

Processing, Storage, Distribution of Food

Food in the Medieval Rural Environment

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From self-sufficiency to external supply and famine: Foodstuffs, their preparation and storage in Iceland

Von Selbstversorgung zu Fremdversorgung und Hungersnot:
Nahrungsmittel, ihre Zubereitung und Lagerung in Island

Autonomie alimentaire, dépendance et famine:
la préparation et le stockage des aliments en Islande

Natascha Mehler

Introduction

From the beginning of the settlement period of Iceland people were generally able to supply themselves with meat, fish, dairy products and even some vegetables and cereals, despite of the rough nature of the volcanic island and the sub-polar climate (Karlsson 2000, 48). The young Icelandic society was based on farming and fishing, and able to endure on the margins of Europe. Notions of an inability to do so (e. g. Ebel 1977, 3) are out-dated and have been proven incorrect. By analysing ecofacts, artefacts and structural remains, archaeological research has contributed to the knowledge about foodstuffs, their preparation and storage in former times.

Characteristics of Icelandic food

Many Icelandic foodstuffs are similar to those of other lands inhabited by the Norse, but there are also a number of differences and unique peculiarities. Icelandic diet was largely based on animals and animal products. Meat and dairy products, fish, birds and birds eggs were eaten in great quantity. Sustenance was supplemented by sea plants (Icel. *strandjurtir*), such as dulse, home-grown vegetables and cereals, at least until the end of the Middle Ages, providing sufficient nutrition and vitamin nourishment.

The most characteristic Icelandic foodstuffs are two dairy products. The first, whey (Icel. *mýsa*), a side-product of the making of the second major dairy product *skyr* (see below), was used for several purposes. Most of it was acidified, soured, and either drunk mixed with water, or used to conserve food. This drink, the sour whey, was the common beverage in Iceland. The Saga of Ref the Sly says: 'In Iceland they have a drink called *mýsa*. It is all in one, *mýsa*, soup and beverage' (Króka-Refs saga, chapter 17). *Mýsa* was processed by pouring it into a wooden barrel with open holes in the

lid for fermentation. After a short period of storage, scum and impurities bubbled up from the holes to be cleaned away immediately. Then, fresh whey was added to keep the barrel full. When the bubbling stopped, the holes were closed and the barrel was stored in a cold place from some months up to one or two years, depending on how sour it was to be. When this process was finished *mýsa* had turned into *sýra* which was then mixed with water in the proportion one part *sýra* with 11 parts water (Gísladóttir 1994, 123 ff.; Johnsen 1978, 10 f.). This *blanda*, the mixture, is comparable to the drink called *bland* known in Shetland (Challinor 2004, 165).

Since *skyr* production was considerable, there was also a lot of whey. Whey is of high nutrition value, containing vitamin B, minerals and little fat. In addition, whey was also the most important food conservation medium in Iceland. Leathery meat was cooked and afterwards put into whey to make it softer. Animal heads and feet, especially those of sheep, were cooked and then soured, also udders, testicles, eggs, birds, and the meat of seal and whales. The sour meat was ready for consumption straight from the barrel (Adalsteinsson 1990, 286–88; Gísladóttir 1994, 125).

Skyr, a dairy product similar to curd and of equal importance as whey, was made from skimmed milk and rennet, also produced in barrels. Rennet was made from a newborn calf's stomach, hung up to dry with the curdled milk still in it. Then, to get the bacterial growth, a few spoons of premade *skyr* were added into each barrel. According to Saga literature, *skyr* was used in all Nordic countries during the Middle Ages. In Iceland, *skyr* was eaten two or three times a day up to the 20th century, usually mixed with porridge, often made from Icelandic moss, since grain was scarce (Gísladóttir 1994, 123 f.; Gísladóttir 1999, 67 ff.; Johnsen 1978, 10). Búalög, the bye-laws of the 15th to 18th centuries,

gives an insight into the usual daily diet of that time. According to that, the daily ration for a male servant consisted of 1370g of *skyr*, 336g of fish and 168g of butter (Jonsson 1998, 26 f.).

Fishing was vital for Icelanders right from the beginning of the settlement. Soon, internal fish trade between rural and fishing districts developed, and some parts of Iceland, especially the West Fjords, became regional core areas for the fishing industry. During the first centuries a range of different species was caught but in the later Middle Ages the focus turned towards the catch of cod (Karlsson 2000, 47 f.; Edvardsson 2005, 63 f.). Fish was eaten fresh during season, or processed in a number of different ways, e.g. air-dried and cured as stockfish (Gísladóttir 1999, 155 ff.).

Many believe that Icelanders ate a considerable amount of whale meat, like the Faroese or the Greenlanders, but that is not the case. Whaling was a pretty risky enterprise and the consumption of whales was mostly limited to stranded animals. The Saga of Erik the Red recounts: 'A little while after a whale was driven ashore, and the men crowded round it, and cut it up, and still they knew not what kind of whale it was. Even Karlsefni recognised it not, though he had great knowledge of whales. It was cooked by the cook-boys, and they ate thereof; though bad effects came upon all from it afterwards' (Saga of Erik the Red, chapter 8). The churches and monasteries often claimed the rights on the animals for themselves and, in times of bad harvests and famine, the butchering of whales was strictly regimented (Karlsson 2000, 48).

Seals were more important than whales for meat. Their meat was eaten boiled or soured, their hides either exported or used to make ropes (Gísladóttir 1999, 195–98; Karlsson 2000, 48). Bones from harbour seals, the most common seal species of Iceland, are part of the zooarchaeological assemblages of many maritime sites, especially in the West Fjords (e. g. Edvardsson – McGovern 2005, 27), but frequently also harp seal bones are found, and harp seals occur mostly during periods of drift-ice (e. g. Harrison – Roberts – Adderley 2008, 106, 111 f.).

The earliest settlers of Iceland got meat from pigs, but they mostly ate sheep, as a comparison of the mammal bone material of different Viking Age sites has shown (e. g. Edvardsson – McGovern 2005, 26). Sheep were slaughtered in autumn and every single part of it eaten or re-used, except the bladder and the hooves (Adalsteinsson 1990, 286–88). Many sheep metapodials of the excavated bone material show holes for the marrow to be sucked out. The practice of opening sheep metapodials through transverse perforation of the distal diaphysis and breakage of the proximal articular surface instead of the more usual split of the bone is only found at Norse Shetland and Iceland. The

transverse hole serves the purpose to create a draught when sucking out the marrow. This method leaves the bone largely intact for further use. Bone material was clearly too precious to be wasted by splitting. In Iceland this method is seemingly limited to the post-Viking period. It is first to be found in material of the latter half of the 12th century. By the later medieval period nearly all sheep metapodials in Icelandic archaeofauna are bi-perforated. They are also common during the post-medieval period (Bigelow 1995, 447–49; Woollett – McGovern 2003, 8; Harrison – Roberts – Adderley 2008, 115).

Meat from cattle was also important, but in comparison to sheep they were more valuable and seemingly reserved for those who could afford them. Another source of meat came from birds, such as ducks or geese and the many sea birds like puffins and guillemots that are to be found in great abundance around Iceland (Edvardsson – McGovern 2005, 26–28; Hambrecht 2006; Gísladóttir 1999, 142–47).

Processing of all meat, bone and horn was done at the same time. The concentrated work aimed at maximal utilisation of fuel, since fuel was vital in a treeless country. Most of the arctic birch forests that once were to be found all over Iceland were cleared shortly after the settlement of Iceland (Adalsteinsson 1990; Vésteinsson 2000, 167; Ogilvie – McGovern 2000, 388). Thus, people used driftwood, turf, dung and seaweed for heating and cooking. But these raw materials were available only in limited amounts. When butchering of sheep took place in autumn, all meat was boiled or smoked at once, working day and night, not to waste fuel. The great amount of precooked food was afterwards either stored dry or put in whey, to make it available all year (Adalsteinsson 1990, 288).

Vegetables and cereals played only a minor role in former Icelandic diet and crops in general were scarce. During the first centuries some people grew barley, e. g. at Bergþórshvoll and Gröf in the south, as archaeobotany has proved (Friðriksson 1959; Friðriksson 1960, 65 ff.; Buckland – Sadler – Smith 1995, 520; Trigg et al. 2009), but later all cereals were imported by foreign merchants. Due to the shortage of cereals bread was rare up to the end of the 19th century. People used dried fish like bread, spreading butter on to it to make it softer to chew, serving it daily to almost every dish (Gísladóttir 1994, 124; Gísladóttir 1999, 202–08).

Icelanders ate a good deal of angelica as in other Norse countries. Nordic angelica is rich in vitamin C and has a rather harsh taste similar to celery. The plants were either plucked wild or cultivated in the home fields (garden angelica, *Angelica archangelica*) (Icel. *hvönn*). The stems were eaten raw, sliced, with butter, often as a vegetable or salad with fish. Some ate the roots aside with stockfish, with milk, cream, or butter. Collecting

angelica is mentioned in the Saga of the Sworn Brothers (*Föstbræðra Saga*) and the Icelandic lawbook *Grágás* sets penalties for gathering angelica on another man's land. Eggert Ólafsson's and Bjarni Pálsson's account of their travels through Iceland in the years 1752–57 contains much information on where angelica grew in Iceland, and how it was used. Angelica grew plentifully and sometimes to such a size that a grown man could put his arm into its cut stem (*Gísladóttir 1999*, 263–67; *Fossá 2006*; *Johnsen 1978*, 16).

Since the time of settlement seaweed or dulse (*Rhodymenia palmata*) (Icel. *söl*), a red alga, and Icelandic moss (*Cetraria Islandica*) (Icel. *fjallagrös*) substituted cereals and both were used to make porridge. Both are rich in fibres and contain a considerable quantity of vitamins. The moss was collected, then dried like hay and kept in bags or barrels in a dry place. It was then either cooked, used to make moss curd or a soup of milk and moss. Dulse was mostly collected in the south and west part of Iceland and either put into bread or boiled in milk. Harvesting took place in June and August. The dulse was pulled out by hand or cut with a knife and then carried in bags to the drying fields where it was soaked in water to remove the salt and then spread out to dry. Once dry it was stuffed in barrels and weighed down for about three weeks (*Kristjánsson 1980*, 40–91; *Gísladóttir 1999*, 252–58, 282–85).

Icelandic food history

Iceland's history of food and nutrition has experienced several unsettled periods from the Viking period until modern times. Some political and ecological events resulted in distinctive changes in the population's nutrition, highlighting how much the history of food in Iceland is entangled with the country's history in general.

The paper distinguishes three phases in the history of Icelandic nutrition, beginning with the settlement period and ending c. 1800 (*Fig. 1*). The developed phases do not correspond to the usual breaks of historiography, but are tied upon social, economical or climatic/natural changes affecting aspects of sustenance, such as the cultivation of fields, the keeping of livestock or

fishing methods. Naturally, the transitions between the phases are not sudden and they often took years or even decades for the people to become palpable. The development shows that over the course of history Icelanders were decreasingly able to supply themselves with the necessary foodstuffs. By the later Middle Ages the once-prospering Icelandic society of the Viking Age had turned into a society drawn into northern European market economy. Soon, people got used to the foreign supply in cereals, beer and other foodstuffs. Then, with the arrival of the so-called Little Ice Age in the 17th century, Icelanders were already dependent from the provisioning through Northern European markets and at times could no longer produce enough foodstuffs and sufficient nutrition for everyone.

Phase 1: The time of self-sufficiency (late 9th to 14th centuries)

The first people to settle down on Iceland at c. 870 AD found everything they needed on the island. From western Norway they had brought with them the knowledge of farming and fishing, of resource utilization, cooking and food preservation. Those were key features for the survival on an island that had previously been uninhabited. Fish, pigs, sheep and cattle were eaten right from the earliest times of settlement. With the first settlers also came freshwater fish (e. g. trout) being released into lakes. The lakes and the sea also provided a great abundance of birds such as ducks, and puffins, all hunted in a great amount and their eggs collected (*Sigurðsson 2006*, 68; *McGovern et al. 2007*). Domestic livestock was imported. The Icelandic sheep, horse and cattle derived mostly from Norwegian ancestors, but goats, pigs, dogs and cats seem to have been a Scandinavian mixture. Soon, the Norse turned Iceland to be a prosperous country (*Karlsson 2000*, 47, 51; *McGovern et al. 2007*, 29; *Sigurðsson 2006*, 66 ff.). Many excavated sites of that period bear witness to this. The archaeofauna of the Viking Age farm at e. g. Vatnsfjörður, West Fjords, is rich in domestic and sea mammals, bird and fish species, proving a differentiated diet during the Viking period, including cattle, pigs and sheep, seals, guillemots and puffins, cods and shellfish (*Edvardsson - McGovern 2005*, 26 f.).

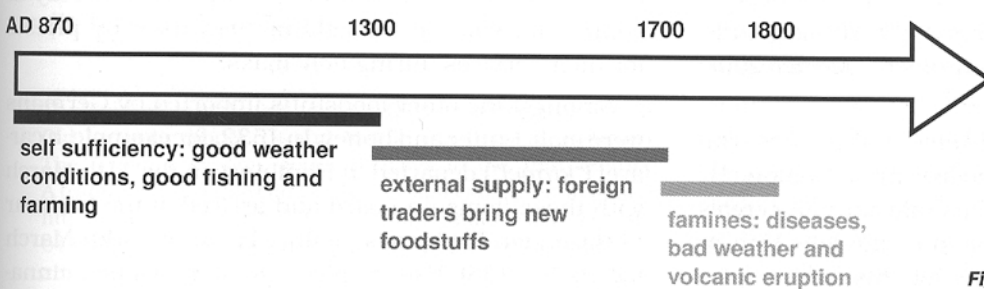


Fig. 1. Timeline of Icelandic food history.

At the time of settlement arctic birch woods were to be found in many parts of Iceland but they were soon deforested. People started growing cereals on their farms, namely barley and a bit of flax, although in a small amount. Archaeological investigations in e. g. Reynistaður have proven the cultivation of barley during the Viking period (Trigg *et al.* 2009). Barley was mostly grown to allow the brewing of alcoholic drinks for feasts. According to some Sagas, people brewed beer (Icel. *öl*) and mead (Icel. *mungát / mjöðr*) using domestically grown barley and imported malt (Gísladóttir 1994, 124).

The contacts to the external world during the Viking period and the following centuries concentrated largely on Norway. In 1262 Icelanders succumbed to the power of the Norwegian king, and from that time on the king should guarantee the sailing of six ships to Iceland annually to bring grain and other goods. This is regarded to be a very small amount of vessels that would not have supplied many people (Karlsson 2000, 50), also demonstrating that Icelanders were able to supply themselves during that period. Supporting information comes from anthropology. The human skeletons of an 11th-/12th-century graveyard excavated at Skeljastaðir display hardly any symptoms of deficiency (Gestsdóttir 1998), confirming the success of the settlement of Iceland.

Phase 2: The time of external supply (14th to 17th centuries)

With the beginning of the 14th century, economic changes begin to take place, also affecting the nutrition of Icelanders. Europe became more and more interested in Iceland, since the island could offer wares and raw materials that other north European lands did not have or did not have in sufficiency. The rich fishing grounds were a competitive advantage on the north European market and Icelandic fish had turned out to be a much sought after and valuable bulk good. In addition, other key export goods such as wool and *vaðmál*, a tightly woven and tough cloth, animal skins, fleeces and sulphur provided the basis of a dynamic trade between Icelanders, and first the English, then later the Hanse. By this time many Icelandic farmers – as a sideline, so to speak – were involved in large-scale fishery or textile manufacture to produce for export (Porsteinsson – Grímsdóttir 1989, 113–22; Karlsson 2000, 109, 118, 123–27; Gardiner – Mehler 2007; Mehler 2007, 235).

The 14th century witnessed some cold periods with bad weather leading to a decrease in vegetation. By the end of the 14th century the cultivation of cereals declined, finally coming to a stop in the late 15th or early 16th century. The reasons for this are complex

and it is assumed that this happened partly because of the decline in weather (Karlsson 2000, 45 f., 51; Ogilvie – Jónsdóttir 2000, 386; McGovern *et al.* 2007, 30; Sigurðsson 2006, 67), but also due to a change in social and economic structures that led to a shortage in manpower to work on the fields (Guðmundsson 2009, 331). However, Icelandic needs were met by foreign merchants who imported flour (or meal, as it was called in contemporary documents) along with other goods, in exchange for stockfish. A Bremen document from 1567 states that for more than 50 years traders from Bremen have provided the harbour of Kumberavogur, Snæfellsnes peninsula, with two carriers (last) of flour and beer, one carry of bread, one ton of salt and one ton of vinegar annually (DI 15, Nr. 12), to give just one example. The imported flour was under quality control and Danish officials tried to ensure that no rotten flour was brought to Iceland.

The grain weevil (*Sitophilus granarius*) also came with the flour and grain transported in barrels. It is a pest found in almost all excavated medieval trading sites in northern Europe, including Iceland. The weevil is often seen in connection with the Hanseatic meal or cereal trade (Buckland – Sadler – Smith 1995, 520). But the Hanse brought not only pests to Iceland. Excavations of the late medieval monastery at Skriðuklaustur revealed that onion, juniper and chicory were grown here, along with a number of medical plants (Kristjánadóttir 2008; Jensson 2004, table 1). Chicory, not native to Iceland, is considered to be a plant used as a remedy for dietary monotony, especially in Hanseatic cities of Germany and Poland, and their zones of influence, e. g. in Sweden. The plants contain a high amount of vitamins and chicory flowers were used to treat everyday ailments (e. g. Alsleben 2007, 26).

Next to flour, beer was imported in great quantity. Beer was one of the major Hanseatic foodstuffs exported to the North. In 1585, for instance, Oldenburg merchants equipped a ship bound for Iceland with 150 tons of beer as cargo, distinguishing between “ship beer” (*Schiffsbier*) and “merchant’s beer” (*Kaufmannsbier*), the first probably for the crew to drink during the voyage, the latter and probably better quality for sale. In addition, dried beans, peas, spices, salt, and mustard are mentioned, but those foodstuffs were part of the provisioning of the crew (Kohl 1905, 45). The import of wine is also referred to in documents but mostly in connection with ecclesiastic matters used by priests for their services during holy mass.

Amongst the other foodstuffs imported by Germans were malt, butter and honey. In 1532, for example, a caravel (“*krauel*”) departed in Hamburg on the 11th March with those items on board and arrived at the harbour of Bäsendar, Reykjanes peninsula, on the 30th March (DI 16, Nr. 295). Exotic spices, such as pepper, cinna-



Fig. 2. Post-medieval quernstones on display at the open-air museum of Ösvör, Westfjords.

mon, ginger and saffron, are frequently mentioned in documents and were also part of the Hanseatic food trade (Henn 1996, 26). The new foodstuffs imported by foreigners were most welcome to complement the otherwise rather uniform everyday menu. In the 15th century one of the oldest European cooking books, the "*Libellus de arte coquinaria*", was translated into Old Icelandic, when an unknown artist copied the French original of the 13th century. The book contains recipes of southern European origin, e. g. how to make spicy sauces and chicken dishes, many of them making use of exotic spices such as cinnamon, saffron, nutmeg, cloves, ginger and cardamom (Molbech 1844; Veirup 1993, 10 ff.).¹ However, the book clearly aimed at an opulent readership and most of the ingredients were affordable only by few, especially the clergymen. In 1541, for example, Bishop Gissur Einarsson had bought a notable amount of ginger (*DI* 10, Nr. 402).

In 1602 Iceland's society was confronted with another major change, when Christian IV, King of Denmark-Norway, put an end to the Hanseatic (and other foreign) trade by announcing the Danish trade monopoly. This monopoly, which lasted until 1787, had a dramatic impact on the Icelandic society. The foodstuffs

imported during the trade monopoly were more or less the same as before. Again, merchants were obliged to bring unspoiled necessities to Iceland, but very often those rules were not fulfilled. Icelanders complained about the situation feeling excluded from European markets and any free choice of goods. A 17th-century sheriff stated that he refused to pay for mites in the grain or sea water in his schnapps because there was plenty of it in Iceland anyway (Karlsson 2000: 138–42, quotation page 142).

Phase 3: The time of famines (18th century)

The deterioration in provisioning that had started during the 17th century reached its climax in the 18th century. Iceland experienced a couple of famines due to a series of epidemics, climatic worsening and natural catastrophes. Farming had become more and more difficult. We are rather well informed about this century because in 1703 the Danish king ordered a census for Iceland, one of the earliest in the world. According to that census Iceland had 50,358 inhabitants in the year 1703 but in the course of the century that number changed dramatically. A smallpox epidemic (1707–09) killed about 25% of the population. Only one generation later a period with very cold weather followed, having the effect of bad harvest, bad catches of fish and large amounts of pack ice off the coasts (Karlsson 2000, 162; Ogilvie 1996, 10, table 4). The most severe event of that century, however, was the eruption of a volcano in the Skaftá area in 1783. The ash that followed the

¹ The book exists in three languages: Old Danish (codex K and Q), Old Icelandic (codex D) and Middle Old German (codex W). The Icelandic version, codex D, dates to the 15th century. A transcription of the Old Danish version can be found online: <http://www.notaker.com/onlitxts/molbech.htm> <last accessed 04.04.2010>. However, the contents of the various versions are slightly different.

eruption was extremely poisonous, spreading over much of the country, affecting both livestock and crop. It took almost a year for the Danish king to order free grain and fish for Iceland (Karlsson 2000, 177–81). To make things worse, merchants of the Danish trade monopoly were not very concerned about the quality of the flour they brought to Iceland and imported goods that were often rotten. To relieve the situation the Danish Crown initiated a number of attempts to improve Icelandic agriculture and fishing (Karlsson 2000, 141; Róbertsdóttir 2008, 33–36). In addition, querns were shipped to Iceland (Fig. 2) and watermills were built so that whole cereals could be imported instead of flour (Gísladóttir 1999, 205).

Many people were constantly undernourished during that period. Estimations calculate that in the second half of the 18th century home consumption of stockfish was about 110 grams per day per person. For the year 1770 it is assumed that 90% of all foodstuffs came from domestic products of animal origin and 10% from imported foodstuffs, that is grain (Karlsson 2000, 167). People also ate a lot of dulse and used

it as animal fodder and fuel (Kristjánsson 1980; Buckland – Sadler – Smith 1995, 520). Livestock farming decreased and cheese production almost disappeared, because *skyr* was more substantial. Beer brewing at home came to a halt and salt, scarce in the first place, was no longer used, since it was too expensive to import (Gísladóttir 1994, 124–25; Jonsson 1998, 25). The situation is described by Brynjólfur Sigurðsson, who stated in 1753: ‘... and as the ordinary people only use fish and milk products for their subsistence they have had to suffer hunger and dearth during the previous winter and spring. As a result of this five people have died here in the district. Many of the people have subsisted on roots from the earth and seaweed from the shore’. (Ogilvie – McGovern 2000, 388).

The Icelandic farm

The storage, preparation and consumption of food in the historical record is best to be viewed by an analysis of the Icelandic farm and its development from the Viking Age to the 18th century, with a special focus on the kitchen, fireplaces, hearths and storing rooms, and related artefacts of that time.

Phase 1 (late 9th to 14th centuries)

During the Viking Age the longhouse (Icel. *skáli*) was the main building of Icelandic farms (Ágústsson 1982, 255). The earliest example discovered so far in Iceland, dating to the years of the settlement around 870, shows the typical, however rather small outline of a longhouse (Fig. 3). The outer turf walls are slightly curved and supported by an inner stone facing. Two interior rows of posts carry the roof construction, creating a nave and two aisles, and in the centre the long fire is situated. In the south-east corner a cooking pit was discovered (Roberts et al. 2000/2001). At the large Viking hall of Hofstaðir, north-east Iceland, cooking took place at the end rooms of the building where also food was stored, as barrel pits, cooking pits and hearths indicate. In addition, an adjacent building was used for the same purposes (Lucas 2009, 114 ff., 375, 386). In both longhouses, the fireplaces are situated in the centre of the aisles; both have stone slab bases and the sides lined with upright stones. Archaeobotanical analysis has shown that soil samples taken from the Hofstaðir central hearth contained seeds and a number of burnt bones, proving that not only heating but also cooking did take place here (Guðmundsson 2009, 324 and table 6.2; Lucas 2009, 387). Soil samples contained the seeds of crowberries (*Empetrum nigrum*) and chickweed (*Stellaria media*), the latter eaten fresh as salad or preserved in *skyr* (Guðmundsson 2009, 333 f.).

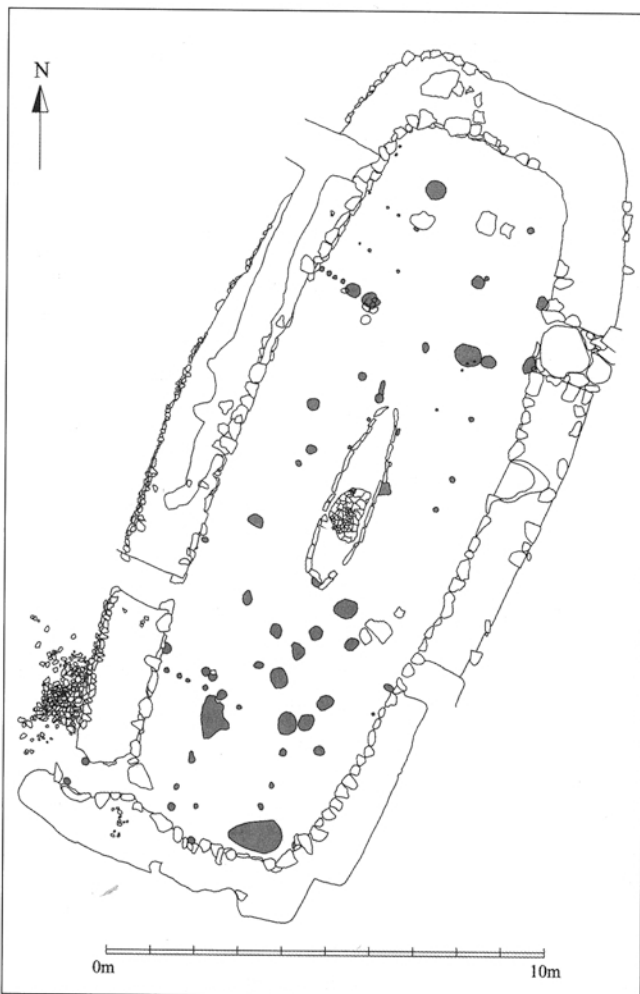


Fig. 3. Viking Age longhouse excavated at Reykjavík, Aðalstræti, with central fireplace (from Roberts et al. 2000/2001, 227).

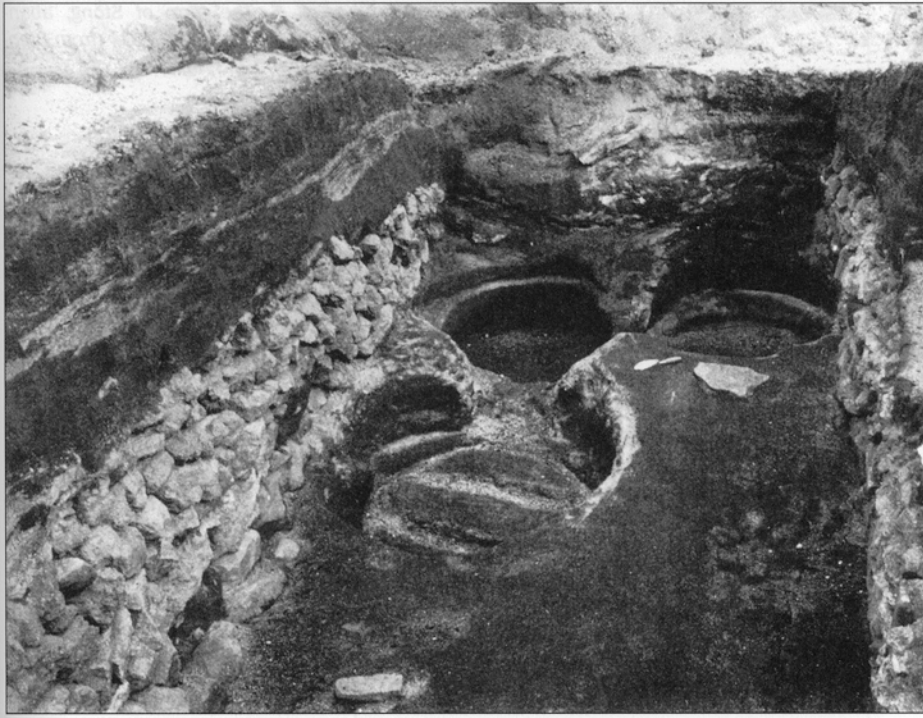


Fig. 4. Barrel imprints in the storage room of the farm Stöng (from Ágústsson 1989, 270).

During the Viking period storage of food or the production of dairy products took place in small out-houses next to the longhouse. Sometimes pit houses were part of the farms too, but they seem to have been multi-purpose buildings used for different activities such as cooking, weaving, smithing etc. (Snæsdóttir 1991). But up to the 20th century Icelandic farms always included a room for the production and storage of whey and skyr and large wooden barrels or storage trunks were typical features of storage rooms (Fig. 4). Very often the barrels were dug into the floor. Then, sand or volcanic pumice was placed between the soil and the barrel for insulation (Gísladóttir 1994, 126). Already in the earliest days of Icelandic archaeology, in 1885, samples of barrel contents excavated at the medieval farm of Bergþórshvöll, south Iceland, were analysed and interpreted as dairy product, most likely skyr (Storch 1887). Yet, palaeontological research has shown that sometimes barrels were used instead to store human urine necessary for wool scouring (Buckland - Perry 1989, 42 f.).

Around the 12th century all longhouses expanded with smaller adjacent buildings attached to them. Here, food-processing activities earlier executed in the out-houses are being transferred to be included into the main farm building. However, there was still no separate kitchen. The new development can be seen, for example, at the farm of Stöng, abandoned probably after a eruption of volcano Hekla in the year 1104 (Fig. 5). The farm was divided into two large living areas, both with a fireplace. It had an adjoining dairy of substantial size, where the remains of three sunken barrels

were found. The sleeping room is separated from the living quarters to offer more privacy (Ágústsson 1982, 257 f.).

Phase 2 (14th to 17th centuries)

The 14th century brought another change in the layout of the Icelandic farm. The longhouse with its adjacent structures was no longer build. A new arrangement emerged, the so-called passage house (Ágústsson 1982), to remain the typical construction until the 20th century. The eponymous passageway divided the house and allowed the addition and access of further rooms. For the first time farms now had a separate kitchen, to be placed – together with storage rooms – at the gable ends of the farm. Storage rooms could still be built as separate structures (Weinmann 1997, 489 f., 493).

Such a layout can be seen at the farm of Kúabót, south Iceland, which was deserted after a glacier burst in 1490. The passage separated the two main living quarters and a storage room. The latter and another storage room both showed traces of buried wooden vessels in the floor. The kitchen was visibly separated from the living quarters, situated in the east of the building with no direct connection to the other rooms (Gestsson 1987; Fig. 6).

It is an open question what initiated the change in the farm layout and the development of the passage house. In his seminal work on the development of the Icelandic farm Hörður Ágústsson presented some

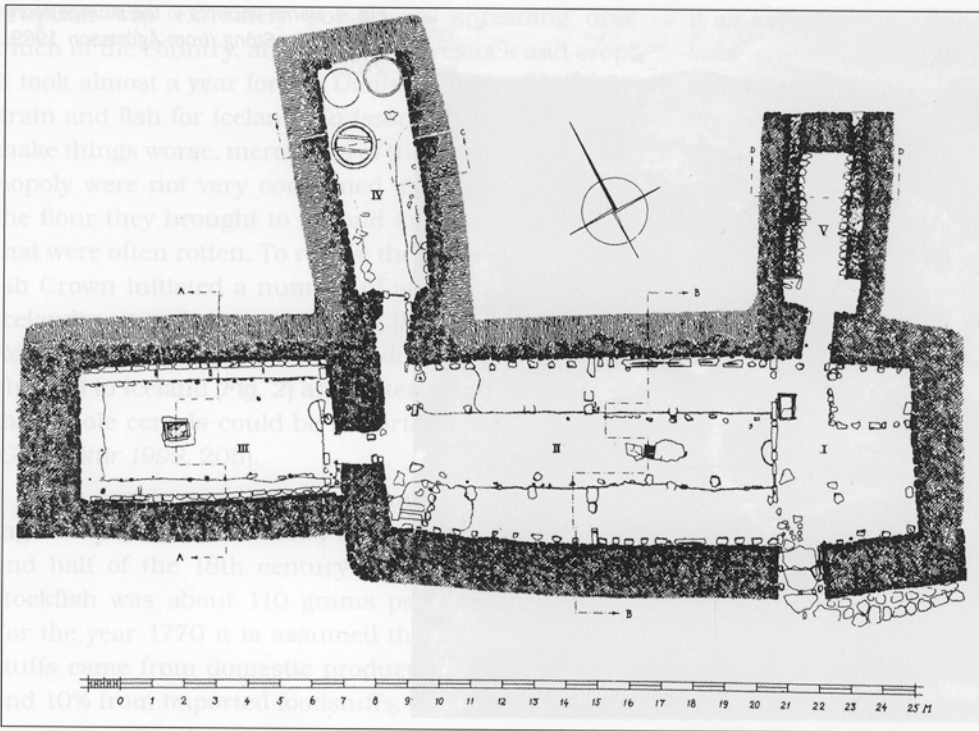


Fig. 5. The farm of Stöng, abandoned probably c. 1104 (from Stenberger 1943, fig. 37).

suggestions (Ágústsson 1982, 265 f.). He noted that the larger and richer the farms are, the more rooms are included into the main building to be connected by a passageway. In addition, at about the same time the passage house developed the average temperature drops down in Iceland, resulting in a colder climate lasting a couple of centuries. To make things worse, the deforestation of the birch woods had resulted in a lack of fuel. Thus, both aspects seem to have had the effect that people felt the need to split up their living

quarters into smaller rooms which were easier to keep warm.

Some years ago, Orri Vésteinsson has brought forward a new explanation and he connects the development of the passage house with social changes taking place in Iceland during that period (Vésteinsson 2002). To move beyond, also socio-cultural reasons could have inspired the change in architecture. The transition from the Viking Age and early medieval longhouse to the later passage house could also be linked to a phe-

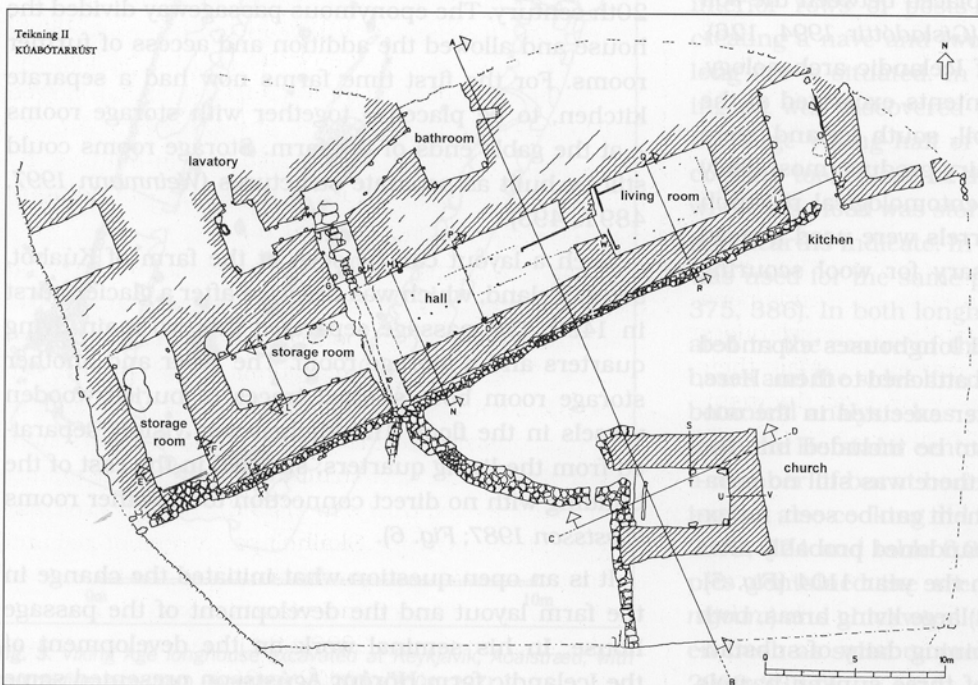


Fig. 6. The farm of Kúabót, deserted c. 1490 (from Gestsson 1987, 12-13).

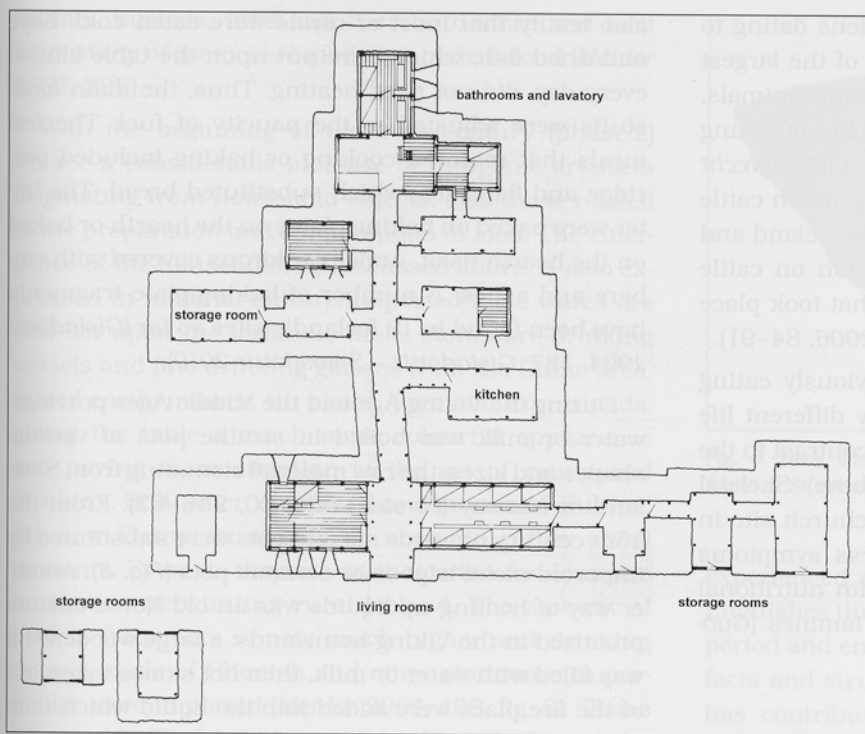


Fig. 7. The farm of Laufás in 1756 (from Ágústsson 1982, fig. 12).

phenomenon northern continental Europe encounters at about the same time. Here, in the 14th century, a bourgeois culture emerges, especially in northern European cities, resulting in new ways to express domesticity, for example by means of new foodstuffs, table wares and furniture. A key aspect of this new bourgeois culture is its focus both on the individual and the family, also creating separate spheres for men and women by a multi-room layout of their houses. It is not without reason that the English word *hous(e)hold* is also first known from the 14th century (Mullett 1987, 51; Wiegelmann 1996, 14 f.; Goldberg – Kowaleski 2008, 2 f.). It is reasonable to assume that this phenomenon also reached Iceland. A society as rural and marginal as Iceland surely never bore a bourgeois culture, but here too the layout of houses changed and different rooms for different purposes emerged, allowing both more privacy and differentiated chores. The novation could partly be of European origin, as a noticeable part of the material culture is, reaching Iceland probably with some retardation. With the 14th century Iceland opens up to a large number of foreign traders, and Icelanders also travelled abroad to do business or to further their education. Both parties could have brought the inspiration to create a new domesticity to Iceland.

Phase 3 (18th century)

Facilities to prepare and store food in the 18th century can be viewed at the farm of Laufás, northern Iceland, which still exists today. The building is considered to be the prototype of an Icelandic passage house

and the oldest parts are dating back to the 16th century. Excavations did not take place here but the construction was recorded in 1953 and its several building phases have been analysed in detail (Ágústsson 1982, 261). However, Laufás is a high-status farmstead and ordinary farmers lived down-to-earth in much more decent and simple dwellings, but of those there is no excavated example. The large farm of Laufás is divided into many rooms connected by a long passage. During the 18th century the farm consisted of a long central passage with the large bath (*baðstofa*) at the end (Fig. 7). Included in the building are several rooms for the storage of food. The living quarters were situated to the right and left of the central entrance. The second room to the right contained the kitchen, followed by two dairy rooms to the left, one of them with three dug down barrels. The farm also has outhouses, all pantries (*skemmur*), including a *hjallur*, a building to store fish (Ágústsson 1982, 261 ff.).

Other information about the provisioning of 18th century Icelanders comes from zooarchaeology. Remains of 18th-century food were found and analysed as part of the extensive excavations of the bishop's see at Skálholt, south-west Iceland. The manor of the bishop's see consisted of the Bishop's quarters, a school and a considerable infrastructure devoted to the household. After an earthquake in 1784 the bishop's see was moved to Reykjavík and Skálholt partly abandoned and transformed into a major livestock farm with one of the largest cattle herds in Iceland (Lucas – Snæsdóttir 2006, 8–14; Hambrecht 2006, 82 f.). Large-scale excavations taking place from 2002 to 2006 revealed a great

number of animal bones found in middens dating to the 17th and 18th centuries, consisting of the largest amount of cattle bones, mostly young adult animals, ever recorded in Iceland. The slaughtering of young adults is above all done to get the best beef (*Hambrecht 2009*, 7 f.). It is not surprising to have so much cattle waste in one of the highest-status sites in Iceland and it has been argued that this specialisation on cattle was part of the agricultural revolution that took place in Iceland during that time (*Hambrecht 2006*, 84–91).

The churchmen of Skálholt were obviously eating well, but the ordinary farmer led a very different life and the finds from that site are in great contrast to the general malnutrition of that time (see above). Skeletal remains of this century excavated at a church site in Bolungarvík, West Fjords, showed stress symptoms of scurvy and other signs associated with nutritional deficiency as they would occur during famines (*Guðmundsson et al. 2005*, 93 f.).

Material culture of food

The material culture of Iceland developed steadily during the Middle Ages and the post-medieval period. However, both amount and diversity are in no way comparable with that found during an excavation of a contemporaneous site in continental Europe (*Mehler 2007*, 227). Consequently, material culture related to the storage, processing and consumption of food is equally scarce. Household wares of ceramics or glass all had to be imported, since there was no local production until the 20th century. The few existing artefacts witnessing the handling of food do mirror the simplicity of meals during previous times and they



Fig. 8. Small copper alloy tripod, probably dating to the 15th/16th century and of German origin (height 10.2 cm) (from *Eldjárn 1963*, nr. 19).

also testify that most of meals were eaten cold. Skyr and dried fish, which were put upon the table almost every day, did not need heating. Thus, the main food-stuffs were adjusted to the paucity of fuel. The few meals that required cooking or baking included porridge and flatcakes, which substituted bread. The latter were baked on baking plates on the hearth or baked on the hearth itself, under cauldrons covered with embers and ashes. A number of baking-plate fragments have been found in 19 Icelandic sites so far (*Gísladóttir 1994*, 127; *Gísladóttir – Snæsdóttir 2010*).

During the Viking Age and the Middle Ages porridge, water or milk was boiled in steatite pots of various shapes and sizes, the raw material stemming from Shetland or Norway (*Forster 2004*, 20, 246–63). From the 15th century onwards steatite pots were substituted by imported metal tripods or ceramic pots (*Fig. 8*). Another way of heating up liquids was an old Norse custom practised in the Viking homelands: a large wooden tub was filled with water or milk, then hot stones taken out of the fire place were added into the liquid which then got hot. This practice is also referred to in *Ljósvetninga Saga: 'Mjólk var heit og voru í steinar'*. ('The milk was hot and there were stones in it' own translation; *Ljósvetninga-Saga*, chapter 21; *Grøn 1927*, 152 f.). This was probably the most widely used boiling technique, since metal, stone or ceramic pots were scarce and wooden vessels the most common food containers.

Ceramic cooking pots were equally scarce. Up to the 16th century most of ceramic fragments were from drinking vessels. From the Viking period only two ceramic cooking pots are known. One sherd of a Carolingian proto-stoneware pot made at Pingsdorf near Cologne, a ware type mostly known from the early medieval trading site at Dorestad, Netherlands, was found during excavations at Stóraborg, S Iceland (*Fig. 9*). The second pot, represented by 15 fragments of grey earthenware made in the coastal area of the Netherlands and Germany, was found at the monastery at Viðey, SW Iceland (*Mehler 2000*, 37 f.; *Mehler 2004*). Up to the 14th century other food related finds include steatite fragments of pots, bowls and baking plates, and a few sherds of ceramic drinking jugs from eastern England and Germany (proto-stoneware) (*Forster 2004*, 20, 246–63; *Mehler 2004*). Thus, phase 1 in the history of food and nutrition, is poorly expressed with material culture.

Through all phases food such as skyr and whey was stored in large wooden containers and coopered vessels barrels. Only few of these have survived in the ground. The largest collection studied to date was found during archaeological excavations at Stóraborg, south Iceland, which revealed 249 fragments of coopered vessels from the 11th to the 19th centuries, stemming from small cylindrical beakers set upon the table

or vats, buckets, tubs and barrels to store and heat food. Many of them were made out of driftwood (Mehler 2007, 232).

With the beginning of the 14th century (phase 2) we see a considerable increase of inorganic artefacts originating from household objects, also those related to the preparation and consumption of food. The emergence of the household, as discussed above, is also expressed in material culture. Imported table wares are now set upon the Icelandic table: stoneware drinking vessels and fine drinking glasses from the Rhine area, glazed earthenwares, tin plates, jugs and iron tripods, giving the table a much more colourful appearance and paying more attention to the act of eating and drinking. Still, when compared to continental Europe, the new European objects do occur in rather small amounts. Even so, they are an indication for domestic innovation penetrating rural Iceland. The amount of pottery fragments is now much higher and drinking vessels made of Rhenish and other stoneware in particular were imported (Mehler 2004, 169, fig. 3). Those who could afford put imported drinking glass on to the table (Mehler 2003). This increase in the amount and quality of material culture is clearly connected with the onset of the many foreign traders bringing with them goods from northern Europe. However, medium-sized farms, like the one of Kúabót, left little material culture related to food behind (see Fig. 6). The few finds of the storage rooms and the kitchen included fragments of wooden vessels, a copper plate, and an iron axe (Gestsson - Árnadóttir 1987, 83 ff.)

By the 18th century (phase 3) many households owned a few examples of European table wares, ceramic cooking pots and cutlery. Occasionally, even faience and porcelain was imported via Denmark. Despite the harsh circumstances during that time, natural stimulants, such as coffee and tobacco had made it to Iceland, as porcelain coffee cups and clay tobacco pipes found in Reykjavík and other sites show. Amongst the attempts mentioned above to improve Icelandic agriculture initiated by the Danish crown were even practical experiments to examine the possibilities of growing tobacco in Iceland (e. g. Mehler 2001, 77–79; Mehler 2002; Sveinhjarnadóttir 1996, 121).

Summary

From the beginning of the settlement period of Iceland people were generally able to supply themselves, despite of the rough nature of the volcanic island and the sub-polar climate. The young Icelandic society was based on farming and fishing, and able to endure on the margins of Europe. However, some political and ecological events resulted in distinctive changes in the population's nutrition, so that Iceland's history of food

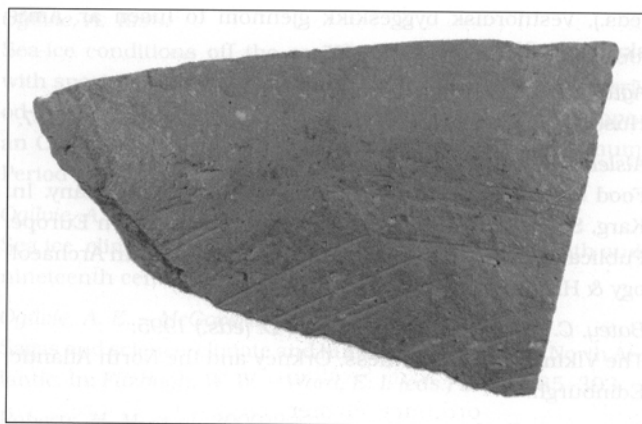


Fig. 9. Body sherd of late 9th-century Carolingian proto-stoneware found at Stóraborg.

experienced several unsettled periods. The paper distinguishes three phases, beginning with the settlement period and ending c. 1800. By analysing ecofacts, artefacts and structural remains, archaeological research has contributed to the knowledge about foodstuffs, their preparation and storage in former times.

Zusammenfassung

Trotz der rauen Natur und dem subpolaren Klima konnten sich die Isländer vom Beginn der Landnahme an selbst versorgen. Grundlagen der jungen isländischen Gesellschaft waren Landwirtschaft und Fischfang, welche es ermöglichten, am Rande Europas zu überleben. Einige politische und ökologische Ereignisse führten jedoch zu markanten Veränderungen in der Versorgung der Bevölkerung und es kam zu schwierigen Perioden in der isländischen Geschichte der Nahrung. Der Artikel differenziert dabei drei Phasen von der Wikingerzeit bis um 1800. Durch Fund- und Befundanalysen konnte die Archäologie dazu beitragen, das Wissen um Lebensmittel, deren Zubereitung und Lagerung in vergangenen Zeiten zu erweitern.

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Natascha Mehler, Institut für Ur- und Frühgeschichte, Universität Wien, Franz-Klein-Gasse 1, A-1190 Wien, natascha.mehler@univie.ac.at