks *Tornedalsmat på Margits vis* (“Torne Valley Food with Margit”) and *Vintermat i Tornedalen* (“Winter Food in the Torne Valley”) that highlight food from the area around Kukkola, and in particular reflect what is served in the restaurant (Kukkolaforseen 2023b; Spolander & Stenros 2015; Stenros *et al.* 2011). Dishes on the menu include “Dopp-i-kopp” (English “dip in a cup”), a traditional Torne Valley dish where you are served melted butter stirred into hot salted water, some finely sliced onion and herbs in a cup, together with fresh potatoes and cured, smoked or boiled fish to dip in the buttery

broth (Kukkolaforseen 2023e; Stenros *et al.* 2011:30–31). Other courses featured both in the restaurant menu and in the cookbook are whitefish salad topped with white fish caviar, salt cured salmon, smoked reindeer heart, reindeer sausage, and Västerbotten cheese (Kukkolaforseen 2023e; Stenros *et al.* 2011:24), and sliced reindeer meat in cream sauce with mashed potatoes and lingonberries (Kukkolaforseen 2023e).

WHITEFISH, LIVING TRADITIONS AND INTANGIBLE HERITAGE

Today Kukkola is well known for its whitefish and old-style hand net fishing traditions – traditions that go back to the Middle Ages (Granlund 1940:59). The whitefish and the culinary setting are at the centre of the melting pot that Kukkola constitutes. It is a place where culinary heritage and Swedish, Sami and Finnish traditions come together. The fishing traditions and food practices are also an important part of marketing this area for tourists and, in the process, presenting a specific Kukkola culture and identity via foodways.

Figure 4. Men fishing whitefish with hand nets in the Kukkola rapids.
Photo from 1940. Photo: Swedish heritage board. Public domain.



Old fishing methods and ways of cooking are still practised in Kukkola and different fish species are caught in the course of a year by different methods. Until the 1950s salmon was the most important fish in the area but, due to a drastic decline in the salmon population, whitefish is the main species caught by hand net today. The fishing method can also be referred to as “bag net fishing” or “dip net fishing”; in Swedish it is called *håvfiske* (Spolander & Stenros 2015:7). Several other species of fish, for example river lamprey and bleak, are caught by other methods (Alatalo 2010:77–86; Huuva 2019:125–175; Lundholm 1988:22–43; Stenros *et al.* 2011:10–14). There are approximately five species of whitefish in the Torne Valley, including the so-called “Kukkolasiik”, a coastal whitefish that spawns in the river (Lundholm 1988:25–28). The method of catching the whitefish using a long-stemmed hand net from wooden bridges, called *patas*, is an old technique specifically associated with fishing in the Torne Valley (see Figure 4) (Alatalo 2010:86–89; Granlund 1940; Spolander & Stenros 2015:7; Stenros *et al.* 2011:20).

This kind of fishing, using hand nets and fishing from *patas*, has been practised in the Torne Valley for

centuries and can be traced to the Middle Ages (Granlund 1940:59). The first *pata* was built and placed in Korpikylä in 1560 (Lundholm 1988:31–34, 38).

The method of fishing by hand net is based on the whitefish migrating upstream on the way to their spawning grounds. The whitefish rest on their way in pits that the water has formed in the ground, and it is when the whitefish rest in these pits that the fishermen rake them up (Alatalo 2010; Kukkolaforsen 2023c). The fishing technique and knowledge are passed down from generation to generation and children are taught these skills from about the age of eleven, when they are strong enough to handle the long and quite heavy hand net (Interview conducted 2022). Interesting to notice is that all the pits are named, and all but one in *Meänkieli*, one of Sweden’s national minority languages (Interview conducted 2022).

The whitefish migrate upstream in July and the arrival of the whitefish is celebrated with a festival the first weekend after St James’s Day. The Whitefish Festival has been a popular meeting point for centuries, even if its form has changed over time (Alatalo 2010:46; Granlund 1940; Interviews conducted 2022 and 2024).

People from far and near gather to celebrate the wandering whitefish's arrival and eat grilled or smoked whitefish, either at site (for example, served with potatoes and sour cream sauce; see Figure 6) or for take away. (Alatalo 2010:4; Granlund 1940; Kukkolaforsen 2021; Kukkolaforsen FB 2023a; Lidman 1960; Lundholm 1988:40–43; Stenros *et al.* 2011:9; Spolander 2019). Hans Lidman portrayed the Whitefish Festival as “enigmatic and mysterious” in his book *Fiskefeber* from 1960. And he portrays the sharing of the whitefish as a “cult surrounding the fishing itself, having a purely pagan character” (Lidman 1960:133).

Although the festival does not draw quite the same number of visitors today as in, for example, the 1970s and 1980s – a period that has been described as “golden times” – it still attracts visitors of all ages (Interviews conducted 2024; Spolander 2019). In 2024 the Whitefish Festival included a talk given by Svante Spolander about the history of the festival and fishing traditions in Kukkola, a demonstration of the building of a *pata* and of how to use the hand net, competitions for children and the chance to enjoy a “whitefish buffet” or buy grilled or smoked whitefish in the outdoor café

(Kukkolaforsen 2024). This suggests that the festival in a way has an educational function today, aiming at knowledge transmission concerning fishing practices and local traditions.

Patas and hand nets: linking intangible and tangible elements

Hand net fishing is, as explained above, carried out from wooden bridges called *patas*, from river boats and from the shore (see Figure 1) (Lundholm 1988:38). The *patas* are built by hand and the building tradition and know-how require extensive knowledge, including experience of the currents in the river and the behaviour of the rapids. The technique has been modelled to function in correlation to nature and the conditions provided by this specific place and environment. The intangible knowhow is transmitted over generations and has been for centuries (Alatalo 2010:86–89; Fjellström 1981:102–105; Granlund 1940). Passing this knowledge on to younger generations is something that is still cherished in Kukkola, and it is knowledge that is also in some respects passed on through some of the tourist activities (Interviews

conducted 2022). An active engagement from the Spolander family and the Kukkolaforsen Centre helps keep the traditions and knowledge alive. As noticed in one of their social media contents, “the tradition goes on to the next generation”. The content includes a film showing fishing from the *pata* where the sub-text reads “...teaching the 6th generation the noble art of hand net fishing” (Kukkola FB 2023, post from 2023-08-03).

When the *patas* are in place in the river they make up a tangible and visually striking feature of the site. In the eighteenth century, 117 *patas* were marked on a map of the Torne River that was part of a tax report, and eight of the *patas* were still in use in 1986 (Granlund 1940:66; Lundholm 1988:35-36). Today, on the Swedish side of the river, *patas* are only used in Kukkola and Matkakoski (ca. 20 kilometres north of Kukkola). The *patas* and the material used to build them usually have a long life, since they are re-used from year to year. The *patas* are put in place only for the whitefish season, and are then taken apart again after the season is over. The *pata* Ylianckuri, in use at Swedish Kukkola, takes six men six days to construct

(see Figure 5). The wood used for the construction is only replaced when this is necessary. This way of re-using material for the *patas* year after year has been common practice for centuries and is described by the guide “a sustainable practice” (Interview conducted 2022).

Traditionally the long-stemmed hand net is made of wood and is about 6 metres long. In the end of the shafts is a bow, measuring about 60x90 cm and over one metre in depth (Alatalo 2010:88; Granlund 1940:59). The net was traditionally made of spun yarn but is nowadays made of nylon. The bow where the net is fastened was formerly made of reed but is nowadays made of piano wire and wrapped with modern material (previously strips of leather were used). The staff for the handle used to be made of wood but is now of more durable fiberglass pipe which makes it less heavy to handle (Alatalo 2010:88).

Fishing by hand net has been described as a sustainable way of fishing since it does not generate any by-catch that goes to waste. Nor does the method leave any lasting marks in the aquatic environment, and has therefore been described as a “soft capture method”



Figure 5. From the last day of construction of the *pata* Yliankkuri 2022. Old re-used wooden planks and new material were used for the construction. The Kukkolaforseen Centre with the restaurant can be seen in the background. Photo: Jenny Högström Berntson.

(Högström Berntson 2023:98; Niskala 2018b:9; Sommarsik 2023). According to The Marine Stewardship Council “Fishing is sustainable if it leaves enough fish in the oceans and minimises impacts on habitats and ecosystems.” (MSC 2024). The fishing in the Torne River is regulated by restrictions and rules which have been in effect for a long time. The first list of who held the right to fish for salmon can be found in the form of the tax collection record from 1559 (Alatalo 2010:20). In the seventeenth century Kukkola was one of the villages with salmon fishing rights; at that time 20 barrels of salmon was the limit, and of the catch two barrels were to be paid as tax to the king and two to the clergy as a tithe (Alatalo 2010:20).

Whitefish is only caught for a short period, from the end of July to the middle of September. The number of fish caught can vary greatly. Older records from the mid-1800s state that an average catch for a season was approximately 20,000 whitefish (Granlund 1940:60). The record during the 20th century in Matkakoski was a daily catch of 1680 whitefish. In Kukkola around 1000 whitefish were caught daily in 1980, with a record of 8000 in one day (Lundholm 1988:38). Today the total catch of whitefish from the *pata* Yliankkuri in Kukkola provides enough fish for the restaurant for a whole year (Interview conducted 2022). From the river to the restaurant – the whitefish still plays an important role in the Kukkola foodways, as it has for centuries.

KUKKOLA FOODWAYS: TRADITIONS AND LOCAL IDENTITY

How, then, can Kukkola foodways be described? The term “foodways” often refers to the intersection of food in culture, traditions, and history (see for example Brulotte & Di Giovine 2014; Long 2004a:8, 2004b:23). In the food traditions that surround the whitefish in Kukkola, recipes, memories, history, traditions, and culture are closely connected. The food traditions and local recipes depend on cultural and ecological conditions and are mainly based on what can be grown in the area, as well as on fishing and hunting. For generations, the food culture in Kukkola and the Torne Valley has been strongly tied to the seasons (Högström Berntson 2023; Spolander & Stenros 2015; Stenros *et al.* 2011). The availability or non-availability, according to the season, of fish, animals, and crops has also led to what can be referred to as “seasonally shifted” eating (in Swedish “säsongsförskjutet ätande”, Tellström 2019, 2024:141). This refers to the practice of preparing food by drying, fermenting, making jam, etc. so that it can be stored and last for months to come (Spolander & Stenros 2015:10–15).

The concept used at the Kukkola restaurant is based on old traditions of cooking and preparing food. The menu is generally based on local produce such as whitefish, salmon, reindeer and locally produced crops, as well as berries (blueberries, lingonberries, cranberries and gooseberries) and mushrooms picked in the forest. The dishes are influenced by Swedish, Sami and Finnish culture, and the menu varies over the year in line with resources. The food culture is often referred to as Torne Valley foodways (Interviews conducted 2022; Spolander & Stenros 2015; Stenros *et al.* 2011). As already hinted at, it could in fact be referred to as Kukkola foodways: closely aligned with what fits into Torne Valley foodways, but with its own specific core that is tightly bound up with the specific locality and to the whitefish.

Let us look closer at the cooking traditions in Kukkola from the point of view of the restaurant, their cookbooks and the culinary activities hosted by the Kukkolaforsen Centre. Margit Spolander is the former owner of the Kukkolaforsen Centre, and she developed the foundation on which the menu and whole concept of the restaurant is built. The food



Figure 6. Smoked whitefish served with sour cream sauce and potatoes in the restaurant, Kukkolaforseen Centre. Photo: Jenny Högström Berntson.

served in the restaurant and the cooking traditions it is tied to are presented and described in the cookbooks *Tornedalsmat på Margits vis* and *Vintermat i Tornedalen* (Spolander & Stenros 2015; Stenros *et al.* 2011). These traditions and fishing habits are also presented and explained for the interested tourist by offering several culinary tourist experiences like “Dinner on the river” and “Whitefish grilling” (Kukkolaforseen 2023d).

The Kukkola “food wheel” centres, as has been mentioned, on local produce (Interviews conducted 2022 and 2023; Spolander & Stenros 2015), and the restaurant often use products from small suppliers in the Torne Valley, both on the Swedish and Finnish side, like Rybs oil and mustard from “Pesula lantbruk” and

beer from Tornio Panimo (Interviews 2022; Kukkolaforseen 2023d; Kukkolaforseen FB 2024). The *à la carte* menu offered in the restaurant varies, but for the summer in 2023 it was possible to choose from several starters, main courses and desserts, as well as the “Kukkola menu” and the “Norrbotten menu”. Dishes served are, for example, whitefish salad topped with whitefish caviar, salt-cured rainbow trout, smoked reindeer heart, smoked reindeer roast, sliced reindeer in cream sauce with mashed potatoes and lingonberries, dip in cup, and baked rainbow trout served with root vegetables (Kukkolaforseen 2023d, 2023e). All of these have a strong local reference and reflect old culinary traditions, even if they can be served with a modern touch. “We take care of our produce, and all

dishes carry history,” says Johannah Spolander, who runs the restaurant (Interview conducted 2022).

The local reference is visible in the names of several dishes, in the recipes and the traditions related to them, and in the food itself. Several of the names of the dishes reflect the area, like smoked Kukkola Whitefish, Bottenvikenlax, Kukkola tapas, and oven-grilled salmon from the rapids (Kukkolaforsen 2023d). The Kukkola *tapas* (Figure 7) include recipes and components reflecting the local cuisine: whitefish salad on bread topped with whitefish roe, cured salmon on flatbread with mustard sauce, smoked Västerbotten cheese with cloudberry sauce, smoked moose with pickled red onion and smoked reindeer with homemade lingonberry jam. The *tapas* dish finds inspiration both in the local and the global being based on local ingredients and culinary tradition, yet inspired by the idea of Spanish *tapas* in its form (small dishes) and with a nudge to the Japanese sushi traditions (when serving raw fish). The specifically local element in the dish consists of local ingredients, such as the fish and meat, but also berries and herbs that come from the forests around Kukkola. And as the photo

(Figure 7) below shows, you can have your Kukkola *tapas* served on a chipboard made in the old sawmill located in Kukkola heritage village (Interview conducted 2022).

The food and restaurant concept formulations focus on both old, local traditions and new, international influences. On the website it is stated that “Our food tradition has a strong local touch but with influences from all over the world,” and that “The produce comes from the wild forest’s hidden places, the fish-abundant rapids, and the fertile farmer’s allotments.” (Kukkolaforsen 2023a). Johannah Spolander talks about the “terroir” that gives the food a special flavour and states that: “Everything is prepared in the best way so that the northern, yes indeed, Torne Valley flavours come into their own.” (Interview conducted 2022; see also Kukkolaforsen 2023a). Today, the term “terroir” is increasingly associated with food and a sense of place which is connected to the local landscape, local culture and traditions (Belasco 2012:39–53; Getz *et al.* 2014:11; Legrand *et al.* 2019). As has been argued by Legrand and others, terroir and authenticity are intertwined. And having an authentic



Figure 7. Kukkolatapas – a local version on the Spanish *tapas* concept. Served as small dishes on the plate are Whitefish salad on bread topped with whitefish roe, Cured salmon on flatbread with mustard sauce, Smoked Västerbotten cheese with cloudberry sauce, Smoked moose with pickled red onion, Smoked reindeer with home-made lingonberry jam. Photo: Jenny Högström Berntson.

experience is important for travellers when choosing destinations (Legrand *et al.* 2019). When elaborating more on the meaning of terroir in Kukkola, Johannah Spolander explains that terroir in this case means the special conditions that the place provides. It is a combination of the river, the soil type and the habitat, and not least the midnight sun whose light gives “almost like a whole extra month to the year” and allegedly contributes to a special flavour in the local produce (Interview conducted 2022).

This framing of the culinary concept draws on food traditions from the past with the ambition of taking food heritage into the future. It is done by tracing both fishing traditions and cooking practices from a local past and reshaping them to adapt to new

demands and resources and attract the culinary tourist. It could be described as an ongoing process where the actors reshape and reinterpret local culinary traditions and, when doing so, reshape their culinary heritage. It could be seen as a heritagisation process centred on foodways.

As noted in the introduction to this volume, food and the way we eat food are closely connected to local identity and place. In the heritagisation process in Kukkola the local plays an important part. In the dishes served in the restaurant, it is evident that the culinary concept is connected to the place Kukkola. And with the food, the dishes, the names of the dishes, and the cookbooks, an idea of a Kukkola / Torne Valley identity plants itself in the minds of visitors. By means

of foodways a process of shaping identity in relation to place can be glimpsed. The traditions and how they are used are connected to building and articulating both individual and group identity (Bell & Valentine 1997; Ron & Timothy 2013). Via tourist activities the tangible and intangible heritage associated with the whitefish in Kukkola is in many ways used to “cultivate identity” in the area, and to vitalize the community. This is visible in the activities and the approach to the culinary heritage in the restaurant, but it is also something that is articulated by the owners of the Kukkolaforsen Centre. For example, they argue that by using local resources and produce the restaurant can contribute to economic and communal sustainability by providing employment opportunities and enhance the demand for local products (Interviews conducted 2022). This would imply that culinary heritage tourism is a resource for the local community and, as such, supports the development of sustainable tourism. (Andersson *et al.* 2017; Bessi re 2013; Boniface 2001:ix; Sims 2009).

INTRODUCING KUKKOLA FOODWAYS TO THE TOURISTS – HISTORY AND AUTHENTICITY

By displaying and selling their culinary cookbooks, postcards with recipes, and different kinds of tourist trinkets, it is evident that it is important for the Kukkolaforsen Centre to show the guest and the tourist that the menu and the food served are based on long culinary traditions. Locally produced food from farms and producers is sold in the hotel lobby (that also functions as restaurant entrance). It is also possible to purchase newly smoked whitefish (Figure 8) and cookbooks in the hotel lobby/restaurant entrance. The concept of Kukkola foodways is also built into the different tourist activities possible to engage in when visiting (Kukkola 2023d).

For the interested guest a selection of culinary activities is offered, such as “Dinner on the river”, “Fishing whitefish with a bag net” (see Figure 9) and participating in “Whitefish grilling in the timber smoke hut” (Kukkola 2023d). All these activities include typical Kukkola heritage and food-related ingredients in combination with a touch of experience-based learning.



Figure 8. Newly smoked whitefish for purchase in the hotel lobby/restaurant entrance at Kukkolaforseen Centre, July 2023. Photo: Jenny Högström Bertson.

Putting emphasis on such enduring traditions can be seen as a way of enhancing the feeling of authenticity and of being true to the local heritage. Authenticity is in a way created and performed in the tourist activities through a combination of experience, place, food, history and traditions.

The terms “authenticity” and “authentic” are complex and problematic (for example Almansouri *et al.* 2022:1–2; Appadurai 1986:25; Beer 2008; Sims 2009). Nevertheless, they are recurrent in tourist marketing (Wolf 2024), and in the past decades intangible cultural heritage, including heritage food, has attracted attention as a concept in the tourist sector (Giovanelli 2019). Heritage foods have become a trend in several countries and there is an increasing demand for

heritage food in the hospitality industry (Almansouri *et al.* 2022; Timothy 2015). How heritage foods can be combined with tourism in Kukkola is a work in progress where authenticity (which is “performed” as part of the process) is a component in the package the Kukkola Centre want to offer tourists.

Interesting to notice is that, according to the *State of the Food and Beverage Tourism Industry Report 2024* issued by the World Food Travel Association, the concept of authenticity in relation to food and beverage tourism has been compromised in recent years. As a result of the overuse of terms like “local” and “authentic” in gastronomy destination marketing, “authenticity” and “local” no longer have the same attraction for travellers (Wolf 2024:14). Even so, in Swedish Kukkola

Figure 9. The tourist guide gives a guest instructions as to how to use the hand net for fishing. Photo: Sara Rönne Idänge.





Figure 10. Inside the timber smoke hut in the Kukkola heritage village. View from the doorway with the hearth in the centre. Photo: Jenny Högström Berntson.

the framing of local food and the reference to an authentic heritage and place do seem to attract visitors, according to interviews with both visitors and hosts (Interviews conducted 2022). The key to this might simply be that their concept is focused on the place and that the tourist activities and food concept are interlinked with the place, its history, traditions and lived heritage. This combination can contribute to a feeling of connection to the place and the culture that the tourists meet (Mossberg & Johansen 2006:7). And, regardless of the meaning of “local” or “authentic” food, it has been pointed out by, for example, Rebecca Sims that “the idea of a link between food and place remains a powerful one” (Sims 2009). We will come back to this below.

Offering a multisensory experience to narrate foodways via whitefish grilling

A popular way of preparing whitefish, both historically and today, is to grill it on a grate over an open fire (Granlund 1940:65, Figures 6 and 8; Stenros *et al.* 2011:26–27; Utterström 2017:48, 52). This can be done in the timber smoke hut and is open to tourists, advertised

as “Whitefish grilling in the timber smoke hut” (Kukkolaforsen 2023f.). The activity takes place in one of the oldest buildings in the Kukkola heritage village, right by the river. The hut is what could be referred to as a living heritage space. All the interior walls have graffiti in the form of carvings in the wood; essentially, these are short messages from people who have been using this space over centuries (see Figure 10). The hut now standing is dated to 1780 (Stenros *et al.* 2011:27), but according to archaeological investigations there are traces of a hearth going back to the 1500s under the existing hearth (Interview conducted 2022).

Participating in whitefish grilling in the timber smoke hut has been described as almost a sacred rite (Nordén 1983:78–79, referencing Lundquist 1964). This activity is based on participation: experiencing how to prepare, grill and eat the whitefish. During the grilling, the guide talks about local fishing traditions, its historic roots and local cooking traditions (Interview conducted 2022).

The activity is presented as a form of memory making and an opportunity to partake in a sensory based experience (Kukkolaforsen 2023f). The

information promoting the activity states: “Grill your fresh-caught whitefish over an open fire. Eat, enjoy and wash it down with beer or water. Sit around the crackling fire in the timber smoke hut and listen to our local fishermen telling truthful and not so truthful stories about the life by the river. Such an unforgettable memory does not get any easier than this.” (Kukkolaforsen 2023f). In this kind of activity, tourists are invited to learn about, and take part in, a piece of the local culinary heritage.

It should be mentioned that the kind of activity like the one described above gives the participant not just facts and insight into fishing practices, but also what the organisers call “not so truthful stories”. This mix of knowledge dissemination and more personal stories can be a powerful marketing and communication tool, evoking a feeling of having experienced something genuine (Mossberg & Johansen 2006:7; Östrup Backe 2020:164–166;). Storytelling as a means of tourism branding, and activities associated with it, can be of value for both the provider and visitor when it comes to meaningful experiences (Östrup Backe 2020:165), but the combination of storytelling

and knowledge transmission potentially poses a problem when it comes to authenticity. Is it obvious for the visitor where the line is drawn between the true and untrue? The mix of facts and stories implies a risk to compromise the historicity and therefore, in a way, the “authenticity” of the culinary heritage.

Tourist experiences and sensing heritage through whitefish activities

As the example of the “Whitefish grilling” event shows, food and foodways are vital components of the tourism experience, not only for the dedicated food tourist, but for all tourists and guests engaging in specific tourist experiences at Kukkola. Activities such as “Whitefish grilling in the timber smoke hut”, “Fishing whitefish with a bag net” and “Dinner on the river” are all experience-based tourist activities that include multisensory aspects and learning. At the centre of these three activities is the Kukkola foodways, or, most important, the whitefish and associated fishing traditions, their history, and culinary knowledge.

The tourist activities in Kukkola can be described as experiential tourism where the participants take

part in multisensory experiences while they also, together with others, make their own memories. Senses play a central role in individuals' perceptions of the world, and recent studies have shown that successful tourism destinations attract tourists using a systematic approach to stimulating all the senses (Meacci & Liberatore 2018). Experiential tourism engages all five senses – smell, touch, sound, sight and taste (Smith 2006:12; Meacci & Liberatore 2018) – as in the grilling event in Kukkola. As the tourist event becomes a part of the learning experience it provides an opportunity for the participant not only to sample the local food or drink but also to learn more about, for example, the production techniques, food culture and cooking habits (Halloran 2023). Creating memorable eating experiences, and adding the learning part by talking about history, nature, food and traditions, the tourist guides conduct a form of heritage interpretation, which in short can be described as mediating knowledge by engaging the audience (Interpret Europe 2023; Persson & Synnestvedt 2022:58; Tilden 1977). Via culinary heritage activities, where the participant through multisensory experiences and participation

learns and engages in communal food events, heritage is made to matter. And just as foodways can bridge cultures and borders, so it can link people together (Brulotte & Di Giovine 2014:1-27; Cramer & Greene 2011:xii; Ortuzar-Young 2013:27-30). When food in this way brings people together and simultaneously links them to people and food habits in the past, food becomes heritage (Brulotte & Di Giovine 2014:1). The intangible and tangible parts of the Kukkola foodways on display through tourist activities function as a link between past, present, and future. As a tourist put it, after participating in a guided event: “It feels like you get to know the place and the people” (Interview conducted 2022). The combination of offering local food and place-based experiences is also in line with a current trend in tourism. And, as the trend report regarding Swedish meal culture from 2023 points out, travellers interested in food are most interested in traditional food and drink, as well as experiencing local food culture (Visit Sweden 2023:12).

By participating, for example, in local customs regarding food – like the whitefish grilling – and experiencing traditional ways of preparing and eating, the

event opens up for bridging cultures and making memorable experiences for the participants (Smith 2006:1-14; Getz *et al.* 2014:44-45, fig. 4.1 p. 79). This is a form of “experiential tourism”, a kind of tourism in which people focus on experiencing a country or a specific place by actively and meaningfully engaging with its history, people, culture, food and environment. As noted by Smith, “Experiential tourism shows rather than describes. It encourages visitors to actively participate in the experience and promotes activities that draw people outdoors, and into cultures and communities” (Smith 2006:3). And experiential tourism has the potential to result in a double outcome since “memorable visitor experiences are a shared outcome between the visitor and the provider” (Smith 2006:3). In Kukkola, the visitors partaking in the culinary tourism activities take home new knowledge that they learned through memorable experiences where they took part in taste, smell, history, and cooking practices via active participation. This gives the participant and the new knowledge added value. And, as noticed by Mathias Spolander, who hosted the hand net fishing activities and the whitefish grilling, this

kind of tourist activity opens up for the spreading of knowledge of the living traditions in Kukkola, which can also contribute to their continuation (Interview conducted 2022).

How Kukkola foodways is presented and entangled in the tourist activities implies a wish to showcase the local culinary heritage as well as communicate it to both the present and future. By teaching visitors about cultural heritage and foodways, an active commitment to maintaining traditions in Kukkola is visible.

CONCLUDING REMARKS

This study shows that culinary tourism in Kukkola presents a way to share knowledge of and preserve the traditions connected to Kukkola heritage. The culinary heritage makes up an important part of the local traditions and history that are presented to the visitor. The culinary heritage tourism activities at the site can be described as a kind of dynamic tourism where tourism and how you work with cultural heritage have the potential to contribute to supporting

society, for example through job opportunities, rejuvenation and spreading knowledge (Andersson *et al.* 2017; Boniface 2001:ix; Sims 2009).

As has been shown, in the foodways presented in the Kukkola restaurant, the meals, cookbooks and tourist activities, a strong local reference is visible. And this is not only to the Swedish side of Kukkola: this emphasis on foodways also reflects a wish to reclaim common interests across borders – the Kukkola culture, on both the Swedish and Finnish side of the river. The common interest is enhanced through the shared ambition from Sweden and Finland in proposing the hand net fishing tradition along the Torne River to the UNESCO's Representative List of the Intangible Cultural Heritage of Humanity (Isof 2023; Valtioneuvosto 2024).

How much impact a potential listing on the UNESCO's Representative List of the Intangible Cultural Heritage of Humanity can have for the local community and the Kukkolaforsen Centre is an open question. If the effects of the tourism drawn to the Kukkolaforsen Centre today benefit local producers and actors, a UNESCO listing potentially brings risks of overtourism and, in the long run, greater pressure on tourist actors, whitefish and local food than there is capacity to handle. Regardless of the outcome, however, the fishing traditions and culinary tourist activities in Swedish Kukkola today are an example of lived heritage and culinary entanglements, with the whitefish at their centre. The Kukkola foodways on display function as a link between past, present and future.

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CHAPTER 8

CO-CREATION AND FOOD HERITAGE: EMPOWERING COMMUNITIES FOR SUSTAINABLE FOOD SYSTEMS

Theano Moussouri, Diana Rahman and Georgios Alexopoulos

ABSTRACT

This chapter draws on local and indigenous food practices to highlight how these can facilitate transformative actions by empowering people to imagine and realise sustainable food futures. We present empirical research conducted in Asia and in Europe where different communities draw on and adapt past food practices to co-create emergent innovative approaches to food security on a local and national level. Specifically, we use the concept of ‘food heritage’, which encompasses diverse past and present food practices, as a lens to conceptualise sustainability in the context of food systems. Our research in Indonesia focused on the *subak* system and demonstrated how it integrates elements of

indigenous agricultural knowledge and modern techniques to foster agricultural sustainability. It also highlighted the power of co-creation through *paruman* in apprehending the challenges faced by the local community and devising sustainable solutions. Co-creation in the European context, as applied by the BigPicnic project, enabled local communities to share their food practices, expanded the boundaries of botanic garden professionals' knowledge about their collection of plants and enriched their interpretation through integrating local and indigenous knowledge into canonical natural history knowledge. Employing the FAO's (Food and Agriculture Organization) entry points framework for transformative change towards sustainable food and agricultural systems we discuss the potential of food heritage for supporting innovation and sustainability.

Keywords: local and indigenous food practices, food heritage, co-creation, sustainable food systems, *subak* system

INTRODUCTION

The existing food system³⁴ undermines our health and the health of our family, the environment and our planet (Cecchini et al. 2010; Friel & Ford 2015; Neave 2023b). It has been argued that inequities in access within the food system – among other systems – lead to nutritional inequalities and health disparities, particularly in low- and middle-income communities and countries (Neave 2023a; Nisbett 2019). To turn the tide and create a sustainable food system demands immense transformations at the personal and societal level. Yet, exactly what is sustainable in relation to food is contentious and disputed. Food sustainability is a relative concept, contingent on time and place (Lang & Barling 2012; Peano *et al.* 2019). Several views, approaches and policies have been put forward

34 We adopt the FAO' (2018b) definition of the food system which 'encompass the entire range of actors and their interlinked value-adding activities involved in the production, aggregation, processing, distribution, consumption and disposal of food products that originate from agriculture, forestry or fisheries, and parts of the broader economic, societal and natural environments in which they are embedded. The food system is composed of sub-systems (e.g. farming system, waste management system, input supply system, etc.) and interacts with other key systems (e.g. energy system, trade system, health system, etc).'

to safeguard the cultural diversity of sustainable food systems. Drawing on past food practices is one such approach. The importance of the adaptation of elements of past food practices³⁵ that can help produce more sustainable regimes of food practices has come up in our research and has been voiced in different ways by food producers, consumers and policy makers. It is one of the aspects of what has been termed 'food heritage', which we view as a key element of the culture and social pillars of sustainability (Hawker 2001) in the context of the food system. Some urban as well as indigenous communities are currently enacting transitions to more sustainable food practices drawing on the past, guided by a motivation to explore how the food system could be more sustainable (Faye 2010; Salavisa & Ferreiro 2019).

In this chapter, we present findings from empirical research that examined the role that elements of past food practices can play in facilitating transformative action. Specifically, we ask how local and indigenous

35 'Past' food practices refer to traditional food practices enacted by particular communities. The term does not refer to a particular time period or locale.

communities draw on and adapt past food practices to co-create emergent food practices? To answer our research question, we draw on two case studies and examine the elements of past food practices which have been updated and reshaped through co-creation processes. The first case study focuses on the *subak* system, a traditional irrigation system employed in the island of Bali, Indonesia. The *subak* system case study explores the role that food and agricultural practices of the past can play as an innovative force for the future. The second case study focuses on the BigPicnic project and, specifically, on a series of activities that were co-created by a number of European botanic gardens with diverse communities. Both case studies draw on empirical research conducted by the authors in Asia and in Europe. The *subak* system case study was part of a larger ethnographic research study carried out in Bali, Indonesia, for the purposes of a doctoral thesis (Rahman 2021). The BigPicnic adopted a qualitative mixed-method research approach (Alexopoulos & Moussouri 2021; Kapelari *et al.* 2020).³⁶ The

36 For more details on the methodology and methods used in the two case studies see Rahman 2021; Alexopoulos & Moussouri 2021; Kapelari *et al.* 2020.

case studies were chosen because they include examples of how different communities have used past food practices and adapted them through co-creation. These case studies are also relevant because they illustrate how co-creation processes promote sustainable practices by involving community members in the decision-making process. For example, the *subak* landscape is a cultural landscape that is enlisted as a UNESCO World Heritage Site encompassing, among other things, the irrigational system co-created and adopted by the indigenous community (Rahman & Fouseki 2022). BigPicnic³⁷ organised a variety of events and activities (e.g. exhibitions, science cafés) that were co-created between botanic gardens and their local communities with the aim to critically address food security and sustainability issues. In this chapter, we have chosen examples of co-creation where there was evidence that the communities drew on past food practices to generate new ones.

37 'Big Picnic: Big Questions - engaging the public with Responsible Research and Innovation on food security' was a three-year project (May 2016-April 2019) funded by the European Commission's Horizon 2020 Programme (BigPicnic, 2023). The consortium consisted of 19 partners, which included 14 botanic gardens, two universities, a botanic garden professional organisation and NGO and a science shop.

This chapter argues that past food practices engender possibilities for co-creating new food practices with the view to better understand the role of the co-creation of local and indigenous food heritage and use it as an entry point to transformative actions around the future of food. We employ the FAO's '10 elements of Agroecology' (2018a) for transformative change towards sustainable food and agricultural systems. This framework is based on agroecological approaches to transition theory that aim to bring together concepts and research from both the natural and social sciences. We begin by introducing key concepts such as food heritage and co-creation, and situating them in the theoretical tradition of agroecology. In this context, we draw on the FAO's '10 elements of Agroecology' and, in particular, on the cultural dimensions of 'co-creation and sharing of knowledge', and 'culture and food traditions', as a frame of analysis. The chapter concludes by highlighting that co-creation has a transformative potential in supporting innovation and sustainability. The research presented in this chapter demonstrates the power of bringing together diverse knowledge systems to

foster collaboration, enhance understanding, and drive positive change in sustaining food production.

THEORETICAL FRAMEWORK

This chapter takes its inspiration from discourses that are increasingly emphasising the notion of food heritage and its connection to sustainability and food security as well as the agroecological approach that is increasingly seen as an innovative force in the global efforts to improve food systems and agricultural production. It also responds to demands to include the voices of diverse communities with different types of food heritage and, hence, expand the boundaries of food knowledge and expertise. In this context, co-creation becomes an important concept as it highlights the central role different local and indigenous communities should play in the decision-making process (Rock *et al.* 2018), in this case in constructing food heritage and shaping the future of food. A small number of studies have examined the link between past, present and future food practices. The educational psychologists Harris and Barter (2015) set out

to test the potential of different critical pedagogies to affect change in the food practices of students and adults as they engage in a reflection of past and present food practices with the aim to imagine different food futures. Using experimental, discovery and arts-based pedagogies, they engaged students in researching the past food practices of their local area. Initial findings suggested that both students and their teachers were empowered to lead their own learning, formulate research questions about food practices and research these. Other studies examined food practices of different communities with the aim to contribute to existing knowledge about food cultures in different countries (e.g. Engelhardt *et al.* 2019; Raji *et al.* 2017). At a micro-level, some studies examined what motivates particular food choices and practices (e.g. Guiné 2021). This chapter builds on this work but takes a different focus. It conceptualises past and present or emergent food practices as food heritage to show how local and indigenous food heritage can be used as an entry point to transformative actions around the future of food. We perceive food heritage as encompassing traditional practices of food production and

consumption that, first, characterise the foodways of specific groups of people, regions, or nations; second, employ forms of knowledge and craftsmanship, skills, methods, processes, and tools; and, third, are part of specific cultural or religious celebrations, festive events, performances, customs, and rituals (Rahman *et al.* 2021).

Co-creation can be understood as the practice of involving wider stakeholders or communities in the production of knowledge and meaning (e.g. Watson & Waterton 2015) or the collaboration between institutions and their audiences in creating and disseminating values, contents, ideas, or strategies (e.g. Ramaswamy & Gouillart 2010; Russo & Watkins 2007; Simon 2010). The *subak* system embodies several characteristics of co-creation, including community collaboration, where farmers collectively manage series of initiatives and responsibilities: first, irrigation and farming activities through consensus-based decision-making; second, shared knowledge and practices, which involve the transmission of traditional knowledge and agricultural techniques between farmers and across generations; third, adaptivity,

demonstrating the ability to adjust to environmental changes through collective assessments and understanding; and, fourth, equitable water distribution, ensuring fair access to resources for all members to prevent conflicts and promote communal harmony.

Our definition of food heritage speaks to the socio-cultural role of food in particular. This is seen as a legacy and resource to be preserved for both present and future generations and has gained wide recognition and interest in a variety of disciplines and more recently in the field of heritage studies (Alexopoulos *et al.* 2022; Rahman *et al.* 2021). The heritagisation and patrimonialisation of food has also been boosted by the emergence of the concept of intangible cultural heritage, supported primarily by UNESCO and several other international organisations (Brulotte & Di Giovine 2016). These developments have elevated food cultures and traditions and practices related to food production and consumption into a form of heritage that operates on multiple levels, from local to global. Inevitably, food has been recognised to play a key role in cultural sustainability and to a variety of environmental, economic, social and political issues, echoing

the growing discussions and debates on sustainable development (Alexopoulos *et al.* 2022:328–330). More recently, the heritage dimension of food has been deemed as a crucial element in discussions about food security (Kapelari *et al.* 2020), one of the greatest global challenges that refers to access, sovereignty and safety within food systems (FAO 2009).

While food has strongly entered the global heritage discourse, the potential of looking into agroecology to further expand our understanding of the sociocultural role of food in global challenges has so far been overlooked. Agroecology itself, as a discipline, has gained a lot of currency since the 1980s and has embraced various fields of expertise that attempt to implement ecological principles for the understanding and development of sustainable agroecosystems (Altieri 1989; Gliessman 2013; Rahman *et al.* 2021). As we have argued elsewhere, there is added value in the adoption of approaches that bridge the research conducted in the fields of agroecology and food heritage as this can lead to more nuanced insights on how socio-cultural aspects of food impact food systems (Rahman *et al.* 2021:13). Conceptualising food heritage

from an agroecological perspective enables us to integrate it with participatory approaches to knowledge construction. As Aguilera et al. (2020:13) noted, ‘agroecological practices have a high adaptation potential through the cocreation of local knowledge based on the integration of scientific and traditional ecological knowledge’.

Within this context, this chapter employs the framework of ‘10 elements of Agroecology’ from the United Nation’s FAO in order to discuss the potential of food heritage for supporting innovation and sustainability. More specifically we will focus on the possible entry points for transformative change towards sustainable food and agricultural systems. These entry points cover ecological as well as the socioeconomic, cultural and political dimensions. Specifically, they help conceptualise pathways of transformative change towards sustainable food and agricultural systems. In this chapter, we focus on two elements of the framework, which are most relevant to our argument, namely the cultural dimensions of ‘co-creation and sharing of knowledge’, and ‘culture and food traditions’ (hereinafter FAO’s entry points)

of the FAO’s ‘10 elements of Agroecology’ (FAO 2018a; Wezel *et al.* 2020). This framework shows that food heritage research amplifies the transformative character of agroecology which enables it to respond to the current challenge of the agri-food system and its impact on human health and the environment.

RESEARCH FINDINGS

The subak system and its connections to FAO’s entry points

The *subak* system is a traditional, community-based irrigation and agricultural practice in Bali, Indonesia, used primarily for rice paddies. It integrates water management with local religious practices, emphasizing harmony between people, nature, and spirituality. The *subak* system was first established to prevent competition over water not only amongst farmers but also between farmers and other activities, such as tourism, religious rituals, and those farmers engaged in livestock rearing. In contrast to large-scale farmers who rely on groundwater and operate independently, *subak* farmers adopt a collective approach

to managing water obtained from springs, lakes, or rivers. This cooperative management ensures that all rice fields receive an adequate water supply without depleting the water sources. To optimize irrigation, the rice fields are constructed in a terraced landscape design, allowing spring water or river flow to enter the topmost field and subsequently cascade down to the lower fields. By aligning the plantation schedule with the field positions, *subak* farmers can stagger their water usage, with the highest located rice field commencing irrigation first. Consequently, decisions regarding pesticide usage must be collectively agreed upon by the farmers, as it directly impacts the entire *subak* and its rice fields.

The *subak* system, which originated in the 9th century, is over a thousand years old.³⁸ Deeply rooted in indigenous knowledge and food heritage, the *subak* system offers valuable insights into the historical challenges faced by Bali's agricultural society and provides potential solutions to address those challenges. The

³⁸ Evidence of *subak*'s existence and significance includes ancient stone inscriptions, water temples, oral traditions, agricultural landscapes, and colonial records.

collective body of farmers within a *subak*, known as a *subak* organization, has a pivotal role in this context. Acting as overseers of the system, mediators, and catalysts for adaptability, the *subak* organization holds significant influence. By wielding the authority to enforce *subak* rules and regulations, it shapes farming practices and ensures adherence to these rules and regulations throughout the community. This multifaceted entity serves as a vital tool that enables farmers to modify farming rules and regulations when necessary, fostering a dynamic environment for sustainable agriculture in Bali.

In the *subak* system, the farmers' meeting, known as a *paruman*, serves as a vital means of achieving collective decision-making regarding farming activities, water management, and cultural affairs. It represents the highest level of the decision-making process within *subak* and holds significant influence over the work and direction of the *subak* organization. The head of farmers, called the *pekaseh*, is mainly a facilitator who does not have an individual authority to enact change in the *subak* and its community. The *pekaseh*'s role lies in mediating between farmers and

in representing farmers when problems arise. The farmers themselves, through the *paruman*, assume the central role as decision-makers in this democratic structure that has endured for thousands of years. This participatory system helps to limit new or unsustainable farming methods that deviate from the principles of *subak*, and thus it embodies the co-creative aspect of the cultural management of the *subak* system.

At the heart of the *subak* system lies the profound concept of *Tri Hita Karana*, which serves as its driving force. Derived from Balinese culture, the *Tri Hita Karana* philosophy encapsulates the pursuit of harmonious relationships between humans, the spiritual realms, the environment, and other non-human beings. These guiding principles profoundly shape the interactions among farmers, offer insights into the optimal care of the rice fields, and establish limits to any potential attempts to influence traditional knowledge. *Tri Hita Karana* serves as the cultural bedrock upon which the *subak* system is built, promoting sustainable practices, holistic well-being, and a deep-rooted sense of interconnectedness within the Balinese community.

Farmers acknowledge that employing traditional farming tools and utilizing local rice varieties yields superior outcomes for their rice fields and crops. Moreover, traditional methods are not only cost-effective but also readily available. For instance, the traditional ploughing system promotes enhanced soil aeration, leading to improved soil conditions, stronger crop growth, and extended soil longevity. However, despite this awareness, there is a prevailing preference for using modern farming tools alongside the traditional *subak* system. The time-consuming nature of utilizing solely traditional tools and methods poses a challenge, as it hinders farmers from exploring alternative sources of income that could support their agricultural activities.

Here, the role of the *paruman* primarily revolves around ensuring and fostering consensus regarding appropriate changes within the framework of *subak* rules and regulations. *Tri Hita Karana*, as one of the fundamental principles of Balinese culture, guides the *subak* system by aligning changes with the adaptability of Balinese practices while fostering a strong



Figure 1. Local farmers employ an innovative tool during the harvest season in Bali, showcasing the dynamic evolution of agricultural tools within the adaptive Balinese culture. Photo: Diana Rahman, 2018.

interconnection among the community, their food heritage, their environments, and the spiritual realms that represent their ancestors. By upholding these principles, farmers are able to find innovative ways to improve and sustain their agricultural practices as well as nurture their indigenous knowledge and practices.

Figure 1 shows one of the harvesting methods employed by farmers within the *subak* landscape. These innovative tools and techniques have emerged as the preferred choice among many farmers due to their efficiency compared to the solely traditional harvesting method. The wider use of the tools demonstrates

how change is embraced within the *subak* landscape. This finding is aligned with the French anthropologist Michel Picard's research:

...the Balinese seem to have shown a particular genius in the course of their history for assimilating outside influences in a selective way, adopting only those that suit them, and integrating them harmoniously into their own cultural fabric. The result today appears as an original combination of objects and images, customs and beliefs that, despite their diverse provenance, have become acknowledged as 'typically Balinese'. Picard (1996:11)

Figure 2. Botanic Garden Meise staff worked with FoodBridge Director, Maureen Duru (pictured here), to engage members of the African diaspora. Photo: BGM 2017.



The BigPicnic project and its connections to FAO's entry points

Co-creation and sharing of knowledge

The notion of co-creation has been central in recent efforts to make cultural organisations more inclusive and socially relevant and to increase public participation in activities offered by the sector (Govier 2009; Haviland 2017; Simon 2010). Co-creation was at the core of the approach followed in the BigPicnic project activities (Alexopoulos & Moussouri 2021:83–83). In this case, different levels of expertise and different forms of knowledge were brought together through dialogue, interaction and collaboration that was based on exchange of values and ideas. One especially effective way of achieving the afore-mentioned

interaction was the introduction of science cafés. Botanic gardens are well placed to support this type of work for a number of reasons: as centres of plant expertise and education, with strong links to scientific and academic audiences, they can act as hubs in their local communities, facilitating discussion and providing a place to explore food security topics. They are also good settings for carrying out co-creation work through science cafés as they can draw on their collections, other resources and expertise. Science cafés were used as a co-creation approach because of their ability to connect different stakeholders and create an atmosphere in which all participants felt encouraged to listen to others and to share their thoughts (Kapelari *et al.* 2019).



Figure 3. Members of the African diaspora and BGM staff during a co-creation session in the Tropical Rainforest greenhouse of the Plant Palace. Photo: BGM 2017.

Science cafés have been increasingly popular, particularly in Europe, since the 1990s and have become a very useful medium not only for rendering science more accessible to different publics, but also for creating more fruitful dialogue between scientists and non-scientists (Alexopoulos & Moussouri 2021:89; Davies *et al.* 2009; Riise 2008). For the purposes of the BigPicnic project, more than 100 science cafés were organised with a total of around 6,000 participants (Kapelari *et al.* 2019:5). These science cafés – each focusing on a specific topic relevant to food security – consisted of events hosted in casual settings that became a platform for conversation and debate between scientists and different publics. In many cases, the science café participants offered perspectives and viewpoints

rooted in their own cultural traditions, habits of food consumption and production, resulting in discussions that revealed and promoted solutions to food security problems that were based on traditional forms of food knowledge (Alexopoulos & Moussouri 2021:90).

The emphasis on co-creation through science cafés allowed discussions on food to become a meeting point for different people and different cultures, and this was particularly evident in the case of the activities organised by the Botanic Garden Meise (BGM) in Belgium. The members of the botanical garden collaborated with a non-governmental organisation, FoodBridge (<https://www.thefoodbridge.org/>), and engaged members of the African diaspora community in a series of activities (see Figure 2). The activity ‘The

Face behind the food' aimed to help people who had migrated from Africa to re-connect with their foodways and food cultures and also to share with botanists and other experts their traditional knowledge of specific plants and their uses. The activities included science cafés, the sharing of cross-cultural meals, gardening courses and visits to the BGM where conversations and exchange of information were encouraged. Using the plants displayed in the greenhouses as a point of reference, participants visited the BGM and shared their memories and stories (see Figure 3). These stories provided insights into traditional culinary practices and traditional knowledge about the production, consumption and the sociocultural significance of certain African plants. A wide range of insights into local traditional knowledge from different countries and regions of the African continent, such as healing and medicinal properties, symbolic connotations and other cultural traditions and associations, was also included. In addition to this indigenous perspective on the value of the plants, members of the African diaspora highlighted their desire to have better access to healthy and reasonably priced

food that also taps into their traditional cuisine and eating practices.

'The Face behind the food' activity was an opportunity to bring together the scientific knowledge of botanists with indigenous forms of knowledge. This process enabled the future inclusion of additional layers to the scientific knowledge already promoted by BGM. These layers encompassed alternative narratives and stories related to the horticultural and food heritage, so the whole process provided a platform for other voices to be heard. This sharing of knowledge was an opportunity to touch on not only the importance of food culture and traditions but also food security issues. For the educational services of the botanical garden, the indigenous knowledge provided by members of the African diaspora community was considered useful for informing future interpretations of the plants and engendering relevant activities such as workshops, guided tours and exhibitions (BGM 2023).

Culture and Food Traditions

Some of the BigPicnic activities facilitated a connection between people and traditional plants and eating



Figure 4. A display of native aromatic plants, ‘Greek superfoods’, at the Balkan Botanic Garden of Kroussia. Photo: Theano Mousouri, 2016.

practices. Activities organised by the botanical garden partners focused on fruits, vegetables and herbs that have a long tradition within their respective countries and/or regions of origin. These foods were selected because of their healthy and nutritional qualities, their link to traditions and food cultures and the fact that they were often replaced by other products that were not locally grown and were less nutritious and/or not associated with traditional foods. This was an attempt to reintroduce food traditions or reinforce existing connections between food traditions and people. In addition, reinforcing this connection had the potential both of improving contemporary eating habits and food security, and of promoting local/national food cultures.

One interesting example was an activity that promoted the idea of turning to traditional medicine and culinary practices to inform contemporary eating habits. The Balkan Botanic Garden of Kroussia (BBGK), located in the North of Greece, organised co-creation activities for increasing public awareness of Greek native and/or endemic species with special nutritional properties, named ‘Greek superfoods’. Superfoods are generally considered to be types of food that have been known in the past and have now been re-discovered, and that not only have nutritional value, but also contain unique properties that render them of medicinal value (Wolfe 2009:1–2). In recent years, superfoods have been gaining popularity worldwide as a healthy and clean source of food of high nutritional and biological

value that also links with sustainability (Fernández-Ríos *et al.* 2022). Despite some debate about the way ‘superfoods’ are actually portrayed and marketed to customers – for example as ‘natural’ (Hassoun *et al.* 2022) – these types of food are usually related to traditional production practices that originated from indigenous cultures with minimal processing and technological intervention (Fernández-Ríos *et al.* 2022:2).

One of the activities organised by BBGK was the ‘Aromatistas’ portable exhibition, promoting Greek medicinal aromatic plants as superfoods. The aim was to make the public aware of plants and herbs that are locally grown and can be used in traditional recipes. One hundred and thirty-six people, including both specialists and non-specialists, assisted in the creation of the portable exhibition that was set up in many different venues. The evaluation showed that people were not aware that some Greek Medicinal Aromatic Plants can be considered superfoods. Among the superfoods displayed were: the dittany of Crete, the mastic of Chios, Greek mountain tea, rock samphire, wild thyme, savoury, fennel and marjoram (see Figure 4). The emphasis on these types of traditional plants was underlined not only for their economic and

nutritional benefits but also for creating links to traditional eating practices. The organisers noticed that Greek Medicinal Aromatic Plants are underutilised while, at the same time, the current trend is to choose imported superfoods.

CONCLUSION

Co-creation as a knowledge construction practice is not a novel approach to knowledge creation, problem solving and power-sharing, as the *subak* system in Bali demonstrates. Contemporary co-creation approaches, such as those used in the BigPicnic project, have also been employed as a way to bring together different types of knowledge that exist in the interface between people, their environment and food traditions that bridge human and non-human elements.

The BigPicnic project was an opportunity for different ‘food cultures’ to meet and for different publics to exchange thoughts and share their values, cultural references, meanings and traditions associated with their eating habits. Co-creation activities were not only a process for sharing knowledge and giving a voice to European citizens from diverse backgrounds.

They were also a medium that allowed the botanical gardens to engage with a wide range of stakeholders and embrace different food cultures, providing a series of activities and some research findings that played a key role in the effort to promote food security, sustainability and, consequently, to highlight the importance of food heritage for tackling global challenges. By embedding the FAO entry points of ‘culture and food traditions’ and ‘co-creation and sharing of knowledge’ in their co-creation approach, botanic gardens added additional elements to their influential status as public institutions of educational and social value. They were able to build on existing knowledge included in their collections systems by adding traditional food knowledge and including these in the interpretation of their exhibitions. Hence, they brought together canonical natural history knowledge about plants and local and indigenous knowledge that enriches collections and interpretation. These connections demonstrate the potential of food cultures for supporting innovation and sustainability.

The *subak* system seamlessly integrates elements of indigenous agricultural knowledge and modern

techniques to foster agricultural sustainability. The *subak* organization and the *paruman*, as integral components of the system, exemplify the power of co-creation in comprehending the challenges faced by the community and devising appropriate solutions. The *paruman* enables collaboration, encourages the active involvement of farming communities, and facilitates discussions. By effectively integrating innovation into traditional knowledge, the *subak* system enables local communities to adapt to the ever-changing environmental landscape. In addition, the integration of local and indigenous knowledge into agricultural practices has further strengthened their ability to promote food security, sustainability, and to utilise the preservation of food heritage as a way of tackling global challenges.

The connections formed between food cultures, canonical knowledge, and local and indigenous knowledge underscore the transformative potential of co-creation in supporting innovation and sustainability. These examples demonstrate the power of bringing together diverse knowledge systems and perspectives to foster collaboration, enhance understanding, and drive positive change for food production, conservation, and heritage preservation.

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CHAPTER 9

A SLICE OF CHRISTMAS CAKE – THE TASTE OF GLOBAL TRADE IN CHRISTIANIA IN THE LONG EIGHTEENTH CENTURY

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ABSTRACT

This article looks at how food connected Norwegian consumers in the long eighteenth century with the emerging global market. It maps the increasing, though fluctuating, quantities and availability of foreign foodstuffs, and discusses how the supply of such goods influenced social and economic change.

Keywords: transnational trade, foodstuffs, supply, globalization

INTRODUCTION

Each November bakeries in Norway fill up with *Julekake*, a traditional Christmas cake. Cut into slices, and often served with a spread of butter and brown cheese, the *Julekake* is an important culinary Christmas tradition for Norwegians.

It is impossible to say when the first *Julekake* was made, but by 1828 the orphaned girls at The Eufemia Foundation in Christiania (today's Oslo) shared two loaves as a Christmas treat (*Morgenbladet* 1829, 1830). In 1843 a recipe for *Julekake* is published in Miss Elisabeth Truchs's "*Huusholdnings- og Koge-Bog*", Norway's second printed cookbook (Truchs 1843).

Miss Truchs's Christmas cake would never have been possible without global trade. The key ingredients that add taste to her Christmas cake (and modern ones) were sugar, lemons, raisins, currants, cinnamon and cardamom.³⁹ At Miss Truchs's time, and before, these were all foodstuffs with origins in southern Europe, Asia or the Caribbean. Using the foreign

ingredients that went into making her Christmas cake as a starting point, this article looks at the trade in, and changing availability of, foreign foodstuffs in Norway between 1786 and 1835, as well as the social and economic forces driving the changes.

Trade in foodstuffs like sugar, coffee, tea and spices, often called "exotic goods", has received much attention from economic and social historians in recent decades. These goods were carried over great distances, and have frequently been used as indicators of emerging global trade, their spread and use serving as guides to transnational influence in societies.

Norwegian participation in the emerging global trade has tended to focus on exports of fish, timber, copper and iron. In the wake of discussions of "a consumer revolution" in the early modern period, imports of "exotic goods" have received more attention (Hutchison 2012). Less attention has been given to how, in the early modern period, foreign foodstuffs and culinary ideas impacted Norwegian culinary

39 Also candied lemon peel (*sukat*), but these have been left out since very little arrived in the long eighteenth century, and today many people remove them from their slices of cake.



Figure 1. Julekake. Photo: Gaute Gunleiksrud.

traditions. With notable exceptions, like Fredrik Grøn (Grøn 1942; Hutchison 2011), most studies of the early modern culinary culture have explored the uniqueness of Norwegian foods, often focusing on a particular place or region, often in rural areas. Less attention has been given to the global connections of ingredients, technology or ways of consuming the food in towns.

This chapter looks at how food connected Norwegian consumers in the long eighteenth century⁴⁰ with the emerging global market. In the first part, the quantities and availability of ingredients needed for Miss Truchs's Christmas cake in Christiania are used to map the development of these connections.

The second part of the chapter discusses these developments in a wider perspective, asking what impact foreign foods had on social and economic change.

Sources and methods

To trace the availability of the ingredients for Miss Truchs's Christmas cake, the chapter relies on summary commodity lists found in customs records. These are available online through the project *Historiske toll- og skipsanløp* in a transcribed and searchable database.⁴¹ The lists detail the goods, their quantity, and where they were destined or came from, spanning a selection of years between 1686 and 1835, making it possible to identify trends, and in extension

⁴⁰ The long eighteenth century is here understood as spanning from the 1680's to the 1830's.

⁴¹ https://tidvis.no/historiske_databaser/

availability. For simplicity's sake these records will be called "customs records".

A major challenge when working with customs records is that they provide information about legal trade. Illegal trade, which was known to be extensive, is not covered by these records. A Danish estimate from the 1770s indicated that smuggled goods represented a value of between 10 to 15% of legal trade. For Norway, with its long and difficult-to-control coastline, illegal trade was probably even more prevalent. This was not unique for Norway, as smuggling was widespread in all European countries at the time (Knutson 2023). When working with customs records, all quantities cited must therefore be understood as minimum amounts (Hutchison 2017).

Despite this, the customs records remain useful for gaining insights into the development of trade in the long eighteenth century. The subsequent investigation is an example of how customs records can be employed to explore how places like Christiania engaged in, and were impacted by, early globalization.

INCREASED, THOUGH FLUCTUATING, IMPORTS OF FOREIGN FOODSTUFFS

The sugar, lemons, raisins, currants, cinnamon and cardamom required for Miss Truchs's cake were all available in Christiania in the years between 1686 and 1835. The amounts varied, at times greatly, but the overall trend for each was increased availability.

Table 1 shows cardamom and cinnamon arriving in Christiania in small, but increasing, amounts through the period. Cinnamon especially, rising from 21 pounds in 1686 to more than 2000 pounds in 1835. The small amounts are partly explained by their distant origins in South Asia, but also their low weight. Lemons, raisins and currants also arrived in increasing quantities. Lemons, especially, rose from 7600 in 1686, to more than 128,000 in 1835. They grew in Mediterranean countries with which Norway had long-established trade connections. Sugar imports amounted to less than 3000 pounds in 1686, and less than 12,000 pounds in 1733, but then rose steeply from the 1750s, from approximately 78,000 pounds on average between 1751 and 1756, to a bit more than 800,000

Table 1. Pounds of cardamom, cinnamon, currants, lemons, raisins and sugar arriving in Norway. Available in selected years between 1686 to 1835. (1 pound = 0.49 kg)

	1686	1731	1733	AVERAGE 1751–56	1762	AVERAGE 1786, 1788, 1790, 1792, 1794	1835
Cardamom (pd)	15	6	94	98	76	37	304
Cinnamon (pd)	21	6	122	201	158	118	2 195
Currants (pd)	937	571	6 210	9 285	10 343	3 371	678
Lemons (pieces)	7 600	850	9 200	37 926	51 450	24 290	128 501
Raisins (pd)	2 908	2 470	20 693	21 288	63 138	14 314	79 959
Sugar (pd)	2 881	1 060	11 776	78 056	101 490	190 229	808 498

* In the last decades of the eighteenth century, lemons also arrived in crates. Since it is unknown how many lemons were in a crate, they are left out here.

Note: The amounts are the total sum of what arrived both as imports directly from abroad and via domestic ports in the dual Danish-Norwegian monarchy. Succade was also amongst the ingredients in the cake, but arrived in such small quantities (never more than 85 pounds) in these years that it has been left out in this study.

pounds in 1835. The sugar was grown on slave plantations in the West Indies.

The fluctuations in imports illustrate how lack of predictability was a constant challenge in early modern trade. To understand why the goods arrived

in so varying amounts, we must look at both domestic and international conditions.

All of the ingredients experienced a significant increase between 1731 and 1733. Customs historian H.J. Jørgensen argues that this is best explained by a

customs law imposed in 1732 (Jørgensen 1969:230–233). It reduced tariffs on many goods, removing the motivation for smuggling, and thereby stimulating a shift to more legal trade. The amounts arriving in 1731 can thus be assumed to have been closer to those in 1733, if illegal trade had been included.

The rise in sugar imports occurring in the 1750s is also best explained by changes in domestic trade policy. In 1754 the Danish-Norwegian state took over the operation of the “sugar island” St. Croix in the Caribbean. By doing so St. Croix’s sugar became a domestic commodity, enabling it to be traded duty-free within all parts of Denmark-Norway (Hutchison 2011; Koren 1906:1–40). Removing the duties also made smuggling less attractive, thus we can assume that the quantities of sugar noted in the remainder of the period are fairly correct.

Between the 1750s and 1762 imports of ingredients with overseas origins all declined. Comparatively, those from the Mediterranean increased. No changes in domestic tariffs preceded these years. Instead,

international events in the form of a war, a neutrality policy and a peace treaty help explain the changes.

The war was the Seven Years war (1756–1763), which disrupted global trade, both overseas and within Europe. Reduced supplies of sugar and spices to Europe were amongst the many consequences. For Denmark-Norway, following a policy of neutrality, the war also had beneficial effects. Danish-Norwegian ships had exclusive access to ports in the warring states, placing them in an advantageous position for trade in the Mediterranean. A peace treaty

between Denmark-Norway and the Barbary states⁴² in 1756 guaranteed Danish-Norwegian ships safer trade in the Mediterranean, and further increased access to goods like raisins and lemons (Feldbæk 1993:134–150).

Between 1786 and 1795 the quantities of all the ingredients, except sugar, arriving in Christiania declined. At first glance this is surprising given that European demand for timber, fish and freight services made these buoyant years in the Norwegian economy,

42 The Barbary states was the contemporary term for the North African states of Algiers, Tunis, Tripoli, and Morocco

enabling rising material consumption, of which foreign foods were among the many possible comforts (Dyrvik 1979:133–218).

Again, changes in domestic policies explain this. A wave of new import bans, increased customs tariffs and several sumptuary laws designed to cut the consumption of foreign goods were introduced in the 1750s and 1760s. This dramatically reduced legal imports of food imports like spices, lemons, currents and raisins, but did not affect domestic commodities like sugar from the Danish-Norwegian West-Indian colonies. H.J. Jørgensen has also found that illegal trade in foreign goods increased in the wake of the restrictions (Jørgensen 1969:184–201). It can thus be assumed that, if smuggling was included, the quantities of the ingredients arriving in Christiania were far higher than what the customs records indicate.

By 1835 all the foreign foodstuffs needed for Miss Truchs's Christmas cake arrived in Christiania in significantly larger quantities than in the preceding century and a half. Changes in international trade help explain why. Firstly, gradual economic liberalization in the years following the end of the

Napoleonic wars opened for a greater variety of goods to be traded across borders, in larger quantities (Hutchison 2011). Secondly, in the wake of the break-up of the Danish-Norwegian union in 1814, Norway was forced to look for new trading partners. Hamburg replaced Copenhagen as the main distribution hub for foreign goods, connecting Christiania more directly to global trade networks (Hutchison 2014; Rothe 1848:190–199).

PER CAPITA AVAILABILITY AND PRICES

To better see how the changing quantities of the foreign foodstuffs connected those living in Christiania with the emerging market it is useful to look at their per capita availability, as well as their price.

The per capita availability is calculated based on estimates of Christiania's population through the period, and the results can be seen in Table 2. Social and economic differences are not reflected here, nor are purchases by non-residents. Despite this, the per capita estimates help provide an impression of the foodstuffs' availability, and how this changed over time.

Table 2. Per Capita estimates of sugar, cinnamon, cardamom, lemons and raisins arriving in Christiania. Selected years between 1686–1835. (1 pound [pd] = 0.49 kg)

	1686	1731	1732	AVERAGE 1751–1756	1762	AVERAGE 1786, 1788, 1790, 1792, 1794	1835
Cardamon (pd)	0.004	0.001	0.014	0.015	0.008	0.003	0.013
Cinnamon (pd)	0.005	0.001	0.019	0.031	0.017	0.010	0.095
Currants (pd)	0.234	0.088	0.955	1.428	1.114	0.291	0.072
Lemons (pieces)	1.900	0.131	1.415	5.835	5.541	2.096	5.536
Raisins (pd)	0.727	0.380	3.184	3.275	6.799	1.235	3.445
Sugar (pd)	0.720	0.163	1.812	12.009	10.929	16.415	34.831

Christiania's population:

1686: population size 4000 in 1680

1731 and 1732: population size 6500 in 1743

1751–1756: population size 9286 in 1769

1786, 1788, 1790, 1792, 1794: population size 11 589 in 1801

1835: population size: 23,121 in 1835

Sources: Sprauten 1992:81, 206, 367; SSB historisk statistikk:3

Table 2 shows that more people were able to taste cinnamon, cardamom, raisins, lemon, currants and sugar though the long eighteenth century, and that much of the increase occurred in the latter half of the period. Despite this, neither the spices nor the Mediterranean ingredients have per capita estimates to merit them being termed everyday goods. Sugar, on

the other hand, went from being a rare luxury in the seventeenth century to becoming so common in 1835 that most people in Christiania could enjoy it every day. These findings coincide with how sugar consumption developed in neighbouring Sweden (Rönnbäck 2017).

Prices can provide insight into who had the opportunity to buy the foreign foods. Prices varied between

shops and through the year, but values ascribed to lemons, raisins, cinnamon and sugar in the 1786 customs record indicate their sales price. Raisins were valued at seven skillings a pound, and lemons at one skilling each (one riksdaler = 96 skillings). At three riksdaler and four riksdaler, respectively, per pound, cinnamon and cardamom were far more expensive. The sugar used in our Christmas cake was probably refined, and cost 20 skillings a pound.

Comparing the prices to wage data, it becomes clear that already in the 1780s sugar, lemons and raisins were within reach for even a manual day labourer. 20 skillings was the daily wage paid by the Christiania Magistrate in 1787 for ditch digging. One day's wage could thus purchase a pound of refined sugar, nearly three pounds of raisins or 20 lemons. A pound of cinnamon or cardamom would be out of this person's league, but few people need a pound of these spices. A small amount would suffice. The key foreign ingredients needed to make Miss Truchs's Christmas cake were thus available even to a ditch digger in the 1780s. If not every day, then at least for special occasions.

HOW ECONOMIC, SOCIAL AND CULTURAL CHANGES IMPACTED FOOD CONSUMPTION

To understand the forces driving the gradual increased consumption of exotic and foreign foods like sugar, lemons, raisins, cinnamon and cardamom arriving in Christiania in the long eighteenth century we must look at the wider economic and social changes taking place at the time in the world which impacted supply. We should also look at some of the consequences of this increased consumption

Present-day awareness of the consequences of globalization and de-globalization has led historians to delve into the seventeenth and eighteenth centuries, hoping to cast light on their beginnings, in addition to how they influenced economic, social and cultural change (O'Brian 2006). The rise of global trade, meaning trade between continents where demand in one place had an impact on production conditions in another, has therefore received much attention in research on pre-industrial economic development (Bair 2009:1-30).

Studies focusing on the size of global trade in the early modern period show that the quantities traded between continents were low for much of the pre-industrial period, although they increased in the latter half of the eighteenth century (O'Brian 1982; de Vries 2008:162). At the same time, trade within Europe, both domestic and across borders, rose (Brand *et al.* 2007; Braudel *et al.* 2002:1–50). As we have seen, the same pattern is found in Christiania in the long eighteenth century.

Infrastructure developments, improvements in navigation technology, and more predictable institutions have been highlighted by many as important explanations for increased trade, and thus supply, in this period (van Zanden 2016:13–34). These factors have certainly played a role in the increase in foreign food items arriving in Christiania, but it is changes in domestic trade laws, as well as international conditions for trade, that best explain the variations we see in the quantities of goods arriving in Christiania.

However, supply is not enough to explain why foreign foodstuffs could increasingly be consumed by a wider section of Christiania's population in the long eighteenth century. For the majority of Norwegians

sugar, cinnamon, cardamom, raisins and lemon were novel tastes. Being accustomed to salted, dried, smoked foods, and simple porridge or bread eaten with dairy products, the new foods from abroad may well have been met with distrust (Fisher 1988:275–92).

Taste is a physiological experience, but also has a philosophical and social aspect. Physiologically there are five basic tastes; sour, sweet, bitter, salty and umami. They are registered by the tongue's taste receptors, which relay the message to the brain where it is registered as a sensory experience. Smell and consistency also influence how food tastes (Pedersen 2009:283–285). In Miss Truchs's cookbook foreign ingredients such as sour lemons, bitter almonds and sweet sugar are combined with foodstuffs like dairy, wheat and eggs. The resulting dishes have flavours that are both novel and familiar. Miss Truchs's recipes are only one of many examples of such combinations which helped early modern Norwegians get accustomed to new physiological tastes.

The philosophical and social aspect of taste springs from personal and social experiences of foodstuffs and dining (Pedersen 2009:283–285). In this “taste” is tied to social expectations, both one's



Figure 2. Caspari's Conditorie was located in this house, on the corner of Kirkegata and Prinsensgate in Christiania. Artist: H.L. Helliesen. Owner: Oslo museum.

own and those of others. As access to foreign foods, as well as other goods, increased through the early modern period, the philosophical and social understanding of taste changed. Taste in food, as well as in other things, became a means to express identity and belonging to a group, as well as a means to express oneself (Bourdieu 2013 chapter 4; Brewer *et al.* 1993:1-40; Elias 2000:180-182).

With the exception of lemons, the foreign foodstuffs which have been looked at here were all known in Norway in the medieval period (Vedeler 2017). The amounts available, and the prices, limited their consumption to the wealthiest. Karen Arup Seip's work on the consumption of foodstuffs in the sixteenth century shows that the Danish-Norwegian nobility frequently used sugar and spices as gifts to seal friendships and alliances, and that eating dishes with a lot of such ingredients was a way to signal power and prosperity (Seip 2016:165-194).

As the availability of foreign foods increased through the long eighteenth century, the old social structures were disrupted. As access became possible for more people, consuming them became democratized (Jones *et al.* 1998:1-5; Peck 2005:1-24). Having the foodstuffs was no longer sufficient to show to your surroundings that you had "good taste". Increasingly, "good taste" required specialized knowledge of how to cook, consume and talk about food in accordance with the latest trends. How a person related to the food, and the eating of it, became a way of showing their belonging to a group (Pedersen 2009:283-285).

Contemporary memoirs from travels in Norway show it was women in the upper and middling social classes who were engaged in food and "taste" matters. They were themselves engaged in the kitchen, taking part in, and leading, the work (Clarke 1823:180-210). Homes, and especially kitchens, became spaces for developing and transmitting knowledge (Long

2018:150; Pennel 2016:1–45). The women making decisions regarding the household's food were amongst the first to handle, and use, foreign foods like sugar, raisins, lemons, cinnamon and cardamom. They came to function as gatekeepers for, but also explorers of, new food fashions and foodstuffs.

The printing press helped spread knowledge of how to use and consume the foreign foods. Cookbooks, food pamphlets, and miscellaneous texts dealing with topics as diverse as kitchen interiors, conserving lemons, the best way to prepare coffee, or table manners were printed and circulated in increasing numbers towards the end of the eighteenth century and especially in the early nineteenth century (Gold 2007:26–55; Norske Inteligenssedler 1763; Notaker 2012:380–412).

The books and texts enabled households in the middling classes, often lacking money to hire a cook with specialized knowledge, to teach themselves. In the introduction to Miss Truchs's cookbook she states that her motivation for writing it was to make an instructional book. She certainly succeeds, as the recipes are detailed with regard to quantities, ingredients and description.

Her book was reprinted at least seven times, and its recipes were copied out by hand, and spread to people who did not own the book. Thus, both directly through her book, and indirectly through handwritten copies, Miss Truchs enabled readers to keep up to date with food fashions. Those who could not afford the books, or who for other reasons were unable to make the dishes, could still read them, and at least appear to be “in the know”.

For most of Christiania's inhabitants foreign foods were most accessible when bought from one of the town's growing number of caterers. When sold in portions, paper cones or as slices, the cost became affordable. A cup of sugared coffee and a slice of Christmas cake tasting of sugar, spices, lemons, and raisins were within the reach even of people of modest means, if not every day, then at least as a treat.

Confectioneries opened “Conditorie” in Christiania in the latter half of the eighteenth century (Nykvis 1946:47–69). These were establishments dedicated to serving cakes, sweets, and drinks like coffee and tea. They were part of a European trend, both in towns on the Continent, and in Scandinavia. That eleven such places opened in Stockholm between 1798

and 1823 is a good example of their popularity (Torell 2021:57–69).

In Christiania the best-known “Conditorie” at this time was Caspari’s, established in the 1790s, and after 1814 joined by Zuwan’s. The latter’s establishment was frequented by authors, musicians and painters, as well as members of the Norwegian Parliament (Hutchison 2012). In 1820 Erik Lunde opened a “Conditorie and billiard hall” (Andreas 1823). Small portions of sweets were also sold by individuals, often women. One was the widow Madam Herholt, who in 1763 advertised all “sorts of sugar goods and could make sugar and almond bread of all sizes and quality” (Norske intelligenssedler 1763); another was Madam Wener and her sister in the 1820s who sold sweets at markets. In 1817 Madam Werner and her husband opened a “conditorie” (Nykvist 1946:65). Elisabeth Truchs should also be mentioned here as she sold “take-away” dinners from her kitchen between 1833 and 1843. Bakeries and taverns also sold food to take home, or to eat while stopping for a drink.

Although global trade was on a modest scale for much of the early modern period, the consequences

could still be significant. Sidney Mintz and Steven Topik’s research has shown how the demand for sugar and coffee in Europe in the eighteenth century not only affected production and production methods on plantations in the Caribbean and South America, but also societies in Africa where the enslaved labourers were from (Mintz 2003; Topik 2009). The sugar arriving in Christiania was part of this trading network, as was the day labourer buying a piece of sweet Christmas cake. The sugar going into the cake had been cultivated on Danish-Norwegian plantations in the Caribbean, by slaves worked to their death after having been taken from their homes in West Africa.

Exotic goods are claimed to have also played a pivotal role in the emergence of the modern market economy. Historian Jan de Vries argues that goods like sugar, coffee, tea and tobacco from distant continents changed Europeans’ attitudes to participating in the market (de Vries 2009). As the availability of these goods increased, they stimulated consumer aspirations. De Vries argues that dreaming of drinking sugared coffee, or eating an exotic-tasting Christmas cake, motivated households to shift their productive

activities away from self-sufficiency, towards increasingly market-oriented production. This generated money that could be used to purchase essentials, but also to fulfill dreams and desires, such as buying a slice of Christmas cake. In a broader perspective, these changes led to an expansion of the market and increased economic activity, a development that was central to enabling the emergence of the industrial revolution and the modern market economy.

CONCLUSION

Miss Truchs's Christmas cake is just one of many examples of how global trade in foodstuffs in the long eighteenth century, has impacted Norwegian culinary traditions. Leafing through eighteenth century customs records or past cookbooks you find many foodstuffs or dishes which today are considered "traditional Norwegian food".

Even though the scale of the import of foreign foodstuffs was subject to ups and downs, they were available enough towards the end of the eighteenth century for even a ditch digger in Christiania to have

the chance of tasting sugar, lemons, raisins, cinnamon and cardamom, or of having a piece or two of a *Julekake*. Although supplies were unpredictable, this improved over time, making at least sugar a more or less everyday commodity for many, and lemons, raisins, cinnamon and cardamom available for special occasions.

The foreign foodstuffs were not necessarily consumed in the same way in Norway as they were in their counties of origin. Arriving in a Norwegian kitchen, they were combined with domestic foodstuffs, as well as with other foreign foods, to result in dishes that could be made with the cooking utensils at hand, and which were agreeable to the Norwegian palate.

The foodstuffs, the skills of how to bake "the cake", or the knowledge of where to buy a slice of it, all inspired people to think in new directions and develop new aspirations. When many dreamed of sweet and spicy Christmas cakes, or other goods with global connections, their aspirations changed both society and the economy by fueling global production and trade, which again fed into the development of a modern market economy.

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CHAPTER 10

OSLO'S GASTRONOMY FROM 1900 TO PRESENT DAY ON THE MENU

Annechen Bahr Bugge

OSLOMET

ABSTRACT

Over the past hundred years Oslo has seen an increase not only in the sheer number of restaurants in town, but also in the number of restaurants run with high gastronomic ambitions and innovative high-quality cuisine. In the same period Norwegian chefs have gained celebrity status and won several international awards. The Norwegian chefs' success has changed Norwegians' view of their own food culture.

Cafés and restaurants became a major part of life in Oslo during the 1900s. In 1913, André Engh was hired as head chef at Hotel Continental, including Theatercaféen and Annen Etage. He is credited with introducing French cuisine to Norwegian restaurants and is often referred to as 'The Norwegian Escoffier'.

With the increasing wealth of the 1950s, Norway became a country from which people no longer emigrated, but increasingly immigrated to. As a result of this, new and ‘different’ restaurants slowly began to emerge throughout the 1960s. Several of these were run by individuals and families with immigrant backgrounds. Around 1970, Norway’s oil production started, and prosperity grew. The development now went in the direction of more exclusive food products and refined dishes. Chef and restaurateur Hroar Dege’s entrance on the culinary scene heralded major changes for Oslo’s restaurants. In 1969, he helped establish what would be known as ‘Oslo’s hottest eatery’ – Tre Kokker. At Continental, the Swiss chef Willy Wyssenbach transformed the restaurant Annen Etage into Norway’s first real gourmet restaurant, which was awarded a Michelin star in 1984. One of the leading representatives of ‘La nouvelle cuisine’ in Norway, the chef Eyvind Hellstrøm became one of the owners of the restaurant *Bagatelle* in 1982, and he quickly turned it into Norway’s most famous gourmet restaurant. In 1993, Bent Stiansen won the world’s most prestigious cooking competition, Bocuse d’Or. He was the first chef from the Nordic countries to become world champion. In the early 2000s, innovative restaurants in Copenhagen began to offer menus made entirely of ingredients of Nordic origin. Esben Holmboe Bang opened the organic, Nordic gourmet restaurant Maaemo in Oslo in 2010. The restaurant was awarded two Michelin stars in 2012, and in February 2016 it was awarded its third Michelin star. In 2024, a total of 34 Oslo restaurants were mentioned in the Michelin Guide.

Keywords Avant-garde, Bocuse d’Or, cafés, chefs, deconstructive kitchen, eating history, eating out, haute cuisine, immigrants, La nouvelle cuisine, Michelin, New Nordic Cuisine, Norwegian cuisine, restaurants, urban life

“Restaurant” (from the French ‘restaurer’ meaning to ‘restore’) means a business where guests can buy meals served at individual tables in simple to luxurious settings.

Cafés and restaurants became a major part of life in Oslo during the 1900s. They first appeared in around 1830, but we know that attempts were made as early as 1770 to start a café in the European style. Before this, from the sixteenth century, pharmacies functioned as apothecaries (*skjenkestuer*) in the cities, and in some cities also as guesthouses (*vertshus*).⁴³ In addition, there were the actual wine cellars (*vinkjellere*), where the owners had to have a licence to serve wine and spirits. The “Council cellar” (*rådhuskjeller*) was a well-known place in Nordic cities, which played an important role somewhat later. The actual guesthouses, and the hotels, came even later. Even in Oslo, until the nineteenth century, there was only one “decent” hotel,

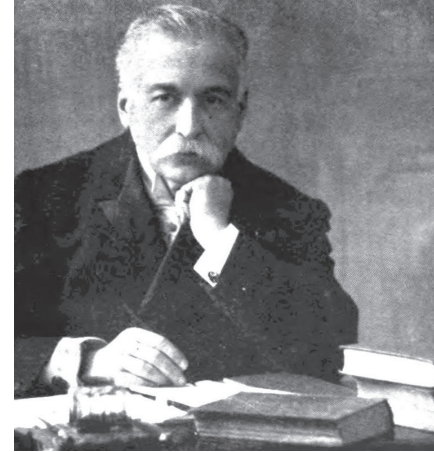
namely Hotel du Nord. This hotel opened in Dronningens gate in 1828 (Bugge 2019). Around the turn of the century, some of the most famous restaurants in Kristiania, a former name for Oslo, opened: Gamle Raadhus (1856), Engebret Café (1857) and Grand Café (1874). Hotel Continental opened in 1900. Theatercaféen was established on the hotel’s first and second floors. The restaurant on the second floor, Annen Etage, eventually became known as Oslo’s finest restaurant and the workplace for several of the award-winning chefs in the twentieth and twenty-first centuries.⁴⁴

As in many other countries, classic French cuisine gained great importance and influenced Norwegian restaurant cuisine. Increased prosperity and urbanisation, as well as famous French chefs’ documentation of

43 Diplomatarium Norvegicum (uio.no) (25.06.24)

44 Restaurants and cafes – Oslo Byleksikon (in Norwegian) (23 August 2023)

Figure 1. Auguste Escoffier (1846–1935) was the most influential chef internationally in the 1900s. He united and simplified the culture of French cuisine, particularly that created by the chef and pâtissier Marie-Antoine Carême (1784–1833), but he also created a variety of dishes that have become classics. In 1903, the first edition of *Le Guide Culinaire* was published, containing more than 400 recipes. Source: Wikimedia Commons.



their knowledge, recipes and methods, are considered decisive for the spread of French restaurant culture from the nineteenth century and onwards. One of the celebrated chefs during this era was Auguste Escoffier (Lane 2014).

In this chapter, I will examine how Oslo's gastronomy has developed over the past hundred years, with particular focus on a selection of the most high-profile and innovative chefs of the time and their restaurant concepts. What characterized the menus of the time and how has this changed? How do the menus reflect society's general development and 'Zeitgeist'?

THE AVANT-GARDE FRENCH CUISINE

In 1651 La Varenne (1618–78) published the cookbook *Le Cuisinier français*. This book was translated into a number of European languages and became very important for the spread of French ideas in cooking.

There are many traces in Norwegian language and cuisine, for example biscuit, compote, jelly, ragu, cutlet, broth, puff pastry, bouquet garni, béchamel and hollandaise. Vegetables, mushrooms and herbs were given a lot of space in the book, especially the news about green peas. The sauces became the centre of French cooking, often called "the soul of food". In the centuries that followed, French cuisine spread throughout Europe, and France could showcase a large number of famous and innovative chefs (Bugge 2019).

ANDRÉ ENGH: 'THE NORWEGIAN ESCOFFIER'

Hotel Continental, with its 30 hotel rooms, opened in December 1900. Theatercaféen was located on the ground and first floors. The hotel was owned by Foss Brewery (later Schous Brewery), but in 1909 Christian



Figure 2. André Engh (1891–1987) photographed in his chef's uniform in the kitchen of Hotel Continental in about 1935. He is credited with introducing French cuisine to Norwegian restaurants and is referred to as 'The Frenchman' and 'The Norwegian Escoffier'. Source: Oslo Museum / DigitaltMuseum.

and Caroline Boman Hansen took over the hotel. In 1912 Chef André Engh was hired as sous chef at the hotel, including Theatercaféen and Annen Etage, and the following year was promoted to head chef. He managed the restaurants until he retired in 1963. Annen Etage soon became known as one of Oslo's finest restaurants (Brochmann 1985).

Engh was born in St. Etienne in southeastern France in 1891. Both of his parents were Norwegian. At the age of only 14, Engh became an apprentice chef in his native district. He worked for a time as a commis chef under the internationally renowned chef and founder of Larousse gastronomique (1938), Prosper Montagné, at the Grand Hôtel in Paris. André Engh moved from France to Norway in 1911 at the age of 20.

When he came to Norway, Engh was a chef trained in the tradition of Escoffier and knew little about Norwegian cuisine (Skogseth 2009). He had to learn how to make the thick sauces, *lutefisk* (dried cod preserved in lye), *brun lapskaus* (beef stew), meat patties and mushy peas, meat and pork. This was not familiar fare in France. He found that Norwegians knew little about vegetables and nothing about fruit. Cabbage, leeks and swedes were the most common vegetables. Parsley was a pure luxury and was imported from Denmark.

NORWEGIAN CUISINE

In *Norsk mat* (1932), Larsen and Rabbe conclude that the national diet had for a long time been adapted to

Norwegian taste and raw materials (råemner). What we today like to refer as local food. Norwegian taste was described as sour and salty. Meat and fish were almost always eaten in dried or salted form. Sour milk and distinctive dishes played an important role. This remained fairly unchanged until Engh's time. Norwegians' use of sour cheeses (e.g. *gammelost* and *pultost*), pickled herring (*sursild*), cured herring (*spekesild*), and fermented fish (*rakfisk*) were both famous and notorious. The old recipes showed that there was little use of fruit, berries and vegetables. In the first decades of the twentieth century, however, it became much more common to grow and eat such things. Larsen and Rabbe consider the increase in the eating of vegetable food as a major dietary advance.

The combination of limited storage options and short growing seasons had (from time immemorial) created a need for durable preservation (conservation) methods such as drying, salting, fermentation and smoking. Some theorists have characterized the traditional Nordic food culture as a "storage culture". Until

the twentieth century, storing food was the norm. The advent of freezing and refrigeration technology led to a transition to the use of fresh (often imported) foods all year round, as well as a decline in the knowledge of, and the use of traditional conservation techniques (Freidberg 2009, 2018; Marshall 2022; Tellström 2015, 2024).

According to Engh, Norway had many characteristic dishes and distinctive foods (Engh 1933). He described salted lapskaus as typically Norwegian. During an interview, when he was served an open sandwich consisting of a wafer-thin slice of brown bread topped with premium *gammelost* (lit. old cheese) that had been sprayed with butter in a beautiful lacework pattern, he exclaimed to the journalist 'What could possibly be more Norwegian ... and French?' During the interwar period generously topped and garnished open sandwiches were all the rage. These gourmet open sandwiches, a great outdoor snack, were prepared in professional kitchens. À la carte open sandwich menus are generally only found in Nordic countries.

20 November 1918

**HOTEL CONTINENTAL
THEATERCAFÉEN**
C. BOMAN HANSEN

SMØRBRØDLISTE

Smørbrød med:	Afm. Brød	Gro- brød
Nedlagt Sild 40 Øre		
Sildesalat 40 »		
Italiensk Salat 75 »		
Ræger 50 »		
Ansjovis og Æg 50 »		
Ristet Torskerogn 50 »		
Hummer 125 »		
Stegt Fisk 50 »		
Ægte Caviar 150 »		
Rogelax, Norsk »		
Saltkaviar 75 »		
Leverpostei 50 »		
Salt Kjød 50 »		
Skinke, Holsteiner 75 »		
Oksetunge »		
Rul 50 »		
Mettwurst 40 »		
Kalvesteg 50 »		
Roastbeaf 50 »		
Beaf 100 »		
Skrabet Kjød 65 »		
Skinke med Æg 150 »		
Patent 150 »		
Sardiner 50 »		
Engelsk Ost 50 »		
Ryfylkeost 50 »		
Nøgelost »		
Gjedost 50 »		
Schweitzerost 60 »		
1 Æggeblomme 75 »		
Kaffe 40 Øre		
The 60 »		
1 Kop Bouillon . 1.25 Øre		

Bestilte Smørbrød kan ikke returneres.

Figure 3. À la carte open sandwich menu from Theatercaféen in 1918. In the 1880s, so-called *Smørbrødrestauranter* (Engl. ‘Sandwich restaurants’) appeared in Copenhagen. The oldest known menu with *smørbrød* is from a restaurant in Tivoli from 1883 (Bühlmann & Svendrup 1993). On the à la carte open sandwich menu from Continental Theatercaféen in 1918 we find, for example, sandwiches topped with herring, cod roe, lobster, liver pâté, ham, roast beef, egg yolk, Swiss cheese and brown goat cheese. *Smørbrød* had its absolute heyday in the 1920s and 1930s. Photo: Annechen Bahr Bugge, National Library Oslo.

IMMIGRANT CHEFS AND THE FIRST ETHNIC RESTAURANTS

With increasing prosperity during the 1950s, Norway became a country from which people no longer emigrated, but increasingly immigrated to. Italians were among the first immigrants, but gradually people from other continents, such as Asia and Africa, also arrived.

Many of them worked in the restaurant industry, as waiters, or washing dishes, and some also worked as cooks (Bugge 2019; Miscali 2019). As a result of this, new and 'different' restaurants slowly began to emerge throughout the 1960s. Several of these were run by individuals and families with immigrant backgrounds, such as the Chinese Chen Te Hu's China House at Bislett, the French-Algerian Ben Joseph's La P'tite Cuisine at Solli Plass and the Italian Gino Valente's Valentines Osteria in Kirkeveien (Bugge 2019).

As early as 1946, the Norwegian newspaper *Aftenposten* interviewed Chen Te Hu (1910–2001) about his dream to establish a Chinese restaurant in Oslo. However, at that time there were great difficulties in obtaining the ingredients needed. It was not until 1963

that everything was ready to open Oslo's first Chinese restaurant (Bugge 2019). It was also in 1963 that the man who became known and referred to as the initiator of the internationalization of Oslo's restaurants, Ben Joseph (actually Niels Manuel Jaquesson) (1928–2000), opened a restaurant with a very exotic menu for the Norwegian palate, for example snails in garlic butter. Although it was a restaurant that aroused curiosity and enjoyed great recognition, the establishment of such an outlandish eatery also earned newspaper headlines. People were concerned about everything from the serving of spirits to inflammable wine bottles with candles and misleading labels. Irish coffee and Bloody Mary were neither coffee nor tomato soup, but liquor drinks (Krogstad 2006).

THE GROWING CULINARY PRESTIGE AND COMMERCIAL SUCCESS OF ITALIAN CUISINE

Throughout the twentieth century, Italian cuisine gained great influence in many countries. The Italian kitchen is often associated with pasta, pizza, tomato

sauces, parmesan and olive oil. However, this is far from an exhaustive picture of the many folds of Italian cuisine with its many regional and local characteristics (Bugge 2019). Both international and Norwegian studies show that Italian restaurants are generally very popular (Baughman 2006; Bugge & Lavik 2007; Bugge *et al.* 2009; Bugge & Schjøll 2023). One can find Italian eateries along the entire dining spectrum – from fine restaurants to fast food chains. Over the past 40 years, pizza has gone from being an exclusive Neapolitan cheese dish for the few, to becoming something “everyone” eats (Bugge 2019).

GINO VALENTE: INTRODUCING PIZZA AND SPAGHETTI TO THE NORWEGIAN PALATE

Italy was a poor and exhausted country after the Second World War, and many Italians emigrated (Miscali 2019), including Gino Valente. He was born in a small village in southern Italy in 1942. Valente describes his childhood as both bright and sad at the same time, bright because he had a large and happy

family, sad because he was often hungry. The times were hard, especially in the south, so you had to make the most of the resources to which you had access. The food in Valente’s childhood home consisted of a lot of vegetables and fruit, and when his father came home from hunting, his mother had prepared dishes of pasta and tomato sauce with basil. If the hunt had been successful, they would eat meat after the pasta (Saue & Valente 1989; Valente & Ringsby 1994).

At the age of just fifteen, Valente travelled to Lausanne in Switzerland, where he got a job doing washing up at a hotel restaurant. He left for a restaurant in Geneva soon after, where he studied the work of the chefs, and took his training as a chef. In 1962, he was sent to Norway on a three-month loan by his head chef. There was a shortage of chefs at Hotel Nobel (now Karl Johan Hotel).

Valente was only nineteen years old when he became head chef at Hotel Nobel. He was ambitious and wanted to improve the menu in the hotel restaurant. One of the finest delicacies you could order in France, Italy and Switzerland was pigeon. For that reason, one of the first dishes he put on the menu was

Figure 4. Gino Valente (1942–) photographed at the opening of Valentès Osteria Italiana in Kirkeveien in 1970. This was the first Italian restaurant in Oslo. Source: Gino Valente – Foodlessons.



‘Pigeon de Bresse’ – that is, flambéed pigeon – which quickly became a popular dish. Gino described his initial encounter with Norwegian food as follows: ‘The food was good, but a bit boring. People weren’t interested in food like they are today. They just wanted to feel full. The plates hardly needed to be washed up – they were more or less cleaned by the hungry guests.’

Valente thrived in Norway. He learned to cook Norwegian food at various workplaces in Hønefoss, Nordfjord, Beito and Steinkjer, and then became head chef at the restaurant Handelsstand in Oslo. *Ossobuco* (braised veal shanks) and pizza were both on the menu. Guests were particularly sceptical of pizza – they thought they were being served some kind of Italian *lefse* (soft flat bread). In 1970, he opened Valentès Osteria in Kirkeveien, the first Italian restaurant in Oslo, where Norwegians could sample cappuccino, pizza and various types of pasta. Valente remembers

that the only things Norwegians had heard of were macaroni and spaghetti. The guests loved the pasta dishes they were served – but they asked for KETCHUP! This made Valente want to pull his hair out: ‘Mamma mia! Ketchup on pasta! No! No!’

The first Norwegian tomato ketchup (from Idun) came on the market in 1956. It became a popular flavouring in sauces and was also used in the Norwegian versions of pizza and pasta. As early as 1948, food writer Pus Thaulow shared a recipe for ‘Spaghetti-sauce’. This, however, did not have any ketchup in it, but a little tomato purée diluted with water to form a thin sauce to pour over the meat (chicken liver).

Pizza may derive from the Lombard word “bizzo” or “pizzo”. It means mouthful. The word may also come from the Greek pita, which means bread.



Figure 5. The famous Pizza Margherita originated in eighteenth century Naples. Dough was baked with a tomato topping and this simple pizza was for poor people who often didn't have their own kitchen. Queen Margherita (1851–1926) was queen of Italy in the years 1878–1900. She visited Naples in 1889. She was served a pizza with tomato, mozzarella cheese and basil. It became her favourite and is today known as Pizza Margherita. At the end of the nineteenth century, many Neapolitans emigrated to other European countries, and also to the United States and South America – bringing with them the pizza tradition. In about 1970, the first Italian pizza restaurants were established in Oslo. Photo: Annechen Bahr Bugge (Valentes 1970, photographed 24.06.24).

Valente explains that pizza was something they ate once a week in his childhood – not because it was a special dish, but because his mother baked bread once a week. When the bread dough had risen, before the loaves were baked in the wood-burning oven in the yard, she took part of the dough and made pizza. The original ‘poor man’s fare’ is now ‘big business’ across much of the world, and there are a huge number of



Figure 6. Queen Margherita.
Source: Wikimedia.org

variations – from the simplest snack bars to high-end restaurants. For Valente, however, the pizza he ate at home is the *real* pizza. It was so simple: the dough was rolled out until it was about one cm thick. For the topping, his mother used peeled, crushed tomatoes, thinly sliced garlic, anchovy fillets, and she seasoned the whole thing with oregano, and drizzled a little olive oil over it. In Norway, the first pizza recipes appeared in cookbooks in the 1950s. One of the earliest Italian pizza recipes in the National Library’s archive is ‘Spicy bread tart’, found in Edith Ekegårdh’s & al. ‘Smørbrødboka’ (‘The Sandwich Book’) from 1954.

Figure 7. American Pizza/Peppes' Pizza.
Photo: Peppes' Pizza.



PROSPERITY AND A THRIVING RESTAURANT MARKET

Around 1970, Norway's oil production started, and the rise in the general level of prosperity accelerated. More people had more money, which gave them an increasingly large leeway in choosing food. The trend now went in the direction of more exclusive food products and refined dishes. The café and restaurant market flourished in the big cities. The younger, well-educated generation of the time was thoroughly analyzed by the sociologist Nils-Fredrik Nielsen (1984) in his book "Ekte sekstiåttene spiser ikke seipanetter" ("True members of the '68 generation don't eat fish fingers"). They ate exotic dishes and perceived themselves to be far more finicky when it came to food than most people. They

liked to eat in cafés and restaurants. This was not the case in the working-class environment, where people rarely ate out. Eating at a restaurant was seen as too expensive (Gullestad 1985).

An important change in these years was that meals became more informal. The ethnologist Fossgård (2002) describes how the 1970s slogan "away with conventions" also had consequences for our eating patterns. Table setting and formal dinners were perceived as conventional and rule-abiding, devoid of real content, and a haven of inauthentic communication. All 'informalization' should have a liberating effect. It became popular to invite guests into the kitchen. Stew dishes were in fashion and guests were very happy to gather around a fondue pot. In Ingrid Espelid Hovig's



Figure 8. Hroar Dege and Tre Kokker. Tre Kokker became a sensation when it opened in 1969. The restaurant was equipped with an open kitchen where guests could see the three chefs Arvid Skogseth, Edi Fasler and Stein Dyvik in action. Photo: Oslo Museum / DigitaltMuseum.

(1982) cookbook, this is referred to as “pleasant dishes you can make and eat together.” This way of thinking was also visible among innovative chefs and restaurants in Oslo in the 1970s.

HROAR DEGE AND TRE KOKKER: SURPRISE AND ENTERTAIN GUESTS IN THEIR OPEN KITCHEN

Chef and restaurateur Hroar Dege’s (1930–2003) entrance on the Norwegian and international culinary scene heralded major changes for Oslo’s restaurants (Skogseth 2009). In 1969, he acted as a kind of influencer and was the founder of what would soon be known as ‘Oslo’s hottest eatery’ – Tre Kokker (‘Three Chefs’) in

Drammensveien. ‘It shouldn’t be boring to go to a restaurant – something should happen – there should be some drama,’ Hroar Dege said at the opening.

The basement restaurant at Drammensveien 40 was designed with an open kitchen. This was an unknown concept in Norway and went against the general consensus that what went on in the kitchen should be kept behind closed doors. This concept was not the only innovation. Most dishes were served with salad made from fresh ingredients. There were many new combinations and dishes on the menu, many of which were completely unknown in Norway. Vegetables, such as fresh spinach, different types of peppers and aubergine became commonplace. Guests learned the difference between entrecôte and T-bone steak and

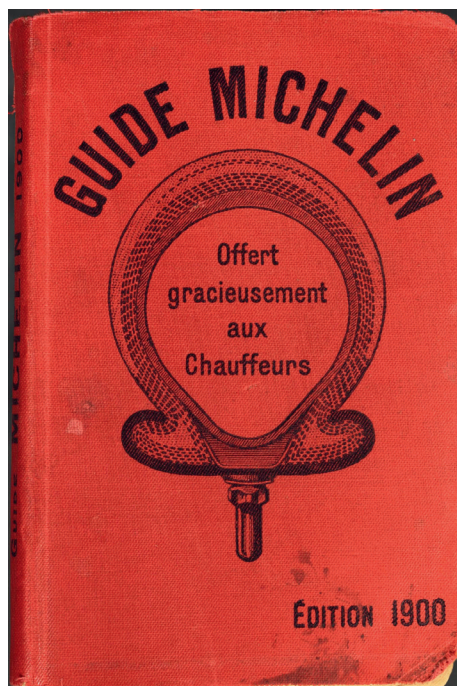


Figure 9. Michelin guide (first edition 1900). In 1900, the very first edition of the Michelin Guide was published and 35,000 copies were given out for free.* Source: Search media – Wikimedia Commons.

* The History of the Michelin Guide (26.06.24)

could also choose between 150-gram and 200-gram steaks. Many new spices were used, and the emphasis was placed on service, speed and precision. The most important thing was that freshly prepared and hot dishes were served, and on large plates. This was a new practice in Norway, as food was previously always served on platters (Dalheim 2003).

MICHELIN STARS SPREAD IN OSLO

The Michelin Guide is the world's most recognized ranking of hotels and restaurants, created in 1900. Originally, it gave tips on car repair shops, petrol stations, accommodation and places to eat along the

road. The guide eventually concentrated on restaurants and hotels. The star system was introduced in the 1930s. It is just the food that is rewarded with stars. Three stars means that a restaurant is “worth a journey in itself”, two stars means that it is “worth a detour”, while one star means that it is an “exceptionally good restaurant in its category”. The inspectors judge the food according to five criteria: the quality of the ingredients, the “craftmanship” – the taste and preparation, the “personality” – how the chef has succeeded in finding his own expression, value for money and quality over time. Grades for service, environment and other impressions are also given, with ratings from 1 to 5 using a crossed fork and spoon symbol.



Figure 10. Restaurant Annen Etage photographed in 1973. Under Wyssenbach's leadership, Annen Etage Continental was the first restaurant in Norway to receive a Michelin star in 1984. Photo: Oslo Museum / DigitaltMuseum.

WILLY WYSSENBACH: NORWAY'S FIRST MICHELIN STAR

The innovations at Tre Kokker paved the way for a new form of restaurant in Norway. In the 1970s, this led to the emergence of the first truly gourmet restaurants. At Continental, the Swiss chef Willy Wyssenbach (1933–) transformed the restaurant Annen Etage into Norway's first real gourmet restaurant, which was awarded a Michelin star in 1984. Wyssenbach was born in Bern in 1933. He joined Hotel Continental in 1956, became head chef in 1963, and combined Swiss cuisine with Eng's French-inspired approach. During his years at the hotel, he named many of his dishes after artists and nobility. A typical slap-up meal in the 1970s often started with lobster, followed by lamb, cheese in one form or

another, and a bombe glacée (ice-cream dessert) (Levin & Wyssenbach 1990). During this decade, Annen Etage became the focal point for developments in Oslo's restaurant industry. According to Skogseth (2009), this became particularly evident when the French master chef, Alain Chapel, held his first French Evening at Annen Etage in January 1975. It marked the beginning of a rich exchange, with French chefs sharing their greatest creations. He won the award Chef of the Year in 1982. It was also under his leadership that Annen Etage became the first restaurant in Norway to be awarded a Michelin star, which was quite a sensation.

Norway was a no-man's land when it came to gastronomy. Wyssenbach told Aftenposten in 2009: 'Few people think about how long we struggled to

get decent ingredients after the Second World War. There was rationing well into the 1950s. Norway was all swedes and cabbages. With better ingredients, gourmet cuisine finally came to Norway.’

LA NOUVELLE CUISINE IS BROUGHT TO NORWAY

‘La nouvelle cuisine’ made its breakthrough in France in the early 1970s. The chef and restaurateur Paul Bocuse (1926–2018) is considered one of the fathers of this culinary invention. The main principles in this cuisine are seasonal ingredients, simple accompaniments, and short preparation techniques. The dishes consist of relatively small portions of several balanced ingredients with a number of small, complicated, elevating accompaniments, embellished with a drizzle of various sauces, and sprinkled with toasted or caramelized crumbs, confectionery etc. They are then decorated with flowers and herbs. The dishes are minimalist and artistically constructed. This stands

in sharp contrast to classic servings, which consist of a main ingredient which, in quantity and priority, clearly attracts the main interest. This is accompanied by a couple of classic garnishes, a source of starch in form of potato, bread, rice or pasta and a classic sauce. This serving’s primary task is to make the guest feel full (Pedersen & Fakstorp 2010). The leading restaurants in Norway soon followed up on the concepts that arose from la nouvelle cuisine (Bugge 2019).

EYVIND HELLSTRØM: MASTER CHEF AND SUPER CELEBRITY

Bagatelle in Bygdøy allé 3 was established in 1930 by Grand Hotel chef Edmond Jaquet and was run by his son Georges from 1941 to 1982. One of the leading representatives of ‘La nouvelle cuisine’ in Norway, the chef Eyvind Hellstrøm then became one of the owners of the restaurant, and he quickly turned it into Norway’s most famous gourmet restaurant (Hellstrøm 2010).⁴⁵

45 Bagatelle – Oslo Byleksikon (23 August 2023)



Figure 11. Eyvind Hellstrøm, Paul Bocuse and Ingrid Espelid Hovig (Norway's Julia Child) photographed during the opening of the Bocuse d'Or in Stavanger in 2008. Photo: Alf Ove Hansen / SCANPIX).

Hellstrøm was born in Moss in 1942. He says that when he was growing up, he spent a lot of time in his uncle Arne's ice cream factory, where his uncle had been making ice cream since the 1920s. On these visits, he remembers the smell of hot milk, freshly roasted nut and sugar brittle, and vanilla. The process of making ice cream was an adventure full of aromas and sensuousness. Hellstrøm believes that this is where he got a taste for fine and natural flavours (Hellstrøm & Hellstrøm 2011).

In his early years, Hellstrøm worked as an apprentice chef at Grand Hotel in Oslo. He later worked at Tre Kokker and spent time in France and Switzerland before studying at the Norwegian School of Hotel

Management in Stavanger in 1980 (Jakobsen & Hidle 2023). He then started working at Bagatelle. The restaurant was awarded its first Michelin star in 1986, and in 1992 it was awarded two Michelin stars. The restaurant had the highest profile among new gourmet restaurants. In 1989, Hellstrøm represented Norway in the unofficial world chef championship, the Bocuse d'Or in Lyon, France, where he finished in 5th place. He is regarded as one of the foremost representatives of 'la nouvelle cuisine' in Norway (Hovig 2000). In 2023, Hellstrøm was honoured with Gullgaffelen ('the Gold Fork'), Bocuse d'Or Norway's honorary prize, for long-term efforts to develop the country's gastronomy culture. Several Norwegian Bocuse d'Or winners have a background in Hellstrøm's "professionally uncompromising kitchen".

THE GASTRONOMIC REVOLUTION

Continental food and eating patterns from Europe really became fashionable in Norway in the eighties. Coffee became café au lait, espresso and caffè latte. Kafé became café. Historically, this coincided with

the Yuppie era. The conspicuous consumption of the yuppies stood in sharp contrast to the view of earlier times. Food and drink were also part of this orientation (Furre 1991). A shift also occurred in wider sections of the population. A visit to a restaurant that was once only for pleasure became during these years a part of everyday life for more and more people. This shift in mentality created completely new conditions for restaurant life in the Nordic countries (Bugge 2019; Bugge & Lavik 2007, 2010; Jönsson & Tellström 2018).

From the 1980s, the number of restaurants has increased, turnover has increased, the number of employees has increased, more restaurants are run with high gastronomic ambitions and innovative high-quality cuisine. The industry was changed towards more diversity, with large chains as well as many smaller establishments, and with a wide culinary range no one had seen before. In parallel, chefs also gained a place in the public eye in ever new ways, via television programmes, magazines, newspapers, cookbooks and social media (Jönsson & Tellström 2018). The Swedish ethnologist Håkan Jönsson (2012, 2020) has defined the development as a gastronomic

revolution in which, over the past three decades, Nordic chefs have won a number of international awards.

BENT STIANSEN: GOLD MEDALIST IN BOCUSE D'OR

In 1993, Bent Stiansen was the first Norwegian to win the world final of the Bocuse d'Or. The winning menu consisted of two courses: a starter of turbot fillet with fennel and langoustine tartare served with three garnishes followed by fillet steak fried in a lobster-anise sauce and truffle, served with leek and chanterelle duxelles, three garnishes and port wine sauce (Hovig 2000).

Stiansen was born in Arendal in 1963. During his childhood, he ventured on several trips on the ship on which his father worked as a cook in the galley. Stiansen particularly enjoyed being in the galley. Everything that went on there was very exciting. Things were being created. There was a good atmosphere, lots of laughter, a fast pace and intensity. The idea of working with his hands fascinated Stiansen.



Figure 12. Bent Stiansen is ready to open Statholdergaarden in autumn 1994, with his late wife. Photo: Svein Erik Furulund / Aftenposten / NTB.

He recalls what his mother always said: ‘Put Bent to work, and he will not get up to any mischief.’

In 1980, Stiansen started as an apprentice chef at Hotel Continental. He also worked there as a chef before moving to Alain Chapel (1937–1991) outside Lyon to learn about fine French cuisine from the famous Michelin star chef and one of the founders of nouvelle cuisine. When Stiansen was 23 years old, he became head chef at Hotel Continental’s Annen Etag restaurant. In 1990, he won the Norwegian Chef Championship, and three years later, he became world champion (Jakobsen & Hidle 2024). Stiansen describes

his cooking style as a mixture of “Norwegian ingredients and French-European techniques”.⁴⁶

In 1994, Stiansen and his Danish wife opened two restaurants in Statholdergaarden in Rådhusgata. They have had a Michelin star since 1998. As for the menu, we can read that it varies according to the seasons and that they take pride in using Norwegian ingredients. The restaurant ‘Statholderens mat og vinkjeller’ is situated in the basement. Danish-inspired food is served here, including “delicious Danish sandwiches” topped with Danish herring, gravad salmon, prawns, fried plaice and pork ribs.

46 Bent Stiansen as a guest on Frokost-TV - NRK Kultur og underholdning (8 January 2024)

Statholdergaarden was built in 1640 for mintmaster Peter Gruner. The building became part of the new Kvadraturen district, which was built by Christian IV after the great city fire of 1623. Over the years, Statholdergaarden has been the residence of many important and wealthy families. In 1914, the ice skater Axel Paulsen opened Cafe Anglais on the ground floor, where the restaurant is today. Restaurants have operated at Statholdergaarden more or less ever since. The name changed to Excellent, and then to Statholdergaarden in the 1950s.⁴⁷

In 2021, Stiansen was awarded *Det Norske Måltid's* honorary prize for his use of Norwegian ingredients. In his acceptance speech, he highlighted 'the Norwegian farmer, fisherman and food producer who make food with enthusiasm and great professional skill. Food production is incredibly important throughout Norway, and it is a great pleasure to use their produce and ingredients on a daily basis.'

47 Calmeyergården – Oslo Byleksikon (23 August 2023)

THE POSTMODERN KITCHEN

Among chefs who gained great influence during the 1990s were, for example, Spanish Feran Adrià (1962–) and British Heston Blumenthal (1966–). They are both known for their experimental and scientific approach to cooking and gastronomy. Adrià described his cooking style as deconstructive (also referred to as the postmodern kitchen). With his dishes, he wants to present unexpected contrasts of tastes, temperatures and textures to provoke, surprise and yet please the guests. None of the dishes are what they appear to be: the carrots come as foam, the artichoke as puree, the foie gras is ice cream. The radicality of Adrià's innovations is illustrated in the breakdown of the natural structure of ingredients and dishes. His restaurant *El Bulli* was for several years considered the world's best. It closed in 2010. In the same year, the Danish restaurant Noma was named the world's best restaurant (Bugge 2019).

IN SEARCH OF NORDIC CUISINE

In the early 2000s, innovative restaurants in Copenhagen began to offer menus made entirely of ingredients of Nordic origin. Some of the dishes were a remix of traditional ingredients, while others contained ingredients that had been little used as food, such as flowers, seaweed and wild herbs. When these initiatives were designed as a manifesto for “New Nordic Food” in 2005, a culinary trend was born, and chefs and foodies from all over the world wanted to look to Denmark for the most inspiring gastronomic experiences. The manifest not only influenced ‘fine dining’, but also spread to informal restaurants, cafés, canteens and home kitchens (Bech-Larsen & Kolle 2016). Consumers’ interest for local traditions, food and dishes has increased in the last decades (Bugge 2019; Bugge & Schjøll 2023).

ESBEN HOLMBOE BANG: NEW NORDIC CUISINE

In 2010, the Danish-born chef Esben Holmboe Bang (1982–) opened the organic, Nordic gourmet restaurant Maaemo in Schweigaardsgate. The restaurant was awarded two Michelin stars as early as 2012, and in February 2016 it was awarded its third Michelin star. Two Michelin stars means a restaurant is ‘worth a detour’, while three stars means it’s ‘worth a special journey’. Holmboe Bang told *Aftenposten* (24 February 2016): ‘We are immensely proud. It’s little things like glassware, cutlery, and how we pour water.’⁴⁸ In 2020, the restaurant moved to new premises in Dronning Eufemiasgate in Bjørvika. The restaurant is associated with the culinary movement *New Nordic Cuisine*, which evolved in the Nordic region during the 2000s.⁴⁹

Holmboe Bang was born in Copenhagen in 1982, where he grew up in what he describes as a ‘post-hippy commune’ (Jakobsen & Dahle 2024). He has expressed

48 Maaemo about the Michelin stars: ‘We are immensely proud’ (*aftenposten.no*) (23 August 2023)

49 The New Nordic Food Manifesto | Nordic cooperation (*norden.org*) (12 September 2023)



Figure 13a. René Redzepi's restaurant Noma in Copenhagen is renowned for pioneering New Nordic cuisine, emphasizing local, foraged and seasonal ingredients. It has been repeatedly awarded the title of the world's best restaurant. Photo: ATP/Thibault Savary.

NEW NORDIC CUISINE MANIFESTO

- 1. To express the purity, freshness, simplicity and ethics we wish to associate with our region.**
- 2. To reflect the changing of the seasons in the meals we make.**
- 3. To base our cooking on ingredients and produce whose characteristics are particularly excellent in our climates, landscapes and waters.**
- 4. To combine the demand for good taste with modern knowledge of health and well-being.**
- 5. To promote nordic products and the variety of nordic producers - and to spread the word about their underlying cultures.**
- 6. To promote animal welfare and a sound production process in our seas, on our farmland and in the wild.**
- 7. To develop potentially new applications of traditional nordic food products.**
- 8. To combine the best in nordic cookery and culinary traditions with impulses from abroad.**
- 9. To combine local self-sufficiency with regional sharing of high-quality products.**
- 10. To join forces with consumer representatives, other cooking craftsmen, agriculture, the fishing, food, retail and wholesale industries, researchers, teachers, politicians and authorities on this project for the benefit and advantage of everyone in the nordic countries.**

Figure 13b. The New Nordic Food Manifesto. In 2003, the Danish food activist and entrepreneur Claus Meyer and chef René Redzepi formulated a 10-point kitchen manifesto (on purity, season ethics, health, sustainability and quality). It advocated the promotion of local, natural and seasonal ingredients as a basis for new dishes. The local ingredients, some often new and unfamiliar, combine with traditional food in new ways. At the same time, the manifesto states, it is important to revive and adapt older dishes and techniques.



Figure 14. Esben Holmboe Bang | Chef | Reporter Gourmet S.r.l. Photo: Lasse Fløde.



Maaemo was the Nordic region's first restaurant with three stars in the Michelin Guide, and for several years the restaurant has been on the list of the world's 100 best restaurants. Photo: Annechen Bahr Bugge, 2017.

in several interviews that growing up in the commune made him aware of what he calls ethical food – food produced with respect for the environment, animal welfare and local ingredients. When Holmboe Bang moved from Denmark to Oslo in 2001, a trend was already emerging in Copenhagen of people taking an interest in where ingredients were sourced, seasonality and local foods. The eyes of the gastronomic world turned towards the Nordic countries, but, according to Holmboe Bang, Norway was trailing behind. He became a pioneer in the new Norwegian cuisine and championed putting ecology and animal welfare on the agenda in the chef community. When he established Maaemo, it was important to him to explore Norwegian cuisine and work closely with

local producers. Before opening Maaemo, he worked at several of Oslo's restaurants, including Oro, Feinschmecker and Le Canard.

Maaemo means 'mother earth' in Finnish, alluding to the restaurant's goal of serving dishes with Nordic flavours. Most of the ingredients used originate less than 100 kilometres from Oslo. They also practise what is often referred to as farm-to-fork, meaning that the food served is sourced directly from a specific farm. In Maaemo's case it comes directly from a specific cow, Isrosa at Grøndalen farm, just under 50 kilometres from Oslo. In an interview with Aftenposten in the summer of 2017, Holmboe Bang stated: 'I have a very emotional relationship with that cow. I'm very fond of her. We've been working together for months now.'

Figure 15. Spruce, juniper and other fir trees. The New Nordic Cuisine's emphasis on local and seasonal ingredients had a great influence on the culinary style of Nordic chefs, and this also became visible on Oslo restaurants' menus, such as spruce, juniper and other fir trees that are both visually and taste-wise part of the gastronomy at Maaemo. Photo: Annechen Bahr Bugge, Maaemo, 2017.

All of her milk is delivered to us and no one else.⁵⁰ Her milk was used in dishes such as the dessert 'Colostrum from Isrosa, our own cow, perfumed with rhubarb root'. The restaurant's most famous dish, however, is perhaps a langoustine glazed in syrup, made using spruce tips from Nordmarka forest. This urban forest is located about 30 kilometres from Maaemo.

Maaemo's dishes were innovative and different. The food is often garnished with flowers and served on wood, stone or ceramicware. The langoustine is presented on a warm stone that in turn is placed on a spruce branch with dry ice beneath. To serve, a hot liquid is poured over the dish, releasing pine-scented steam. The dish is eaten with your hands – a warm cloth replaces the need for cutlery. Such dishes are often described as deconstructive or molecular gastronomy (Pedersen & Fakstorp 2010). The methods used radically change the state of the ingredients, such as Maaemo's spiced particles of *fenalår* (cured mutton) and light sour-cream porridge with powdered



reindeer heart. This cuisine is often associated with the two innovative chefs Ferran Adrià (Catalonia) and Heston Blumenthal (England). In 2014, Holmboe Bang was named “one of the 15 most influential chefs of the next decade”.⁵¹

In 2024, a total of 34 Oslo restaurants were mentioned in the Michelin Guide. Of these, seven were awarded one Michelin star, two were awarded two stars, and only Maaemo had three stars. The restaurant

50 M is for Maaemo | Letter from Norway (wordpress.com) (22 February 2023)

51 The 15 Most Influential Chefs of the Next Decade - Elite Traveler (22 February 2023)



Figure 16. Michelin guide Nordic countries.
Source: Michelin guide 2024.

also received the award for sustainability, known as the ‘green star’. A total of five Oslo restaurants were awarded the green star (Jakobsen 2024).

Holmboe Bang told Aftenposten in spring 2023: ‘Something I think a great deal about these days is the cultural heritage aspect of food. The idea that something can be created that lasts – be it a piece of music or a food dish – making an imprint of history. Let’s say I find a recipe from the Viking Age. How could I recreate that today? That’s something we’re currently working on at Maaemo.’⁵²

EATING OUT – A CENTRAL PART OF EVERYDAY URBAN LIFE

Today’s restaurant selection offers a variety of eating places that attract people from different social groups. While the share of the household budget that is spent on food and non-alcoholic drinks has fallen drastically in recent decades, the share spent on eating at cafés and restaurants has grown. These tendencies are both

expressions of an increased standard of living. Households in Oslo and other large cities spend more than twice as much on restaurant services as people living in sparsely populated areas. On a national basis, four out of ten report that they eat dinner at a restaurant once a month or more often. In Oslo, this proportion increases to one in two (Bugge & Schjøll 2023). A similar development has been seen in the other Nordic countries. So how could this happen, ask the Swedish ethnologists Jönsson and Tellstöm (2018). Unlike many of the previous eras, there is no specific event or political decision that constituted a marked point of view, they comment. Rather, it was a series of events and shifts that occurred at roughly the same time. In the 1980s, a boom started in urban areas of Norway (Furre 1991). It provided an increased consumption space, which was partly spent on eating out. A new generation of businesspeople, the so-called yuppies, made it a way of life to eat out, both often and expensively. This lifestyle spread to other social groups, particularly well-educated young people living in urban areas.

⁵² Maaemo chef: ‘Indifference is the worst thing I know’ (aftenposten.no) (25 April 2023)

CONCLUSION

As shown in this article, not only has the number of restaurants increased over the past hundred years, but more restaurants are run with high gastronomic ambitions and innovative high-quality cuisine. In the same period Norwegian chefs have gained celebrity status and won a number of international awards. The medal statistics in Bocuse d'Or from 1987 to 2023 show that Norway tops with its 13. This is followed by France (11), Denmark (8), Sweden (6) and Belgium (4). The Norwegian chefs' success has changed Norwegians' view of their own food culture. Consequently, this has also contributed to increased curiosity about, and appetite for, local foods and traditions. The Nordic trend which emphasizes nature, authenticity, the wild, the pure and the locally produced is still standing strong. In the last couple of years, this has been complemented by a growing interest in historical foods and traditional dishes, which is also reflected in innovative Oslo restaurants' menus.

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