
The vegetarian component of a late medieval diet. An example from Erkebispegården – The Archbishop's Palace in Trondheim, Norway

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Trondheim was the seat of an archbishop from 1152/53 until the reformation reached Norway in 1537. Erkebispegården, the archbishop's residence, was established around AD 1170 and included living quarters and other facilities both for the archbishop and his staff. The last Norwegian archbishop, Olav Engelbrektsson's account books from the years 1532-1538 list persons employed by the archbishop and their specific wages, where food formed part of the wages. These books are one of our sources for information about the diet in Erkebispegården in late medieval times. The accounts indicate that the vegetarian part of the diet, beside cereals, was limited. The archaeological excavations, which were carried out in Erkebispegården between 1991 and 1995, provided more information about the diet. Two wooden constructions filled with cess and rubbish were found and analysis of plant remains in samples from these fills yielded physical remains related to food consumption. Seeds from wild berries were the most common type of food remains identified in all these cess samples. Strawberries (*Fragaria vesca* L.), cloudberry (*Rubus chamaemorus* L.) and raspberries (*Rubus idaeus* L.) were the dominant species found. *Vaccinium* species, red whortleberries/cowberries (*Vaccinium vitis-idaea* L.) and bilberries (*Vaccinium myrtillus* L.) together with crowberries (*Empetrum* sp.) were rare. None of these types of berries or berries in general are specifically mentioned in the accounts. Finds of remains of exotic fruit types such as figs (*Ficus carica* L.) and grapes (*Vitis vinifera* L.) illustrate that fruit imported from southern Europe was consumed in the palace. Together, the botanical data recovered from analysis of soil samples from layers dated to the late medieval period and the information given by Olav Engelbrektsson's account books provide us with possibilities for an understanding of the extent of the plant component in the late medieval diet in Erkebispegården.

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Introduction

Trondheim was the seat of an archbishop and the centre of the see of Nidaros from 1152/53 until 1537 when the reformation reached Norway and the last Norwegian archbishop, Olav Engelbrektsson, fled the country. This marked a turning point in the town's history. The archbishop's residence, Erkebispegården, which was established around AD 1170 between the cathedral and the river Nidelva (Fig. 1) included living quarters and other facilities both for the archbishop and his staff for more than 350 years. The earliest buildings were erected in the northern wing of the complex and still remain standing today together with other medieval and post medieval buildings (Fig. 2). The palace is still surrounded by a precinct wall that separates it from the cathedral and the rest of the town.

During the centuries of occupation, many changes took place in the palace as some buildings were demolished and new buildings were erected. One dramatic change took place in 1983 when the southern and eastern wings of the complex burnt down. These wings have now been rebuilt. Prior to the rebuilding process, between 1991 and 1995, archaeological excavations were carried out in the palace (Fig. 2). Although Erkebispegården is a unique site in Norway, archaeological knowledge about it was quite limited before 1991. However, in the autumn of 1995, when the excavation was completed, a large amount of different data, including both objects and soil samples had been collected. This material represents an important data base for environmental, archaeological and historical research on Erkebispegården and will have to be studied in the years to come.

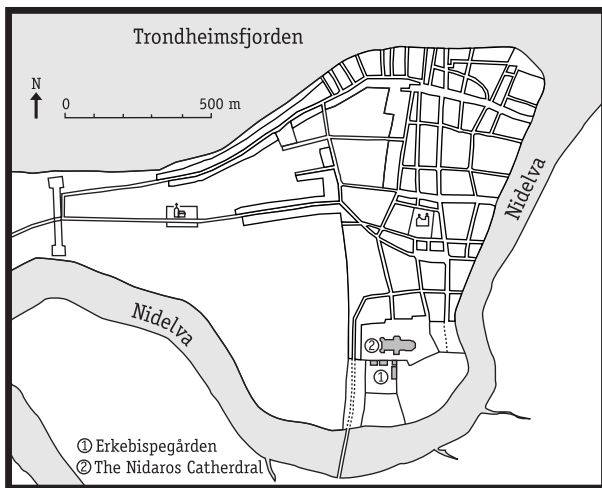


Fig. 1. Trondheim, central part. Revised by J.C. Sandvik 2000, based on Naucler's map from 1658 and Long (1975).

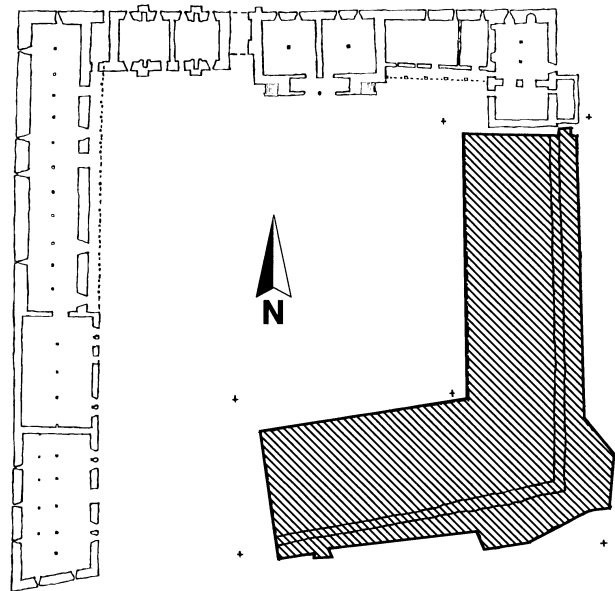


Fig. 2. Erkebispegården, Trondheim, Norway. The standing buildings of the northern and western wings, the precinct wall and the excavated area in the eastern and southern wings (Nordeide 2000).

Excavation and analysis methods

Since Erkebispegården played an important role in the history of the town during the medieval and early modern period, one main purpose of the excavation was to document both medieval and post medieval deposits in a stratigraphical manner. All information concerning excavation and post excavation methods, the phasing and the interpretations, are available in Bazeley et al. (1993), Larsson & Hommedal (1999), McLees (1998a, 1998b), Nordeide (2000), Olsson & Petersén (1997), Petersén (1997), Saunders (1997, 1998).

Samples of all the timbers were collected for dendro-chronological dating. The fill in the cess-pits was clearly stratified in different layers and samples were therefore collected from each specific layer. The other samples for analysis of botanical macro- and microfossils were collected from selected layers. The selection process was based on discussions between the site supervisors and myself during the excavation. From each sample a standard volume of 0.1 litre was prepared for analysis of macrofossils. Botanical remains were identified, and some zoological remains recorded while other samples were also prepared for pollen analysis. The complete result tables together with a discussion of the results in relation to the phases of site occupation are presented in Sandvik (1992, 2000). Specific parts of the results are presented in Sandvik (1994, 1995).

The more universal expression diaspore is used both for seed and fruit stones. Plant nomenclature follow Lid & Lid (1994) for vascular plants. The identification of diaspores was based on the work of Anderberg (1994),

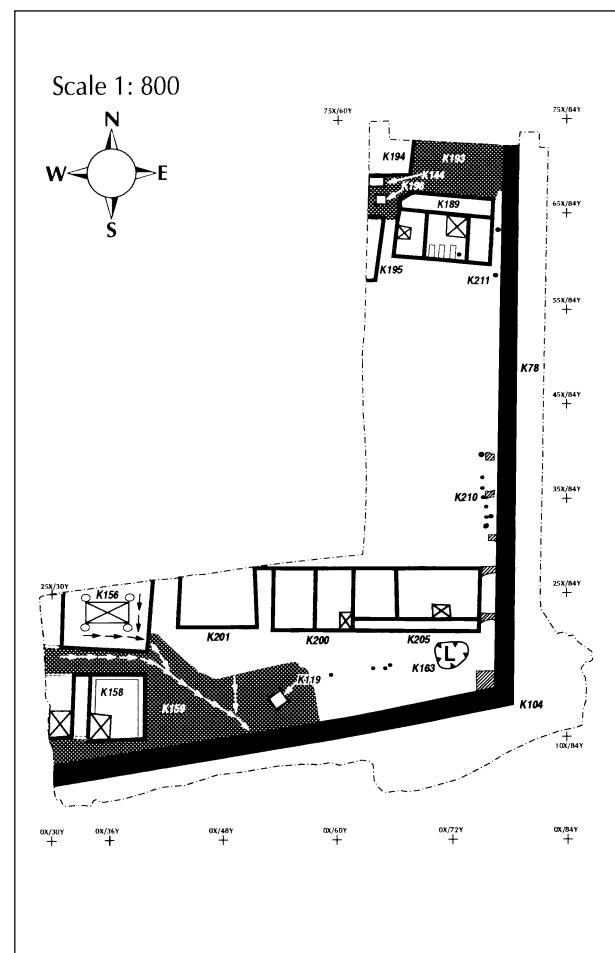


Fig. 3. Erkebispegården, Trondheim, Norway. The eastern and southern wings in period 6, late medieval times (Nordeide 2000)

Beijerinck (1947), Berggren (1969, 1981), Dombrovskaja et al. (1959), Griffin (1988), Hjelmqvist (1991), Jensen (1979, 1986), Katz et al. (1965, 1977), Knörzer (1975), Körber-Grohne (1967), Schoch et al. (1988).

Sources of information

In 1537, when the reformation reached Norway, the last Norwegian archbishop, Olav Engelbrektsson, left the country. He fled to Holland where he stayed until he died in 1538. Among many other things, he left behind his account books dating back to 1532 (Olav Engelbriktsson's rekneskapsbøker 1532-1538). These books are divided into sections, each dealing with a specific subject. "Sveineløn" is of special interest because it lists persons employed by the archbishop and their specific wages (Nissen 1998). Significantly, food formed part of the wages paid to certain employees. The different dishes listed therefore provide us with information about the diet during a limited period of time.

During the archaeological excavation, two wooden constructions, K144 and K196 (Fig. 3), dated to late medieval time were found. Both were originally built as wells or cisterns but were later used as cess-pits. In particular the cess provided well preserved organic remains such as macrofossils, pollen and spores. Analyses of plant remains in samples from these fills yielded physical remains related to food consumption in the palace and contributed to the information about the diet. Thus both archaeological and documentary sources provide us with data about the late medieval diet in Erkebispegården.

Results

Some data recovered from analysis of macrofossils in soil samples from layers dated to the late medieval period of occupation in Erkebispegården are presented and linked to the information given by Olav Engelbriktsson's account books. The implications for the understanding of the late medieval diet in Erkebispegården are discussed.

Dating

The archbishop's account books can be precisely dated to the specific years 1532-1538. The timber constructions K144 and K196 containing the cess proved difficult to date dendrochronologically (Gunhild Skjervø and Terje Thun, personal communication). However, ceramics, numismatics and other dendrochronological dates suggest that this period of occupation as a whole and the constructions and deposits discussed above can only be dated to the general period around the late 15th and early 16th century (Olsson & Thun 2000).

Life and activities

A period of extremely intensive activity in the palace began around 1480-1500 (McLees et al. 2000). A new precinct wall (Fig. 2) was built to the east and south, strongly influencing the internal organisation of the palace.

In this period, the Archbishop became Lord lieutenant (*Lensherre*) and also Foreman of the Norwegian State Council (*Det norske Riksråd*) and he needed an administrative staff. He was already allowed by the Danish-Norwegian king to keep one hundred armed men (*Hamar-kroniken* 1986).

The archaeological excavation showed that inside the wall were a number of phases of workshop buildings (Fig. 3). The most important among them was a mint workshop, composed of three different building phases (McLees 1994). In addition, the remains of an armour's workshop for the production and/or repair of crossbows; and a possible shoemaker's workshop were found. Craftsmen connected to the different workshops were working and possibly living within the walls of the palace. It is likely that the cess pits were used by persons from all these groups of people.

Ingredients and dishes

Many plant remains were identified from soil samples collected during the excavation (Fig. 4, Table 1). In the following presentation, a selection of the plants are provisionally grouped and their significance for the diet discussed. Unfortunately, no recipes were included in the account books. The accounts suggest that trade in cereals, meat and fish was a common practice and different dishes in which particular ingredients were used are mentioned. Dishes prepared with fish, bird and meat of both domestic and wild species dominate the diet list in "Sveineløn". The results of the osteological analysis of huge collections of bones collected during the excavation give support to this information (Hufthammer 1999).

Cereals

Very few macroscopic remains of cereals were identified, but many samples were rich in cereal pollen. However, fragments of corn cockle (*Agrostemma githago* L.) diaspores were found in most of the layers in the latrine fills. The diaspores from corn cockle, which seems to have been a common weed in the fields in both medieval and early post-medieval times, are so large and heavy that they follow the cereal grains through the cleaning processes (Knörzter 1984). Therefore, fragments of corn cockle most obviously were brought in to the palace mixed with the processed cereals. Corn cockle diaspores are poisonous and therefore not an attractive ingredient in food. Different cereals and prepared dishes are mentioned in the accounts. "Korn" – grain – and "miøll" – flour – were brought to the palace

Table 1. Erkebispegården, Trondheim, Norway. A selection of diaspores identified in samples from the fills of cess-pits K144 and K196. The contexts are sorted from the top to the bottom of the fills. N-numbers follow the accession number system for archaeological excavations in Trondheim. f=fragments of diaspores.

Construction	K144					K196						
N-number	118315	118328	118325	118524	118531	118302	118310	118312	118314	118321	118319	118521
Context	A657	A512	A511	A521	A533	A437	A475	A475	A475	A508	A509	A513
Plants-Scientific names												
<i>Agrostemma githago</i> L.			11f	3f			36f	6	25f	2f	13f	6f
<i>Brassica/Sinapis</i> indiff.							1		1			
<i>Cerealia</i> indiff.									1f	1		
<i>Corylus avellana</i> L.			1f								4f	
<i>Empetrum</i> indiff.	1					1						
<i>Ficus carica</i> L.	12	5	18	4	5	16	55		43	12	18	1
<i>Fragaria vesca</i> L.	1	8	8	9	5	1	6	15	259	19	97	178
<i>Humulus lupulus</i> L.									2			
<i>Linum usitatissimum</i> L.				1		1			1			
<i>Malus x domestica</i> Borkh.										1		
<i>Papaver somniferum</i> L.				1								
<i>Pyrus x communis</i> L.									2			
<i>Rosa</i> indiff.									1		1	
<i>Rubus chamaemorus</i> L.	2			6					11			11,4f
<i>Rubus idaeus</i> L.	6	4	1	7	1	21	1		14			
<i>Rubus cf. saxatilis</i>		2						1				
<i>Vaccinium</i> indiff.				4				10			3	
<i>Vitis vinifera</i> L.			1	2,1f		3,7f	1,8f	3	2,1f	1, 1f		

for utilisation in the household. It is stated that cereals originating both from Germany and Norway were bought. The types rye (*Secale cereale* L.) and barley (*Hordeum vulgare* L.) are also specified. Among dishes prepared from cereals was “grøtt” – porridge. Especially porridge prepared from barley has been an essential element of traditional Norwegian fare. Bread types mentioned are “Løff” – white bread – and “bagelsze”, the latter may include both bread and pastry.

Wild berries

Diaspores from wild berries were the most common types identified in all the cess samples. Strawberries (*Fragaria vesca* L.) and raspberries (*Rubus idaeus* L.) were the dominant species found. Both types may have been local to the town and the hinterland. Even today, raspberries frequently grow on some of the slopes towards the river not far from Erkebispegården. Cloudberry (*Rubus*

chamaemorus L.), which are both tasty and delicate, were also eaten. *Vaccinium* species, red whortleberries (*Vaccinium vitis-idaea* L.) and bilberries (*Vaccinium myrtillus* L.) together with crowberries (*Empetrum* sp.) seem to have been a less common part of the diet. However, suitable localities for all those species of berries are found close to the town. Wild berries, especially cloudberry, red whortleberries and bilberries, are still collected and brought for sale to the marketplaces in Trondheim and other Norwegian towns in late summer and early autumn. Crowberries are not among the popular types for consumption today. Diaspores of all these species are commonly found in layers dated to medieval times in Norwegian towns (Griffin 1988, 1994, Griffin personal communication, Griffin & Sandvik 1989, 1991, Krzywinski et al. 1983, Sandvik & Selvik 1999, Tallantire 1979). There is thus evidence for an unbroken tradition of the use of wild berries for consumption from the early

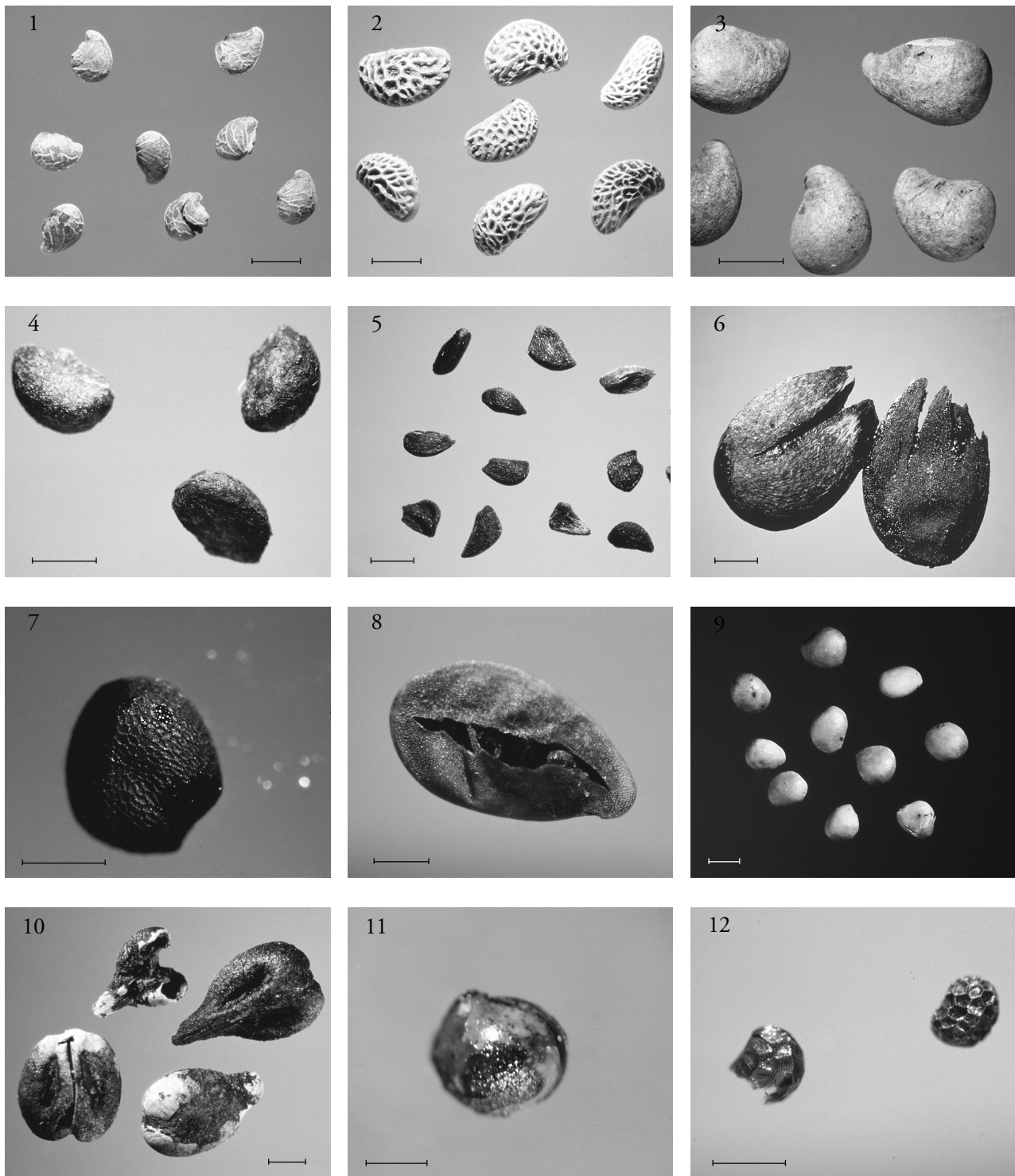


Fig. 4. Erkebispegården, Trondheim, Norway. A selection of diaspores identified in samples from the fills in cess-pits K144 and K196. 1: Strawberries (*Fragaria vesca* L.), 2: Raspberries (*Rubus idaeus* L.), 3: Cloudberrries (*Rubus chamaemorus* L.), 4: Crowberries (*Empetrum indiff.*), 5: Red whortleberries/Bilberries (*Vaccinium indiff.*), 6: Apple (*Malus x domestica* Borkh.), 7: Mustard/Cabbage indiff. (Brassical/ *Sinapis indiff.*), 8: Flax (*Linum usitatissimum* L.), 9: Fig (*Ficus carica* L.), 10: Grape (*Vitis vinifera* L.), 11: Hops (*Humulus lupulus* L.), 12: Opium poppy (*Papaver somniferum* L.). Photos: Liv Grønli: 1, 2, 3, 4, 5 & 8, Paula Utigard Sandvik: 6, 7, 11 & 12; Per E. Fredriksen: 9 & 10. All scale bars = 1 mm.

medieval period until the present time in Norway (Griffin 1994). Berries have to be collected during a limited season, but, unfortunately, we do not know much about either the preparation or the storage of these berries. It is well known that cloudbberries (*Rubus chamaemorus* L.) and red whortleberries (*Vaccinium vitis-idaea* L.), which are both rich in benzoic acid, have good potential for storage.

None of these types of berries or berries in general are specifically mentioned in the accounts. However, berries might have been the main ingredient in both “moosz” – pulp – and “gallerey” – jelly.

Fruit

The finds indicate that both pears (*Pyrus x communis* L.) and apples (*Malus x domestica* L.) were consumed. These fruits are not specifically mentioned in the account books. But fruit gardens are known to have existed both in the western part of Norway (Grøn 1927) and in Trondheim (Regesta Norvegica 1301-1319), dating back in the 14th century. The town of Hamar in southeast Norway, where one of the Norwegian bishops was seated, had a gardener in late medieval times who was responsible for grafting. Furthermore, Nordhagen (1941) describes how the monastery at Tautra, a small island in the Trondheimsfjord to the north-east of Trondheim, in the county of Nord-Trøndelag, was famous for its fruit gardens where cherries (*Prunus cerasus* L.) and apples were grown. The fruit remains identified in the soil samples may have originated from fruit grown in Norway, perhaps even in Trøndelag. We have no evidence for any gardens in Erkebispegården in medieval times. It is possible that the archbishop did not have to buy fruit from other parts of Norway or from abroad, but was supplied from the monastery gardens at Tautra.

Vegetables and others

Some possible vegetable remains have been identified in the soil samples, represented by a few diaspores of *Brassica* sp./*Sinapis* sp. which might have been “senap” – mustard – or cabbage. Diaspores of flax (*Linum usitatissimum* L.), which are rich in oil, were found in the cess deposits. This most probably indicates consumption. Remains of flax from layers from the early medieval settlement to the north of Erkebispegården are interpreted as an indication of local fibre production and/or processing (Griffin & Sandvik 1989, 1991).

None of these plants are mentioned in “Sveineløn”. The accounts list both “lock” – onion – (*Allium cepa* L.), “bonner” – beans – (*Vicia faba* L.) and “erther” – peas (*Pisum sativum* L.), which are described as originating from Germany, but no physical remains of these plants were identified in the soil samples.

Exotics

Finds of diaspores from figs (*Ficus carica* L.) and grapes (*Vitis vinifera* L.) illustrate that fruit originating from southern Europe was consumed in the palace. Such fruit would have to be prepared in some way, most probably by being dried, before being transported as far as Trondheim. The accounts mention “rusin” – raisins, dried grapes, but figs and grapes are not mentioned at all. During the archaeological excavations in Bergen, a Hanseatic port in western Norway, remains of grapes were found in layers dated to the 13th and 14th century (Herteig 1969, Krzywinski personal communication). Griffin (1979, 1988) found diaspores of both fig and grape in layers dating back to 1200-1250 in Gamlebyen in Oslo. During several investigations of medieval layers from German towns (Behre 1991, Haaster 1991, Knörzer 1975, Wiethold & Schulz 1991) fig diaspores have been found in layers dating back to 1200. The diaspores found in soil samples from Erkebispegården, however, are the first ones to have been identified in layers dated to medieval times from Trondheim.

“Krydd” – spices – are among the ingredients in some of the dishes in the food list, but no types are specified. However, other parts of the accounts mention “pepar” – pepper – which might have been a *Piper* sp. (Mabberley 1993), as well as “mandel” – almonds – (*Amygdalus communis* L.). No remains of these species were identified in the soil samples.

Beverages

“Vinsupen” – most probably wine soup, is one of the dishes listed in “Sveineløn”, but neither wine nor beer themselves are specifically mentioned. Data from other parts of the account books show that both types of beverages were imported by the archbishop. Many different types of beer, fresh and old, from Hamburg, Lübeck and Rostock, may have been consumed in the palace. “Humle” – hops – (*Humulus lupulus* L.) was an important ingredient in beer and was imported from Germany or cultivated in Norway for use in brewing in medieval times (Krzywinski & Soltvedt 1988). In 1533, Olav Engelbrektsson feared that Norway could be too strongly dependent on the Hanseatic trade and stressed the importance of local growing of both hops and cereals (Fjellbu et al. 1955).

Wine, specified as “malvasire”, and “mjöd” – mead – were imported by the archbishop. This import may have been connected both to the particular needs of the archbishop’s household and to the church’s need for communion wine.

Medicine and other specialities

Opium poppy (*Papaver somniferum* L.) was among the plant remains found in the samples from the cess. Opium

poppies are occasionally registered in today's gardens in Trøndelag and may have been grown locally for medical purposes in the Middle Ages. In his exile in Holland, Olav Engelbretsson kept an herb garden, but there is no information about the cultivation of either herbs or vegetables in Erkebispegården. The accounts do not mention any type of medical plants. "Røykjelse" – incense – is listed, but this is usually used for ceremonies in the church, not for medicinal purposes.

Discussion

The documentary sources (Olav Engelbriktssons rekneskapsbøker 1532-1538) indicate that the vegetarian aspect of the diet, except for cereals, was limited. However, the results of the analysis of samples from two cess-pits provided diaspores from a collection of plants consumed by people who stayed in the palace at least long enough to make use of the privy. There may be many reasons why we find a difference between the information given from these sources concerning utilisation of plants for food. The accounts list what was actually bought for the household, or should we rather say the "enterprise", Erkebispegården, and show the means of payment by the archbishop to his employees. The diaspores found in the cess mirror what was actually eaten and survived the human digestive system in a good enough state to make identification possible. From the remains of plants found in the cess, it is possible to identify consumption of vegetarian food of both local and imported origin. One could obtain wild berries from the vicinity of the town while figs and grapes most probably had to be supplied from the Mediterranean area (or maybe Western Europe) to North Europe through a trade system.

The investigations in Erkebispegården have made it possible to discuss the character of the late medieval diet in the palace based on the information given by two different sources: the archaeological and the documentary. However, in this case the two types of sources complement each other and bring us closer to a complete knowledge about the diet in Erkebispegården in Trondheim in late medieval times.

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