Lifestyle of the rich and infamous: an archaeobotanical analysis on a cesspit from the Sint Agnietenklooster in Leiden during the Late Medieval (1400-1572) period

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Title page

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Chapter 1. Introduction

When focusing on northern European Medieval food, people do not always have the most favorable connotations with it. Whether it has to do with movies portraying Medieval food in an unappetising way (van den Hoven van Genderen, 2003, p. 169) or with the idea that cannibalism was a common practice during famines in the Medieval period (Welkom in de Geschiedenis, 2022), there seems to be no shortage of misinformation on the diet of people during the Middle Ages.

However, archaeological research in the form of archaeobotanical identifications among other things has aided with showing how such notions may often be untrue and what the diet of people during the Middle Ages could have looked like instead. Though differences on the type of food intake would have existed within not just different classes of society, but also between people of different ages and sex (Olsen et. al., 2016, p. 1053), one can still see that diets of especially the wealthier class may have been varied including several fruits and different herbs and spices (De

Figure 1. Map of the excavation area of the Sint Agnietenklooster in Leiden (van Heeringen, 1985, p. 85).

Cupere et. al., 2021, p. 565). One such place where the diet may have been quite varied and of a certain well-off class was the Sint Agnietenklooster.

The Sint Agnietenklooster used to be located in Leiden. As published in the journal *Bodemonderzoek in Leiden Jaarverslag 1984,* material found at the Sint Agnietenklooster comes from the commercial excavation done at the Lange Sint Agnietenstraat, the Korte Sint Agnietenstraat and Klooster (as shown in figure 1, p. 8). The excavation was done in three months in 1984. The excavation was funded by the province of Zuid-Holland and the municipality of Leiden and led by the Rijksdienst voor het Oudheidkundig Bodemonderzoek and done by drs. R. M. van Heeringen (Suurmond-van Leeuwen, 1985, p. 16). The research on botanical macro remains and small animal remains has been conducted by W. J. Kuiper (Kuiper, 1985).

Figure 2. Drawing of the Sint Agnietenklooster (Stellingwerf, 1720).

1.1. History of the Sint Agnietenklooster

The Sint Agnietenklooster (as shown on the drawing on figure 2), also called the Sint Agnesklooster, was a catholic convent named after Saint Agnes as the name suggests. It originally belonged to the Third Order of Saint Francis as a lay order and from 1462 onwards it was under supervision of the Congregation of Windesheim (van Heeringen, 1985, p. 87). Consensus on when the establishment began seems to be around 1400 so far, in a time period when more cloisters started to appear in and around Leiden (de Boer & Pompe, 1985, p. 63-64), though other dates such as 1412 are also suggested (Prinsen, 1910, p. 110). Archival material belonging to the convent is scarce in general and at times needs more piecing together of a variety of sources, such as the sources on the unnamed convent which could have referred to the Sint Agnietenklooster (de Boer & Pompe, 1985, p. 66), in order to get to a more coherent view of the past of the convent.

In 1410, the Onze Lieve Vrouwekerk, which was located next to the convent, allowed the cloister to have their own chapel and a graveyard (van Heeringen, 1985, p. 87). The convent bought additional buildings located next to their original building over the years, with the last purchase seemingly being done around 1495 (de Boer & Pompe, 1985, p. 70).

Though not much is known from the time the nuns inhabited the convent, there have been accounts of the behavior of the nuns in which the nuns have been regarded with a lot of skepticism and seemed to have been caught up in scandals. Salomon Lenaertszoon van der Wuert has written extensively on the nuns and their unacceptable behavior, calling them ‘rebelling sisters’ and stating that some people had already predicted the convent to cease existing (Prinsen, 1910, p. 111; 119).

Though not through their own doing, the end of the convent was in 1572. This was the year Leiden reformed and all catholic institutions were dismantled as result of Leiden choosing the side of the Reformation (de Boer & Pompe, 1985, p. 76).

1.2. Leiden in the Late Medieval period

As can be deduced from the earlier mentioned history of the Sint Agnietenklooster, the Late Medieval period has been one with many changes happening in Leiden. The Late Medieval

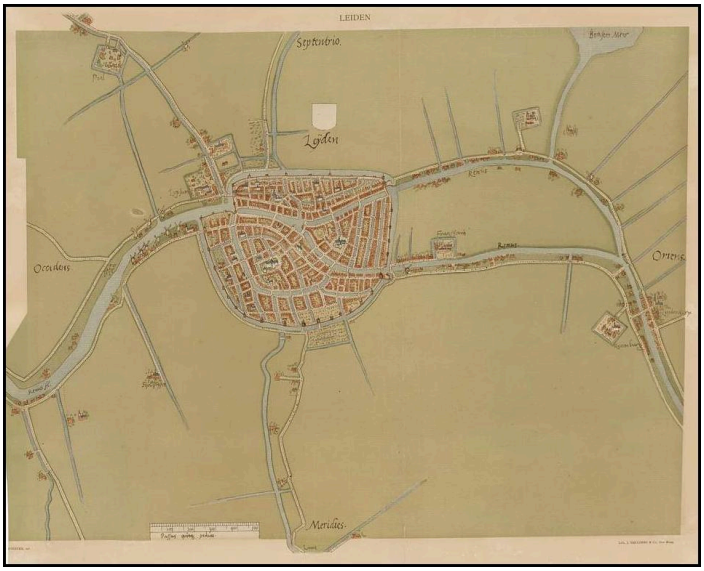

Figure 3. Map of Leiden around 1545

period ranges from around 1000 to 1500. Since the Sint Agnietenklooster existed only during the time between 1400 and 1572, this time frame will be the main period of focus in this thesis.

The Sint Agnietenklooster was built during the Burgundian Age (1384-1482). The convent lived to see the Habsburg period which started in 1482. The Low Countries were also referred to as the Spanish Netherlands from 1555 onwards as king Filips II of Spain accessed the throne. Leiden was not as big in this period as it is now, which can be seen in figure 3.

Aside from the political turmoil, there was also religious commotion happening with the first sign of it seen during the rise of the *Devotio Moderna* or the Modern Devotion. This encompassed a spiritual movement which was accredited to have started in the Low Countries because of Geert Grote during the 14th century and has been regarded as an early reformation movement within the church. Modern Devotion has been linked to the Congregation of Windesheim as well as the rules of the Third Order Franciscans (Hofman et. al., 2020) which have both been linked with the nuns of the Sint Agnietenklooster (van Heeringen, 1985). The Congregation of Windesheim would be following the Rule of Augustine whereas the Third Order Franciscans would be following the third rule of Francis (Titus Brandsma Institution, n. d.). The Third Order Franciscans would live according to monastic rule but they are not nuns strictly speaking, though they were still viewed this way (Erfgoedcentrum Nederlands kloosterleven, n.d.). The convent's creation fit the part of a trend in Europe in which there were more and more women choosing the clerical path (Bynum, 1987, p. 15), especially given that the Modern Devotion movement was especially popular among women in the Low Countries to join (Hofman et. al., 2020).

Another matter that was taking place among the clergy in the county of Holland was that the clergy had been exempt from paying taxes in the early 16th century, which in turn led many

non-noble and non-clergy people to resent the clergy (Tracy, 1993, p. 259; p. 261). These sentiments would eventually lead to the disbanding of all catholic institutions in Leiden in 1572 after Leiden chose the side of the Reformation, and the siege of Leiden one year after that.

Despite the political and religious issues taking place during this time period, Leiden was enjoying prosperity as a result of economic growth in the cloth industry from the mid-14th century onwards (Brand, 1993, p. 122). This business resulted in a growth in wealth for Leiden as a city. It is also in this period that one can see an increase that is a little over double in its residents (van Oosten, 2015, p. 28). However, a decline in the sales of the Leiden cloth started to happen around the mid-16th century, being one of the factors that led to a lot of poverty in Leiden, though the industry increased again after the siege of Leiden (Brand, 1993, p. 144; p. 147).

1.3. Research and sources on Medieval food and diet

Looking for traces of past diet can be found in a variety of sources such as, for example, saved records of food purchase as done by Hoven van Genderen (2003), old cookbooks and paintings. As nice as these sources may be, they are not always easily found and can be extremely scarce.

Figure 4. Maaltijd in het huis van Simon. Dieric Bouts, c. 1445-1460

This can be seen among the past records for the Sint Agnietenklooster which have also been scarce. There are no records of purchase found that one could possibly cross examine. However, these sources may be able to aid in the research on past diet and possibly paint a larger picture if they are present.

In the case of cookbooks, the oldest cookbook written in the Netherlands dates from around the last quarter of the 15th century. It is called the *Keukenboek* (meaning kitchen book) and is currently housed at the university library of Ghent (Braet, 2014, p. 15). Two other books, *Een*

notabel boecxken van cokeryen (A remarkable cookbook) from around 1514 (Jansen-Sieben & van der Molen-Willebrands, 1994, p. 7) and *Een nieuw Zuidnederlands kookboek uit de vijftiende eeuw* (A new Southern Dutch cookbook from the fifteenth century) published in 1986, that have been published after the Medieval period have been used as well to infer information about diet in the Middle Ages.

Though it would be completely unrealistic to believe that all recipes from the book would have been cooked as such, one could gather information on the ingredients people may have used or have been familiar with as well as the way in which dishes were cooked.

Paintings can provide some information on what people may have eaten as well, though these paintings may have had a more religious character, as paintings from the Medieval period in the Netherlands are known for their frequent depictions of devotional scenes. However, what is interesting about the Late Medieval period is that more and more paintings of a religious character seem to be taking place in the Netherlands itself (Koldeweij et. al., 2006, p. 13).

This can be seen in the painting by Dieric Bouts *Maaltijd in het huis van Simon* (Meal in Simon's house), as can be seen in figure 4 (p. 9). The monk who instructed for this painting to be made can be seen all the way to the right clothed in white (Koldeweij et. al., 2006, p. 100). What one can also see on the painting is the meal that has been put on the table. It is a sober one, depicting bread and fish with something to drink on the side. This may be depicted as such because of the religious portrayal of the painting as well as the monk perhaps wanting to portray himself as a very pious cleric, yet other sources on how monks have been eating have shown how these monks would have a lot more food on table generally.

Van den Hoven van Genderen (2003) has done research on financial and written accounts of the monks living in and around the Dom of Utrecht during the late Middle Ages. In these records, he saw that the monks would have three courses during a feast in which they would get served fish for each course accompanied with either vegetables, rice or fruit (Hoven van Genderen, 2003, p. 177). The aforementioned feast took place during fasting, meaning that meat, poultry, eggs and dairy products were prohibited from eating (Hoven van Genderen, 2003, p. 180).

Written sources can obviously help a lot when learning about past customs. However, written historical sources can also have their own limitations due to unreliableness (Møller, 2022). One can combat this by being careful when interpreting historical sources. Another way to research what has been written can be by comparing it to the artifacts that have been found in the

archaeological record. Especially when looking at diet, the archaeological record can provide insights into what may have been eaten by people at any given time in history.

There are multiple ways with which one could look into the diet of people in the past using the archaeological record. One way that has been coming up more in recent years is stable isotope research in which carbon and/or nitrogen stable isotope research is done on skeletal remains to look into the diet people have had in the past (McManus et. al., 2013, p. 263).

Other methods that have been used for a longer period of time when looking at diet are zooarchaeology and archaeobotany. Zooarchaeology focuses on the identification of animal remains to look at meat and fish consumption among other things. This thesis will use the results from Ijzereef (1985) to build on the zooarchaeological remains found at the site. One of the applications of archaeobotanical research is to look into the plants that people may have consumed in the past.

1.4. Archaeobotanical research on diet

Archaeobotany contains multiple types of plant remains that can be used for research. These comprise of botanical macro remains, pollen, phytoliths and dendrochronology. Of these material types, macro remains, pollen, starch remains and phytoliths can be used to look into the diet of people.

Pollen research focuses on pollen from plants. Though this mode of research is used more often for research on landscape development, pollen research of cesspits can be done and can provide results on what people may have eaten too (Deforce et. al., 2018). Starch granules are the energy-storage molecules of plants that can be found on pottery and other materials that have been used by people in the past (Henry, 2020). Phytoliths are microscopic silica structures produced in and between the cells of plants and are produced in an especially large quantity by grasses (Rashid et. al., 2019). These can also be used to research past diets. All of these methods do provide results relating to plant usage, though the resolution to which one can get a result can be limited to just genus or family level.

When researching botanical macro remains, one looks at remains such as seeds, (parts of) fruits and other preserved remains of the plant structure. As opposed to the other types of plant remains, these are researched under a stereomicroscope. These remains can provide in depth

information as the identification of the morphological features can be done to a high resolution, which would be the species level. This in turn gives more details about the plants present and possibly also in use during the corresponding time period.

With the found archaeobotanical remains one has, one could make inferences about a number of matters relating to the lifestyle people may have had. The type of food one finds can already tell us something about what the health of the inhabitants may have been like and also if the inhabitants would potentially have favored certain foods over others, keeping in mind that there may be some biases with the amount of finds connected to one species.

Another matter that can be seen through diet would be the status of the inhabitants. Though the term "status" itself can be open for a range of discussions. The term high status as it is discussed by Ames (2008) is the one that will be used in this thesis, with a bigger focus on the prestige of a high status. The status that will be looked into in this thesis is limited to the wealth one may possess in terms of both materiality and standing on societal level. This in turn should help with seeing how this could be reflected back in the archaeobotanical record through a diversity of food types. When one works with material from a nunnery in the Late Medieval period, one can assume that the inhabitants of the nunnery would have possessed a good amount of wealth given the high status of the clergy in this time period.

1.5. Research questions

This thesis will focus on the archaeobotanical remains found at the Sint Agnietenklooster. Based on these remains, the following research questions will be asked:

1. What can one say about the status of the diet of the nuns living at the Sint Agnietenklooster based on these results? As stated before, the status will be based on the diversity of the food the nuns had and also compared with what people from a lower status would have been eating at the time period.
2. How do the dietary related finds at Sint Agnietenklooster relate to what else is known of the convent and what has been excavated there? For this question, the results of the diet will be compared to what has been found during the excavation, drawing results from *Bodemonderzoek 7* (1985).

3. How does the diet of the nuns correlate with what has already been researched about what a late Medieval diet around Leiden would have looked like? Taking into account other publications on Medieval diet, the material will be compared with what is already known to establish any similarities or differences there may be.

The questions together will be answering the main question which is: what could the archaeobotanical finds at the Sint Agnietenklooster possibly tell us about the lifestyle of the nuns?

Chapter 2. Methodology

For the archaeobotanical research a total of 150 ml of material was picked through. The material itself had already been sieved through a sieve of 0.5 cm before the start of this research. The magnifications used for the stereo microscope were between 0.63-4.0x.

Though this sieve length is sufficient to get bigger seed remains out, it may be that seeds or fruits smaller than 0.5 cm get sieved out of the material. This of course does not necessarily mean that there will be no material at all that is smaller than 0.5 cm. Any materials that would stay in the sieve despite being smaller may be there by chance and will be taken into account for the total amount of plant remains as well.

As plant and animal remains had been identified previously by W. J Kuiper, the publication and especially table 1 with all of the identified plant remains at the end of the publication (Kuiper, 1985, p. 140-141) have been used to draw eventual similarities with the material.

The material has been at the faculty of archaeology at Leiden University for a long period of time now. It is unknown who has sieved it before and how it has gotten there. What was known about the assemblage however was that it belonged to the period in which the convent existed. This leaves the question to what pit the assemblage may have belonged. The potential answer to this question will also be looked at in the discussion.

The book used most often for the identifications was the Digital Seed Atlas of the Netherlands (Cappers et. al., 2012) with some additional use of the Digital Atlas of Economic Plants in Archaeology (Neef et. al., 2012). When necessary, the botanical macrofossil collection at the archaeobotanical laboratory at Leiden University would be looked into for a more accurate identification.

The level of preservation of this sample has been very good mainly due to its previously waterlogged condition in which fruits and seeds remain well preserved (Hondelink & Schepers, 2020, p. 561). Despite this, the identified and counted plant remains consist mainly of well-identifiable whole plant remains. In case a seed or endocarp was too weathered it was not taken into account. If fragmented pieces could be identified, they were included in the results too.

Chapter 3. Results

Name	Common name	Common Dutch name	Amount
Cereals			
*Fagopyrum esculentum**	Buckwheat	Boekweit	100
Fruits			
Vitis vinifera	Grape	Druif	108
Fragaria sp.	Strawberry	Aardbei	65
Malus/Pyrus	Apple/pear	Appel/peer	3
Prunus cf. avium	Possibly cherry	Mogelijk kers	2
Prunus avium	Cherry	Kers	13
Prunus domestica	Plum	Pruim	4
Rubus sp.			4
Rubus idaeus	Raspberry	Framboos	15
Morus nigra	Mulberry	Moerbei	6
*Ficus carica**	Fig	Vijg	3900
*Corylus avellana***	Hazel	Hazelnoot	32
Linum usitatissimum	Flax	Vlas	3
Herbs			
Sinapis alba	White mustard	Witte mosterd	1
Foeniculum vulgare	Fennel	Venkel	2
Apiaceae			8
Papaver somniferum	Opium poppy	Slaapbol	1
Wild plants and waterside plants			
Rumex sp.	Docks and sorrels		1
Persicaria lapathifolia	Pale smartweed	Beklierde duizendknoop	7
Silene flos-cuculi	Ragged robin	Echte koekoeksbloem	1
Schoenoplectus lacustris	Lakeshore bulrush	Mattenbies	1
Carduus/Cirsium			1
Eleocharis palustris	Spike-rush	Gewone waterbies	7
Atriplex sp.	Saltbushes		72
Caryophyllaceae* fragments			80

Table 1. Table of all the identified and counted seeds and fruits.
*One asterisk * indicates that the amount has been rounded to a whole number*
*Two asterisks ** indicate that the mount of the species Corylus avellana includes 13 entire endocarps and 19 fragmented pieces*

Botanical data found from the sieved material has been listed above in table 1. Table 2 mentioned below lists the presence of other finds in the assemblage. The binomial names used for the plants follow the updated names as used by the International Plant Name Index (IPNI, 2024). The common names have been written in both Dutch and English.

The material was divided into species whenever possible. In case the species identifications were not feasible, the seed or fruit would be identified to genus level. Though identifications to family or order level are not preferred as they do not provide precise identifications to what something could have been, it has not always been possible to avoid these as such. In order to keep the information that has to be conveyed as accurate as possible, certain finds have not been identified to species level.

Other finds	**Common name**	**Presence**
Anguilla anguilla	Eel	Present
Cyprinidae	Freshwater carps or minnows	Present
Pleuronectiformes	Flat fishes	Present
Shell fragments		Present
Larvae		Present
Insect remains		Present
Insect eggs		Present
Charcoal		Present

Table 2. Table with all of the other finds from the assemblage

3.1. Types of plant remains

One of the first things one notices when working with this assemblage is the high level of preservation that can be seen in this assemblage. The waterlogged conditions have ensured that the preservation stays high and that the seeds themselves are not affected too much by taphonomic processes as opposed to burned seeds (Bouby et. al., 2023, p. 2).

The results have been subdivided into the type of plants they would fall under. Below all of these types are mentioned and explained one by one. For each subdivision, an introduction on the type of plant they are, the plants present in the results that belong to this subdivision and the potential uses of these plants will be mentioned. At last, there will be a comparison with the results of Kuiper (1985) and this thesis to highlight the similarities and differences between the two

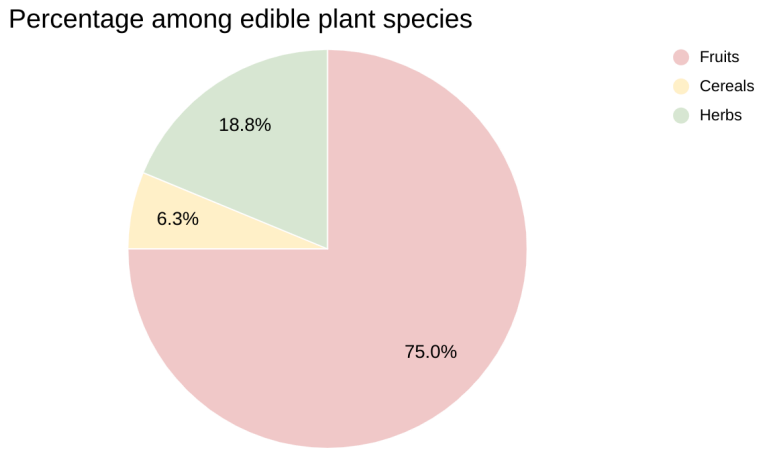

Figure 5. Diagram of the percentages of edible plant species types in the picked assemblage. Results based on table 1 (p. 13)

different datasets of the same site. Both datasets will eventually be used for interpretation of diet, though the dataset researched for this thesis will remain the main dataset to be examined.

When looking at figure 5 (p. 15), one can see that most of the found plant remain types belong to fruits (75%), followed by herbs (18.8%) and at last cereals (6.3%). The percentages are based on the amount of species that were present for each subdivision, which is 12 for the fruits, 4 for the herbs and 1 for the cereals. Though some plants were not necessarily identified to species level, they were entered into the amounts used for calculating the percentages. If the amounts of the plant finds were to be included there would have been an overrepresentation of fruits as well, though mainly due to the large amount of *Ficus carica* seeds found in the assemblage. The percentage of non-edible plants is not included in this diagram.

3.1.1. Cereals

Only one type of "cereal" has been found which can be attributed to *Fagopyrum esculentum,* commonly known as buckwheat. It belongs to the polygonaceae family. The seeds of *F. esculentum* are the part of the plant that are turned into flour and used for consumption (Polunin, 1970, p. 73).

Strictly speaking, buckwheat is not actually a cereal. The species belongs to a dicotyledonous family (the seeds in this family have two dicots or seed leaves when they sprout), as opposed to a monocotyledonous family (seeds in this family only have one cotyledon or seed leaf when they sprout) (Beentje, 2016) which typically contains cereals. As such, *F. esculentum* is seen as a pseudocereal (Janssen et. al., 2017, p. 39). Nevertheless, as this plant was used in the same way

cereals would be used, it has been classified as a cereal in these results and will be regarded as such for the rest of the thesis.

There has been a fairly large amount of *F. esculentum* found in the assemblage, though it was never the entire fruit but rather the valves surrounding the fruit. It is interesting that this is the only cereal that one could clearly see in the assemblage and that it also has a large quantity at that.

3.1.2. Fruits

The fruits have been placed on the basis of the part of the plant that was consumed. *Corylus avellana* (hazelnut) has edible nuts and can be used as food, so it may not be seen as a fruit. Yet, nuts such as *C. avellana* could be considered a fruit strictly speaking, as a dry indehiscent fruit (Beentje, 2016, p. 85). One of the "fruits" that seems to be distinct is *Linum usitatissimum* (flax). The plant was supposedly already used 30000 years ago for its plant fibers to turn into cloth (Kvavadze et. al., 2009) Flax seeds are edible and a source of fiber and protein in the human diet (Sargi et. al., 2013, p. 541). Given that it is the seed that was found in the context of the cesspit, it is also regarded as a fruit. Since there are no other remains of nuts found in the assemblage, *C. avellana* has been added to fruits and *L. usitatissimum* as well.

The fruits that are present the most are *C. avellana* (hazelnut) *Ficus carica* (fig)*, Vitis vinifera* (grape)*, Fragaria sp.* (strawberry)*, Rubus idaeus* (raspberry) and *Prunus avium* (cherry). Fruits that were not as abundant as the aforementioned ones include *Morus nigra* (mulberry), *Prunus domestica* (plum) and *Malus* (apple) or *Pyrus* (pear). The distinction between apple and pear was hard to make as the seeds themselves were weathered to a certain degree. Other remains that were not identified to species level with full conviction or otherwise also possessed a level of disintegration which made it hard to identify as such. The remains have also not been identified to its cultivar.

When looking at the results, one may see an overrepresentation of *Ficus carica*. This has to do with *F. carica* having a larger amount of endocarps (or seeds), often having more than 50 ovules per fruit (Hondelink & Schepers, 2020, p 558). Keeping that in mind, it might be possible to make a crude estimation of the amount of *F. carica* present in the assemblage which may be around 3900/50=78. Obviously, this is a very basal number and it in no way indicated the actual

amount eaten. However, this still does tell that the amount of figs eaten at the site was high enough in comparison with the other materials found.

The comparison for the amount in that case can only be done with fruits that have only one or a low amount of seeds such as *Prunus domestica* and *Vitis vinifera*. One could very carefully state that the amount of *V. vinifera* or grape eaten may have been a little bit higher in comparison to figs when adhering to the notion that there are around 50 seeds in a fig. However, as the number of figs there would have been in the pit theoretically and the number of grape seeds found are close enough to each other in number, it might be better to carefully go for the idea that the amounts of fruits found were more or less equal.

Other fruits that may contain a large number of endocarps or seeds are also present in the assemblage such as *Fragaria, Morus nigra* (mulberry) and *Rubus idaeus* (Hondelink & Schepers, 2020, p 558), though these have not been extremely overrepresented in this dataset to the extent that the fig has.

The amount of *Prunus avium*, or cherry, is also quite notable as the amount of 13 cherries have been deposited in the assemblage for sure.

All fruits present in the assemblage can be eaten raw, which may be why the endocarps and seeds of the fruits have remained well intact. Alternatively, some fruits could have been part of jam, in which case the macrobotanical remains would also stay present.

3.1.3. Herbs

The three recognisable herbs in the assemblage were *Foeniculum vulgare* (fennel) and *Sinapis alba* (white mustard, referred to as mustard from here on) and *Papaver somniferum* (opium poppy). Although the other apiaceae seeds do not necessarily have to be herbs as well, apiaceae seeds that can be classified as a vegetable, *Daucus carota* or carrot, which was present in Kuiper (1985, p. 141), look quite different from the apiaceae seeds found in this assemblage. Since most apiaceae in Kuiper's assemblage (1985) were herbs they have been listed under herbs in this thesis as well.

Multiple parts of the plant of mustard can be used for food, though the seeds in particular can be used as a herb. Fennel can be used as a herb but it also has medicinal properties (Kuiper, 1985, p. 136).

Kuiper did not make a distinction between *Sinapis alba* and *Brassica cf napus*, though there was a mention that the seeds of white mustard may have been used for taste (Kuiper, 1985, p. 136). The seed relating to *Sinapis alba* looked distinctly like *Sinapis alba*, leaving no room for a possibly different identification.

P. somniferum has medicinal properties and can be used for various ailments, though the seeds can also be used for food (Ciaraldi, 2000, p. 92).

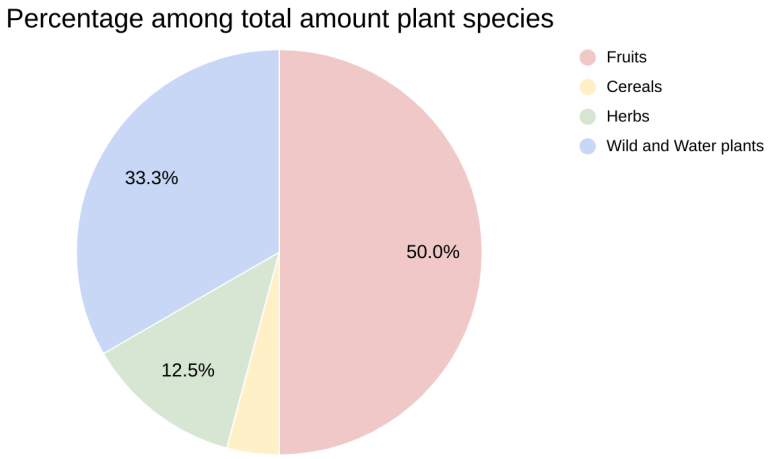

Figure 6. Percentage of plant types in total

3.1.4. Wild plants and waterside plants

As seen in figure 6, there were a relatively large amount of plants that were not necessarily eaten. There plants fall under wild plants and waterside plants. These plant remains could have flown in or landed in the cesspit otherwise. It is especially in this section that there are a few species names that now use different nomenclature than before according to IPNI (2024).

Schoenoplectus lacustris (indicated in Kuiper (1985) as *Scirpus lacustris*) and *Eleocharis palustris* are the only two plants that are known waterside plants (Harris & Harris, 2009, p. 73; 408). The other fully identified plants are wild land plants. The plants that have not been identified to species level could be classified as either land plants or waterside plants on the basis of their genus only, in which case *S. lacustris* and *E. palustris* are still the only waterside plants found in this assemblage.

The other plants would have grown wild on the streets or along the houses or roads. It is not completely sure if this could also be the case with *Atriplex sp.*, though the discussion will be going more into the use of this plant genus.

3.2. Other finds

Not all animal remains that have been encountered have been divided into species level, though some identifications of bones that could be distinguished have been made. These include remains of *Anguilla anguilla* (eel), cyprinidae (freshwater carps or minnows) and pleuronectiformes (flat fishes). The way in which these bones were preserved also pointed at consumption of the fish. As these bones are quite small, it would have been possible to have swallowed them while eating.

Anguilla anguilla occurs in both freshwater and saltwater as it migrates from the river to the sea (Breukelaar et. al., 2009). The eel bones were of different sizes and different specimens.

Cyprinidae, the family of freshwater carps or minnows, occur in freshwater as the common name suggests. The bones were unidentifiable to genus or species level, though the family level does allude to the nuns having had freshwater carps at least.

Pleuronectiformes, the order of flat fishes which include fishes such as flounder, sole and plaice, are fish that live mostly in marine and estuarine places, though some species can also occur in freshwater rivers (Schreiber, 2013, p. 168).

There were a variety of shell fragments present in the assemblage. There were shell fragments from the assemblage that looked like *Mytilus edulis* (mussels), they were not necessarily large enough to be identified to such a level however. The identification is mostly based on the color of the shell, which is why it was not mentioned in the results as such.

Entomological remains have been seen and put in a separate tub without identification. There was a large amount of larvae present in the assemblage. There were only few remains of insects and insect eggs that may be identifiable by an entomologist.

There were many small pieces of charcoal present in the assemblage. The pieces of charcoal were unable to be identified in any way, though they may indicate the presence of some burnt remains being thrown into the pit.

Other kinds of materials in the pit that may have been present there were not identifiable to any conclusive division.

The context from which the material at Sint Agnietenklooster was retrieved, which was a pit, would allow for non-food related plant species and other non-botanical remains to be present in the pit as these could have gotten in one way or another as well.

Chapter 4. Discussion

The discussion will be dedicated to answering the main question of what the lifestyle of the nuns was like. Given that the sub questions will draw a lot of information from the results, a general interpretation of the results will be given first.

After that, the three sub questions from the introduction will be answered. First, the question on the status of the nuns seen primarily through their diet will be answered last. It will be known what one can say about their diet now that it is known how people were usually eating in the Medieval period and also what was and was not considered to be belonging to a certain upper class. After this, material from the excavation done in 1984 at the Sint Agnietenklooster will be looked at. First the focus will be on the different phases that can be linked to the time periods researched in the excavation, as well as the corresponding finds. After this, the material researched for this thesis will be compared to the material researched by W. J. Kuiper in order to see in what way the material correlates or differs. At last there will be a small section of trying to link the material researched in this thesis to one of the cesspits researched by Kuiper.

With question three, the focus will be on answering how the diet of the nuns correlates with what has already been researched about the late Medieval diet and what that may have looked like among the clergy in Leiden. For this, the plants found at the site will be interpreted in their historical context in order to see similarities and differences there are with the material found at the Sint Agnietenklooster and what is already known about diet in the Middle Ages.

All of these answered questions together with the background knowledge one has about Leiden at the time period should be able to answer what the lifestyle of the nuns at the Sint Agnietenklooster would have been like in the late Medieval period.

4.1. Analysis of the results

The finds from the cesspit will have to be interpreted in order to answer the following questions. First the results will be discussed in detail, in which the botanical results will have the most focus. After that, the animal remains found in the assemblage will also be discussed.

The interpretation of the results as compared to the results by Kuiper (1985) will be discussed in section *4.3.2. Pit resemblances* (p. 36).

4.1.1. Analysis of the plant remains

Figure 5 (p. 15) showcased how 75% of the edible species found in the assessed macrofossil assemblage were fruits. These fruits are *Vitis vinifera* (grape), *Fragaria sp.* (strawberry), *Malus* (apple) or *Pyrus* (pear), *Prunus avium* (cherry), *Prunus domestica* (plum), *Rubus idaeus* (raspberry), *Morus nigra* (mulberry), *Ficus carica* (fig), *Corylus avellana* (hazelnut) and *Linum usitatissimum* (flax). The large amounts of fruits eaten would point at a healthy diet. However, when looking at research published on what was eaten during the Medieval period one will see that fruits were considered to be unhealthy and though they were advised not to be consumed too often. Despite this, macrobotanical remains of fruits are still often found in cesspits in the Netherlands (van Haaster, 2003, p. 136).

Even though it is known that different fruits tend to have strong seeds that preserve well and stay recognisable (van Haaster, 2003, p. 136), it can be carefully stated that the nuns at the Sint Agnietenklooster may not necessarily have followed all of the rules pertaining to what was considered a healthy diet in the Medieval period at least when it came down to fruit consumption. Though with the current standards relating to a healthy diet, one could say that nuns in the Medieval period did have a healthy diet when considering the fruit intake they had.

The one plant that could be included in cereals was *Fagopyrum esculentum* (buckwheat). It is a plant that is present often in archaeobotanical contexts from the Netherlands and Belgium in the late Medieval period (Speleers & van der Valk, 2017, p. 102). *F. esculentum* along with *Secale cereale* (rye) was eaten by all people in the Medieval period, regardless of what their work or wealth may have been, whereas other cereals such as *Triticum sp.* (wheat), *Avena sativa* (oat), *Hordeum sp.* (barley) and *Panicum miliaceum* (millet) were apparently not eaten frequently during the Medieval period according to van Haaster (2003, p. 135). According to Bieleman (2010, p. 20), *Triticum sp.* and *S. cereale* were the most consumed cereals in the late Medieval period, and *F. esculentum* was one that was used more for porridge and cakes. In both cases, the importance of *S. cereale* is mentioned and *F. esculentum* is seen as a species that would have been eaten often enough during the Middle Ages for it to be a normal occurrence. In any case, *S. cereale* was seen as the most important grain crop in the Netherlands from the 16th century onwards (Curtis et. al., 2017, p. 123)

When talking about herbs in Medieval context, one is always talking about plants that are often green and locally sourced instead of imported (Freedman, 2012, p. 326). It is always harder to find herbs in archaeological context as people use other parts of the plants aside from the seeds. The plant remains found in this assemblage belong to *Sinapis alba* (mustard), *Papaver somniferum* (opium poppy), *Foeniculum vulgare* (fennel) and undetermined apiaceae seeds. *Sinapis alba* could be seen as one of the kinds of mustards that was used by people as cheap seasoning in the Middle Ages (Muusers, 2011, p. 72), but since there was only one seed found one has to be careful drawing conclusions as these.

Herbs are more often used for their leaves, flowers or other parts that can not be seen easily or at all in the macrobotanical record. Remains such as these could potentially be found through pollen research (Deforce et. al., 2018), though it may still prove quite hard to find exactly every kind of herb used. *Zingiber officinale* (ginger), though considered to be a spice in the Medieval period (Freedman, 2012, p. 328), is used for its rhizomes (underground stems) and may not be seen at all in the archaeological record even though one may argue that it was eaten during the Medieval period given how often it has been used in recipes from the time period (Braekman, 1986; Jansen-Sieben & van der Molen-Willebrands, 1994).

At last, the other plant remains found in the assemblage that were not related to food intake may have gotten into the cesspit as a result of being flown in. As Medieval waterlogged cesspits are often located in low-lying towns near rivers, seeds of plants near the river bank would have found their way into cesspits (Moffett, 2018, p. 119-120). This would explain why there are so many waterside plants, such as *Schoenoplectus lacustris* and *Eleocharis palustris,* present in both this assemblage and in the assemblage by Kuiper (1985). Other plants such as *Silene flos-cuculi* which are not waterside plants, could be accounted for by having grown near the cesspit and having flown into the cesspit by chance.

There were a lot of caryophyllaceae fragments found in the assemblage. One of the plants from dry fields that was present in a large amount was *Agrostemma githago* (common corn-cockle), which belongs to the caryophyllaceae. It is a poisonous weed that grows alongside wheat (Polunin, 1970, p. 91). It could be accidentally sown and ground together with wheat and be consumed as a result of this, which is known to have happened in the past (Kuiper, 1985, p. 137). As there is no wheat in this assemblage and since wheat was not necessarily eaten a lot in this time period, remains of caryophyllaceae belonging to this assemblage do not necessarily have to

be *Agrostemma githago*, though the possibility of this plant being the caryophyllaceae remains is there. Though one could not be completely certain about this being the species of caryophyllaceae present in this assemblage in particular, it is a likely possibility.

4.1.2. Analysis of the other remains

As seen in the results, there were a few identifications of fish. *Anguilla anguilla,* cyprinidae and pleuronectiformes being the three kinds that were possible for identification. The pleuronectiformes and the cyprinidae were not identified to species level, yet one could still say that both the marine fishes as well as the riverine fishes were eaten by the nuns. As Leiden is located relatively close to the sea and the Rhine flows through the city, it is quite likely that the nuns would have enjoyed a fair share of fresh fish instead of fish that has to be salted or dried for preservation (Muusers, 2011, p. 70).

Mytilus edulis was one of the possible shells that was found in the assemblage. Since it was not identified with full certainty, there will not be much said about the nuns actually eating mussels. However, as it is known that the nuns were exploiting marine species, the possibility of them having eaten *M. edulis* is there.

All in all, the nuns had a varied diet consisting of a large amount of fruit, *Fagopyrum esculentum* (buckwheat) as one of their sources of cereals and some use of herbs in their food. As for meat consumption, most of their consumption is limited to different kinds of fish from both the river and the sea, with some other meat consumption on days that they were not fasting most probably. The herbs that were found in the assemblage were most likely locally sourced and used in food or alternatively as medicine.

With the finds from the cesspit, it seems that the diet of the nuns is in line with what a diet in the Medieval period would have looked like, especially in the context of a convent. The consumption of spices by the nuns is uncertain since there are no remains found. However, given the possibility of spices such as these being present would have been there. Especially if one is to assume that the nuns were living lavishly in the convent.

4.2. Status of the nuns

The following part will answer the sub question which deals with what the status of the nuns would have been like. It is important to note that when one links materiality to the question of high or low status, one might be unable to find nice results for people who may have belonged to a lower status as the chance of then leaving behind a large amount of materials can be quite low. Though archaeobotanical remains may be able to help with this problem a little bit, the food-related plant remains that are found can still point at a disparity in remains relating to high status individuals and low status individuals. It would generally just be more likely for remains to be found of people from a higher status. As such, this thesis does have a slight bias in which there were not many publications found on archaeobotanical pits that would have belonged to people from a lower class. It is with this information in the back of the mind that one has to go on and make careful interpretations on status based on the plant remains that are found.

The status of the nuns is seen mainly through their diet for this thesis, though it would also make sense to have a section on their general wealth in which all historical sources and archaeological sources will be combined in order to create a larger picture. The latter will be discussed in detail at the end of the discussion when answering the main research question of the thesis.

The diet of the nuns will be talked about in one subsection, not differentiating between plant and animal remains. The interpreted results will be examined for any particularities they may have had in terms of diet. At the end of this, the question whether one could say that nuns did enjoy a higher status or not will be answered.

4.2.1. Status seen from the diet

As mentioned in the introduction, differences in diet can be seen in a variety of societal groups including among people of a different status. Though a large diversity of plant finds might also point to good preservation of plant remains (De Cupere et. al., 2021, p. 565). What would be more important in this case is to not only look at the diversity of plant remains but also at the way these plants were regarded in the late Medieval period.

Of course, it is important to keep in mind that one does not necessarily have to eat expensive foods just to prove in a way that they possess a high status. However, someone with a higher status would have the possibility to get a larger variety of foods because of the amount of wealth they have, which may not be available to people with a lower status in society.

All plants that were present in the assemblage could have grown in the Netherlands too, even if some of these plants such as *Ficus carica* may have needed more skilled gardeners (Moffett, 2018, p. 119). The possibility of trade is also there. Plants that would have been traded from far off may have been more available to people of a higher class if they were fresh, as having fresh fruit could be quite luxurious (Kuiper, 1985, p. 138).

As seen from the research done by Van den Hoven van Genderen (2003), the brothers at the Dom of Utrecht would be eating extensively during feasts where they would get lots of fish and all kinds of fruits including steamed apples or pears, nuts and *zuidvruchten* which can be translated as southern fruits, which are dried fruits transported from the Mediterranean area. Dried imported fruit may have been something the nuns were having, given the amount of fruit seeds of *Vitis vinifera* (grape) and *F. carica* (figs). Both fruits are known to be coming from the Mediterranean area.

Fruits and nuts could have been seen as prestigious goods to have when one is having a feast (van Dam, 2008, p. 319). What may have been likely is that the nuns were consuming fresh fruit if it was cultivated in the Netherlands itself and that imported fruits would consist more of dried fruits and nuts. *Corylus avellana* (hazelnut) is a plant endemic to the Netherlands (Harris & Harris, 2009, p. 68), which is why the nuts coming from this plant would have most likely been gathered from their close vicinity, being the exception to the nuts that may have been imported.

If one is to incorporate all edible botanical finds relating to Sint Agnietenklooster, also the ones by Kuiper (1985), one sees a variety of at least 47 edible species (not including the other cultivated plant seeds found at the convent as mentioned in Kuiper (1985)). This is quite a large amount of plant types that may have been consumed, which may point at a diverse amount of food among the nuns that we do know of.

Fagopyrum esculentum (buckwheat) as mentioned before, was one of the cereals that may have been eaten by everyone at the time period, regardless of the wealth one has (van Haaster, 2003, p. 135). When taking into account just the assemblage from table 1, one could carefully state that the nuns would have belonged to what may have been the rule at the time when it came to buckwheat consumption.

The herbs the nuns had used did not necessarily point at usage among people from a high status. If anything, since *Sinapis alba* (mustard) cheap seasoning in the Middle Ages (Muusers, 2011, p.

72), one could say that the consumption of food that was not particularly expensive would have been something the nuns did too.

The herbs present in table 1 are known to have a larger presence in urban contexts (Moffett, 2018, p. 120). The seemingly larger variety of foods in an urban context does point at differences among people living in the cities and people from rural areas. For the time being, one could be seeing this as a disparity in status, though this seems to be based more on differences between diet among people of urban backgrounds and people of rural backgrounds. This could eventually be studied later on to provide more information on whether these urban-rural relations have any effect on what the diet is like or not.

The bones in the assemblage of table 2 include only fish bones. Multiple reasons could be linked to the large amount of fish intake among the nuns. Though the biggest reason is still in reference to all of the fasting that was done and adhered to in the Medieval period, the close vicinity of Leiden to both fluvial and marine settings may have aided in having a larger variety of fish species on table. Table 2 did not mention any other pieces of animal bones that could have been consumed.

The other animal bones in the assemblage do not necessarily point at a high status meat consumption, as that included meat from animals such as deer, roe, wild boar, pheasant, woodcock, swans, herons and peacock which was consumed by people of nobility and clerics with a high position (Muusers, 2011, p. 69), none of which can be seen in the remains assessed by Ijzereef (1985). Though there may be a small possibility that some of these animals are represented in the unidentified animals, it would be faulty to assume that these animals were still consumed as such. Considering that meat consumption became increasingly common for people from simple households (Muusers, 2011, p. 69), one could maybe see that the nuns may have been well off but not as well off as people from higher clerical positions may have been.

It is odd that the finds relating to the meat consumption of the nuns does not necessarily point at exceptional wealth among the nuns. This could be by chance as the nuns may have eaten more soberly when it came to meat consumption.

As mentioned before, all parts of the fish were found in the assemblage. This is interesting since heads of fish, regardless of what kind of fish, were seen as food for the poor. However, when looking at the fish remains of the site, *Anguilla anguilla* (eel) in particular, one may reach a different conclusion. *A. anguilla* was seen as a luxury fish as was carp, which belongs in the

cyprinidae family (van Dam, 2008, p. 319; 322). Given that the cyprinidae bones were not distinguishable to genus or species level, the focus for now will be on *A. anguilla*. The large amount of eel bones present in the assemblages points at this fish having been eaten frequently enough among the monks, once again highlighting how the nuns may have been dining lavishly.

4.2.2. High status?

Given all that is now known of the different kinds of plant remains and animal remains in regards to the status of said food items, it is safe enough to say that the nuns did enjoy a diet that would be befitting to people from a high status. Of course one has to be careful to draw large conclusions on the basis of what has been found and researched so far. The finds of the convent have only slightly been compared to the monastery of the Dom in Utrecht and they definitely need to be compared to a larger number of sites from around the same time period.

The conclusion to be had so far is quite relative in a way. As seen before, there were instances of people who would have had even more lavish food on table. It would be wrong to say that the nuns were in possession of a very high status as such. It might be better to state that the nuns would have had a higher status as compared to people who did not consume the kinds of foods the nuns were able to have.

4.3. Archaeological finds of the Sint Agnietenklooster

The excavation of the Sint Agnietenklooster terrain was done from April 9th to July 27th in 1984 and included the excavation of both the Sint Agnietenklooster and the Sint Michielklooster (van Heeringen, 1985, p. 83). The excavation of the Sint Anietenklooster has been divided into three phases: pre-convent phase, convent phase and post-convent phase until today. Each phase has results on the archaeological finds, the archaeobotanical finds and the zooarchaeological finds.

4.3.1. Phases of the excavation

Phase 1 belongs to the time period before the foundation of the convent, marked by the 41 filled pits that had been found. Based on the ceramics found in these pits, this phase has been dated to 1375 to 1425 (van Heeringen, 1985, p. 90). Monsters for macrobotanical research of phase 1 have been taken from pit 8 (as indicated by the blue dot in figure 7), though this has been

identified as mainly weeds by mr. W. J. Kuijpers (van Heeringen, 1985, p. 122) and no further research on the macrobotanical remains of this pit has been published. There were 1356 animal remains found in phase 1, of which most of them came from the humous accumulated layers followed by remains from pits spread over the excavation terrain. Most of the bones found were bovine bones, followed by sheep or goat, poultry and pigs (Ijzereef, 1985, p. 127). The general consensus of the excavation has been that the found remains (used ceramics, worn out shoe ware, mussels and animal bones) indicate this phase containing household waste from the Medieval period (van Heeringen, 1985, p. 104). Not much can be said about the societal standing of the residents, though van Heeringen (1984) has stated that the residents were most probably farmers or (manual) laborers.

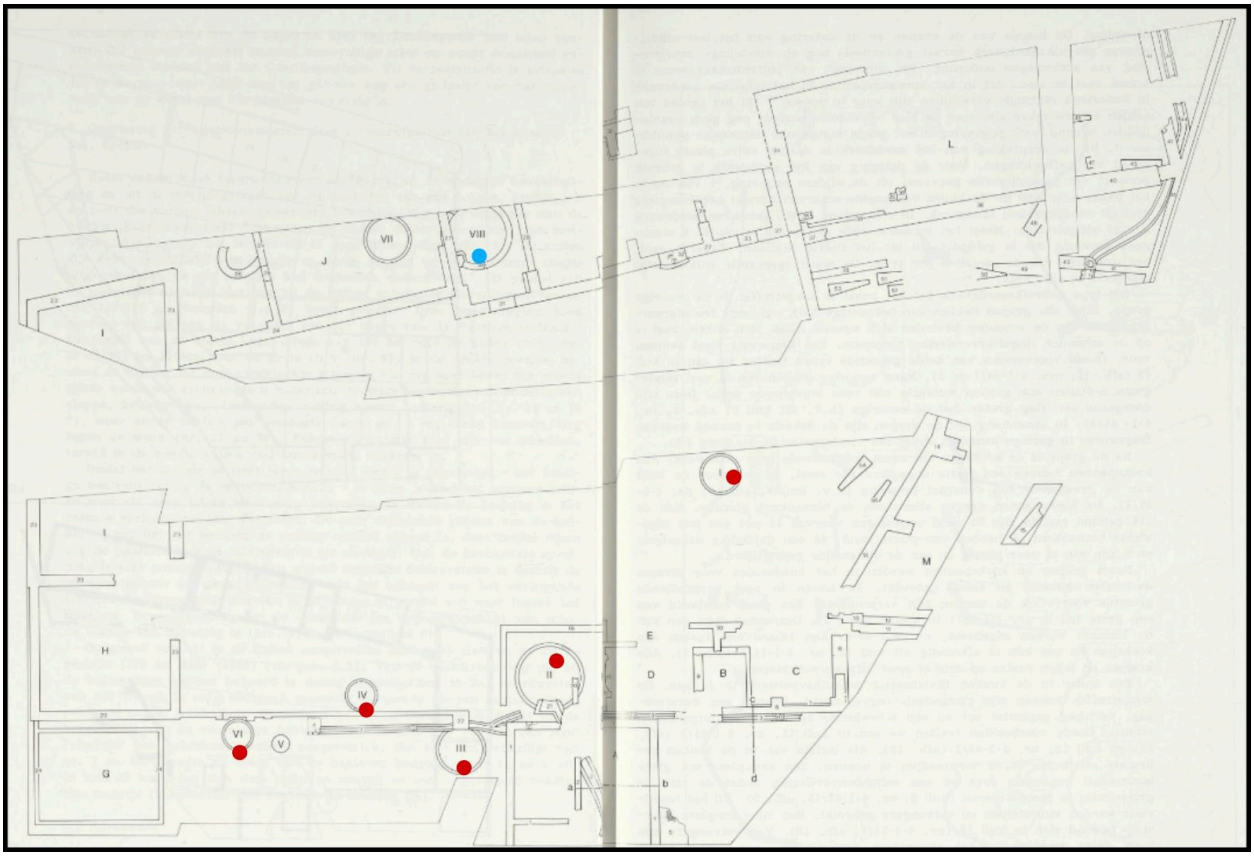

Figure 7. Map of the excavation at Sint Agnietenklooster. The cesspits correlating with Kuiper (1985) in phase 2 are indicated with a red dot. The blue dot refers to the single cesspit in phase 1 (van Heeringen, 1985, p. 92-93)

Phase 2 belongs to the time period of the convent. The oldest feature on this phase of the site belongs to cesspit I which dates to between 1375 and 1450 judging from the ceramics found in

the pit followed up by cesspit II which dates to 1400-1450 (van Heeringen, 1985, p. 105). Cesspit I includes a large amount of pipkins, three-legged cooking pots, and two earthenware plates, whereas cesspit II does not have as many finds aside from the presence of some fragments of baking pans (van Heeringen, 1985, p. 108-109).

Cesspit III dates to somewhere between 1475 and 1525. A number of chamber pots, two fragments of a glass beaker, an ointment jar and a fragment of a hand mill has been found in this pit. The hand mill is believed to have been used to mill grain for their own consumption (van Heeringen, 1985, p. 109).

Two other cesspits, IV and VI date to between 1425 and 1475 and the first half of the 16th century respectively (van Heeringen, 1985, p. 105). Not many ceramics had been unearthed from pit IV, but pit VI had some interesting glass object finds. These included a bottle with two necks, a fragment of a lamp and beakers as well as chamber pots and a bowl (van Heeringen, 1985, p. 109).

There were eight cesspits in total found in the excavation of phase 2 (van Heeringen, 1985, p. 110). The cesspits I, II, III, IV and VI (indicated in figure 7 with red dots) are mentioned more extensively in the paper by W. J. Kuijper (1985) and their archaeobotanical contents will be discussed in more detail later on in the discussion of this thesis.

As compared to phase 1, there are less animal bones coming from phase 2 and according to Ijzereef they do not necessarily have a huge value to the interpretation of archaeological materials. Nonetheless, there were 91 bones found, most of them being poultry, followed by bovine and pig remains (Ijzereef, 1985, p. 128).

Foundations of the walls and floors of the convent have also been found. Human remains of thirteen people have also been found in the northwestern corner of the Sint Agnietenklooster terrain (van Heeringen, 198, p. 107). The inhumations can be divided into three groups. The first group was in pit 3 and belonged to a time period before building the chapel. The second group belonged to pit 4 and the graves were most likely quickly dug up for some of the dead that fell during the Siege of Leiden. The last group most likely belonged to the heydays of the convent (van Heeringen, 1985, p. 108).

The third phase of the excavation was related to the period after the siege of Leiden. The convent would have been used as a place to rest right after the siege (van Heeringen, 1985, p. 114).

Cesspit R, also mentioned in Kuiper (1985), belonged to this phase lasting until around 1609. In this pit, a yellow stoneware jug and a red decorated ceramic bowl have been found (van Heeringen, 1985, p. 115).

There were not many animal remains found in phase 3. The ones that were there were mostly bovine, but there is not much that can be said about meat consumption based on the results from this phase (Ijzereef, 1985, p. 128).

The terrain was destined for houses after the disbanding of the cloisters, though the chapel of the Sint Agnietenklooster was still standing in 1609. It was only in 1660 that the chapel was changed into a warehouse for storing peat. In the northwest corner of the Turfmagazijn, a part of the wall of the convent's chapel was still present during the building's restoration in 1984 (van Heeringen, 1985, p. 90).

4.3.2. Pit resemblances

Keeping the question of what cesspit the assemblage may have belonged to out of consideration, the results from the examined macrofossil assemblage can be compared with what is now known of the convent based on the excavation results.

Most of the plant materials from table 1 have also been found in the earlier published paper by Kuiper (1985). Kuiper's paper treated material from six pits, pit I and II belonging to the period 13725-1450 and 1400-1450 respectively, pit III, IV and VI were in the periods ranging from 1425 to 1550 and pit R was put at the start of 1600 (Kuiper, 1985, p. 141). As it is now unknown what pit this assemblage belonged to, the most likely matches with the information about the assemblage there is so far would be with pit IV, III or VI, as these would have been securely put in the convent's period.

However, as one compares the results of Kuiper (1985) with the results of table 1, it seems that the plant remains found do not always align to the same proportions Kuiper had. Though it is important to keep in mind that Kuipers went through 3.5 liters of material for each pit (Kuiper, 1985, p. 131), whereas the material for this thesis was 150 milliliters, one can still see that the material from pit II as well as the amount of material correlating with this assemblage seems to be more in line with the results of pit II. As this pit may have belonged to the convent's time period, there is also a possibility that the assemblage belongs to pit II.

For the same reason, differences in the amount of finds in this assemblage as compared to Kuiper's assemblage are inevitable given the amount researched by both parties individually. Despite the differences in amounts for both results, there are obvious similarities to be seen in the results from this thesis and the results from Kuiper's paper (1985), as has been showcased per botanical remain type.

The sections hereafter will be mentioning a lot of the results by Kuiper (1985), found on page 140 and 141 for the plant remains and on page 142 for the small animal remains.

4.3.2.1. Cereals and pulses

A supposed lack of other plant remains, cereals and pulses in particular, may have to do with the underrepresentation of these plant remains in waterlogged conditions generally (Hondelink & Schepers, 2020, p. 561). This is important to note as the intake of cereals and pulses was important in the Medieval period but may not be portrayed as such based only on the macrofossil finds (Kuiper, 1985, p. 136).

Fagopyrum esculentum was also present in the results found in the paper by Kuiper (1985). It was found in pits I, II, III, IV and VI, with the largest presence in pit II. What is interesting is that the assemblages researched by Kuiper all had a large amount of *Cerealia* (cereals) and *Secale cereale* (rye) in them, of which *S. cereale* has been presented as a popular food plant in the late Medieval period (Bieleman, 2010, p. 20; Curtis et. al., 2017, p. 123; van Haaster, 2003, p. 135), yet there were no further remains of these plants found in the assemblage researched more recently. The amount of cereals found by Kuiper would be remarkable given the circumstances of the cesspits.

Other grain species found in a somewhat large amount are *Avena sativa* (oat) and *Panicum miliaceum* (millet). There was only one piece of *Hordeum sp.* (barley) and one piece of *Oryza sativa* (rice) found.

The assemblage researched for this thesis did not contain any pulses. Kuiper did have two different species *Pisum sativum* (pea) and *Vicia faba* (broad bean). However, since there were not many of these species found, one still can not say something clearly about the pulses that the nuns would have been eating.

4.3.2.2. Fruits

All fruits present in this assemblage were also found in Kuiper's results (1985), in which pit I, II, III, IV and VI had similar results.

As is the case with the assemblage researched for this thesis, *Ficus carica* (fig) and *Vitis vinifera* (grape) had the most amounts of fruits present throughout all cesspits. *Fragaria sp.* can be compared to the results of *Fragaria vesca* (strawberry) which are also more or less the same in the convent's period as they are in the recently researched assemblage.

There were not that many pits of *Prunus domestica* (plum) in the assemblage, which is in agreement with what has been researched more recently. *Prunus avium* (cherry) is also present in around the same amounts only in pit II. There is a lot more *Prunus cerasus* (sour cherry) in the publication by Kuiper, which was not seen at all in the more recently researched assemblage.

The amount of *Rubus idaeus* in Kuiper's assemblage is more or less the same as the recently researched assemblage, with the exception of little to no presence in pit I and pit IV. *Morus nigra* (mulberry) could be seen in all cesspits except for cesspit IV and R, though there was less found in this assemblage. This may have more to do with the amount that has been examined once again.

Pit II has comparably the same amounts of *F. carica*, *V. vinifera* and *P. avium*., which might point at the possibility of there being a lot more of these species present because of the difference in sample size.

Kuiper was able to make distinctions between *Malus* and *Pyrus*, more precisely *Malus domestica* (apple) and *Pyrus communis* (pear). He also had a lot more finds related to both species. As for *M. domestica*, Kuiper also had a section on apple core skins, which were not distinguishable in the assemblage researched for this thesis.

There were a lot more *Ribes sp.* (currants) in Kuiper's assemblage which were not present in this assemblage. The other finds in Kuiper's assemblage that were not present in this assemblage were in such a low quantity that it would make more sense that they were found because of the amount of material that Kuiper had gone through.

It is interesting to see that Kuiper did have a lot less *Corylus avellana* (hazelnut) in his assemblages. There were only two whole fruits in pit I, two fragmented fruits in pit II, one whole fruit in pit III and one fragmented fruit in pit R, whereas the assemblage that was researched more recently had thirteen entire fruits and nineteen fragmented pieces.

The amount of *Linum usitatissimum* is low when compared to cesspit II and IV, but it does seem to be in line with the other cesspits that belonged to the period before or during the existence of the convent (I, III and VI).

4.3.2.3. Herbs

There are three identified herbs, *Sinapis alba* (mustard), *Foeniculum vulgare* (fennel) and *Papaver somniferum* (opium poppy). All three have been seen in the assemblage researched by Kuiper.

Sinapis alba was one of the species that Kuiper was not sure of as he kept the finds linked to this also possibly *Brassica cf napus* (rapeseed). In any case, there was a large amount of *S. alba* present in most cesspits with the exception of pit IV where there were only three and cesspit R had no remains of *S. alba*. The large presence of *S. alba* is quite different from the single seed found in the recently picked assemblage, though this may in part be the combined number of *S. alba* and *Brassica cf napus* which may have caused the large number of finds as opposed to if they were identified to separate species level.

Foeniculum vulgare was found in each cesspit, with cesspits I and VI having the most amount of *F. vulgare*. There were only two remains of *F. vulgare* found in the recently researched assemblage, which seems to be somewhat in line with the low amounts of this species found generally in the assemblage.

Papaver somniferum was only present in cesspit I in a large amount and as a singular find in cesspit R. The assemblage of this thesis also only has one find. Though it seems that this herb in particular is not necessarily being used a lot, it is interesting to see how cesspit I has an overrepresentation of this species.

There was a bigger variety of herbs and more herbs in general to be seen in the assemblages researched by Kuiper (1985), but the amount found in this assemblage being less diverse and lower in general makes sense when taking into account the sample quantity for the thesis.

4.3.2.4. Wild plants and waterside plants

Given the large amounts of materials that Kuiper has researched, there have been a lot more wild plants and waterside plants present in his assemblage. As mentioned before, aside from *Silene*

flos-cuculi and *Carduus/Cirsium* all plants present in table 1 under wild plants and waterside plants were also present in Kuiper's assemblage.

Plants that fall under wild plants are the ones that grow on land and are not cultivated. *Rumex sp., Persicaria lapathifolia, Silene flos-cuculi, Carduus/Cirsium, Atriplex sp.* and caryophyllaceae fall under this category. Most plants here only had one single seed attributed to the species, though there were a lot of caryophyllaceae fragments, *Atriplex sp.* and seven *P. lapathifolia* found.

As mentioned earlier, the large amount of caryophyllaceae may have a link with *Agrostemma githago*, which belongs to this family, however one can not be completely certain about this identification. There was also a relatively large amount of *P. lapathifolia* present in Kuiper's assemblage.

There were two possibilities attributed to *Atriplex sp., Atriplex prostrata* or *Atriplex patula*. Both species have been known to be eaten together with food (Bakels et. al., 2000, p. 155). Since the differentiation of what kind of *Atriplex* species there is in the assemblage could not be made, it will be hard to say if these *Atriplex* seeds were there because of cultivation or not. What is clear is that the remains of this plant were present in all cesspits of Kuiper except for pit III.

As for the waterside plants, there were only two found, *Schoenoplectus lacustris* and *Eleocharis palustris*. As was also the case with Kuiper's assemblage, there were more seeds of *E. palustris* found in all cesspits except for pit R. There was only one *S. lacustris* found and that was in cesspit II.

4.3.2.5. Animal remains

Ijzereef (1985) mentioned that there were less bones found in the cesspits relating to the residence by the nuns. The animal remains of these cesspits consisted of bovine, pig, sheep/goat, poultry, fish, rabbit/hare and some large and small indeterminate bones (Ijzereef, 1985, p. 129).

The three kinds of identified fish remains from the newly assessed assemblage were *Anguilla anguilla* (eel), cyprinidae and pleuronectiformes. *Anguilla anguilla* was not seen in Kuiper's assemblage.

Cyprinidae were seen in the assemblage also not identified to species level. Instead of a presence and absence table, Kuiper had written down the amount that was present there, leading to only one specimen of cyprinidae in pit II and one in pit R.

Most other fish species belonged to pit R, also the other pleuronectiformes specimen. Kuiper (1985, p. 142) had several fish remains from this order which were identified to species including *Scophtalmus maximus* (turbot) and *Pleuronectes platessa* (European plaice). Even though it is certain that the assemblage researched for the thesis came from one of the cesspits linked to the time period of the convent. The animal remains may not have been identified as such at the time and another revision of the small animal remains by a zooarchaeologist will be necessary to be able to reach better conclusions on fish consumption among the nuns.
Mytilus edulis (mussel) was also found in the earlier assemblages, spread over a number of pits excluding pit II and III.

4.3.2.6. Cesspit II?

The assumption that has been made in this thesis is that the assemblage belongs to the time period in the convent when the nuns were enjoying a lot of wealth. Cesspit II as researched in Kuiper (1985), belongs to the time period 1400 to 1450, putting it somewhat in the time period that the building was inhabited by nuns.
Judging from the type of seeds, their size and the types of bones found, the pit these finds were from was most likely a cesspit with sometimes some trash thrown in it too.. Not many bones of larger animals were found in the cesspits. The ones that were found there were of cows, sheep/goats, pigs, chicken and to a lesser degree duck/goose. Shells of mussels were found in pit I, II, IV and VI. Pit II and VII also had bones of a cat. Though the amount of bigger bones in cesspits was so low, it is assumed that these would have been thrown into a different pit (van Heeringen, 1985, p. 109-110). Bigger animal bones have been found in phase 1 of the excavation in a separate pit in the vicinity of the house (van Heeringen, 1985, p. 103-104), leading to the opinion that this was a waste pit and that bigger kitchen waste was thrown away in a waste pit.
As mentioned in the results, there are multiple possible cesspits this assemblage could have belonged to. Even though it may seem like occupation belonging to cesspit II may have been under occupation of residents other than the nuns, the chance of that being the case seems slim taking into consideration that the finds of pit II are very similar to the finds done for this paper. Though of course it is still important to keep the discrepancy of the amount of material that has been researched and keep in mind that there may still be more similarities to other pits.

Another aspect that might strengthen the case of the assemblage coming from cesspit II at first are the dates linked to the cesspit. Kuiper (1985, p. 141) has put the cesspit at 1400-1450 also based on the estimations made by van Heeringen (1985, p. 105). However, what may debunk this theory is that Kuiper found *Capsicum annuum*, the chili pepper or sweet pepper (Kuiper, 1985, p. 140). As this is a new world species and only spread through the rest of the world after the first and subsequent trips of Christopher Columbus after 1492 (Silvar et. al., 2022, p. 1), it would not have been possible to find this in a cesspit dating between 1400 and 1450. Kuiper has therefore also dated this site to 1600 (1985, p. 137;141).

Dating the cesspit to a more recent time period may help evade this issue in one way, though the possibility of a small case of contamination should also not be excluded. As the other material does seem to make sense to the time period, it would be a shame to date the entire pit to a later stage on the base of two seeds that do not belong to the time period.

Though the results from cesspit II seem to be matching the assemblage, it is just speculation at this point made hard to investigate due to a number of complications. This is why only the convent's time period in relation to the earlier researched plant materials will be taken into account. This includes pit III (1475-1500), IV (1425-1475) and VI (1500-1550) (Kuiper, 1985, p. 141) for sure and for this thesis pit II is also included despite the problem regarding the *Capsicum annuum* seeds, since the rest of the pit does seem in line with what would have occurred in a cesspit from this site.

Corylus avellana (hazel), had a relatively large amount in these results, though the results presented by Kuiper showed how it was only present in pits I, II and III. On top of that, the amount per pit found by Kuiper was two pieces or lower, showing a certain abundance as compared to what has been researched earlier. This does not necessarily have to prove big differences in what has been researched before and what is being researched now, as it could be coincidental.

Linum usitatissimum (flax) was present in pits I to VI, but the seeds were not numerous in the earlier publication either. *Papaver somniferum* (opium poppy) only occurred in pit I and the pit dating to after the occupation of the nuns, pit R (Kuiper, 1985, p. 140).

The amount of seeds that may have been white mustard were numerous and present in cesspits I to VI. This has been different with the results in this thesis, as there was only one white mustard

seed found. This may have to do with the amount of macrobotanical that Kuiper went through for research being a lot larger.

Fennel has been present in all of the cesspits in Kuiper's paper (1985), though the frequency of occurrence differs within each cesspit and some cesspits have also included fragmented fennel seeds.

Aside from *Silene flos-cuculi,* all plants found in this assemblage have also occurred in the paper by Kuiper (1985). *Persicaria lapathifolia* (indicated in Kuiper (1985) as *Polygonum lapathifolium*) and *Eleocharis palustris* both occurred in a larger frequency than *Schoenoplectus lacustris,* of which there was only one in cesspit II (Kuiper, 1985, p. 141). This seems to be more or less in line with what the results of the researched cesspit assemblage have been like.

These plants would not have been part of the diet, but they could have just landed in the cesspit as a result of inflown seeds from nearby growing plants.

4.4. Late Medieval diet at the Sint Agnietenklooster

In order to say something conclusive about what the late Medieval diet in Leiden, in particular at the Sint Agnietenklooster, would have looked like, the interpreted results will be compared to what other people in Leiden at the time were eating and also what was said to be eaten according to cookbooks from the time period, can provide a clear overview of the diet people may have had in Leiden in the Medieval period.

Most of the material has already been seen in section *4.1* on the status that one might link with different kinds of foods consumed in this time period. Yet all of the information that has been given on the plants will be tied together here while looking in more depth at the diet of people themselves and how this diet could have been part of the diet of other people in the same time period as well.

The focus will first be on the provenance of the plants that have been found in the assemblage of table 1. The meat and fish consumption will be dealt with separately after the part on plant consumption. After this, comparisons will be made with what has been found and what has been published in cookbooks of the time period about different ingredients put in dishes.

All of this information will be added together in the last section where the dietary reconstruction will be highlighted.

4.4.1. Provenance of the plants

Most fruits found in the assemblage can be grown in the Netherlands. Though one may associate *Ficus carica* (fig) with warmer climates, it may have been grown in the Low Countries as well. It is possible to grow a fig tree as long as it is south facing in the garden (Harris & Harris, 2009, p. 140). Manual labor was considered to be a good activity, among the clergy including the Modern Devouts, to combat idleness. Gardening was one of the activities that would have been performed in order to stay busy during the day and it was done extensively in certain monasteries such as the Enclosed Gardens of the Augustinian Hospital Sisters of Mechelen (Baert et. al., 2018, p. 33). Plants such as *F. carica* and *Vitis vinifera* (grape) are known to have been cultivated in convents (Vermeeren & Gumbert, 2007, p. 95), so there is the possibility that the grapes and figs found at the site were grown there or closeby, which also checks out with the presence of many cloister's gardens outside the city wall Rijnsburgpoort located northwest of the city (Kuiper, 1985, p. 137). Given the amount of lands the nuns of Sint Agnietenklooster had and kept on buying while their convent existed, it may be quite possible that they would enjoy fruits from their own lands.

However, trade of fruits from other places, especially of fruits known to grow in warmer climates, may still have been possible. This would allow *F. carica* and *V. vinifera* to be imported from the Mediterranean area (Kuiper, 1986, p. 137). It is well possible that all of these things may have been done at some point and there was not just one point of provenance for the nuns.

Other fruits that would have grown locally, such as *Rubus idaeus* (raspberry), *Fragaria sp.* (strawberry) and *Corylus avellana* (hazelnut) would have been collected from the wild, though it is also a possibility that they could have been present on the convent's grounds for convenience (Moffett, 2018, p. 119). This could also be a way for the nuns to procure this food.

All identified herbs found in the assemblage such as *Foeniculum vulgare, Papaver somniferum* and *Sinapis alba,* could have grown inside the convent as well. The herbs could be grown easily in the Netherlands and if not grown in their own garden, these could have been locally sourced the same way other herbs had been in the time period. In case the nuns at the convent would have used spices, these would have come from afar and would be quite expensive as well (Freedman, 2012, p. 326).

Papaver somniferum and *Foeniculum vulgare* which can be seen as multiple use plants for both their medicinal properties as well as being used as herbs in foods, were seen more in urban contexts instead of the countryside (Moffett, 2018, p. 120), so the possibility of these two plants having been sourced from elsewhere is possible. Yet there have been instances in which both *P. somniferum* and *F. vulgare* were grown in gardens of monasteries in the Netherlands (Muusers, 2011, p. 67), making it more likely that they were sourced either locally or grown by the nuns themselves.

The plants from the researched assemblage that could have grown locally and were quite popular, *Fagopyrum esculentum* (buckwheat) for instance, could have been bought locally.

All in all, the provenance of some of the plants that were consumed by the nuns point at the possibility of having bought food that was exported from far away but mostly food that was typically eaten more in an urban context and sourced locally.

4.4.2. Meat and fish consumption

When fasting christians, in particular people from the clergy, would eat no quadruped meat, fowl, milk and eggs. This would not only happen during the 40-day fast between Ash-wednesday and Easter, but also in the adventweeks before Christmas, on ember days which mark the changing of seasons and every Wednesday and Friday throughout the year (Muusers, 2011, p. 59). Given the number of days that the nuns would have had their fast, the large amount of fish present is in line with the religious followings of the nuns.

Fish became an important component of the diet of the clergy from the 12th century onwards (Muusers, 2011, p. 61). The importance of fish can also be seen in cookbooks where both *Een notabel boecxken van cokeryen* (Jansen-Sieben & van der Molen-Willebrands, 1994) and *Een nieuw Zuidnederlands kookboek uit de vijftiende eeuw* (Braekman, 1986). However, both sweet and salt water fishes have been mentioned to be cooked in *Een notabel boecxken van cokeryen* (Sieben & Molen-Willebrands, 1994) and in *Een nieuw Zuidnederlands kookboek* (Braekman, 1986), especially in recipes referring to what people could eat during fasting.

As seen before, differentiations in what is considered luxurious fish and what not were present in the late Medieval period (van Dam, 2008). From historical sources, one could be able to tell what was eaten more by people of a lower status background and what would have been eaten by people from a higher status background. The luxurious fish consumption can be found back in

the archaeological record as is evident from the results of this thesis. From this, one can also see that despite the religious fasting rules that were assigned to all christians, people still found a way to distinguish themselves through their diet.

4.4.3. Diet in cookbooks

The cookbooks that have been looked through for this thesis have been mentioned before as well, *Een notabel boecxken van cokeryen* and *Een nieuw Zuidnederlands kookboek uit de vijftiende eeuw* (Braekman, 1986). *Een notabel boecxken van cokeryen* only has one copy left in the Bavarian State Library dating to around 1514 (Jansen-Sieben & van der Molen-Willebrands, 1994, p. 7). *Een nieuw Zuidnederlands kookboek uit de vijftiende eeuw* is a cookbook written by hand and kept in the Koninklijke academie voor Nederlandse taal- en letterkunde in Ghent. It consists of four parts of which three parts are filled with recipes (Braet, 2014, p. 8).

As mentioned before, the raw consumption of fruit was discouraged during the Medieval period as it may also affect the temperament of humans since fruit was considered to have a very cold humor (Muusers, 2011, p. 67). Though it is also clear that rules as such were not always followed in the Medieval period given the state of the finds from the cesspit, one could still look at recipes that used fruits and see how these may have included the seeds of the fruits which can be seen in cesspits now.

Fruits such as *Fragaria vesca* (strawberry), *Prunus avium* (cherry), *Prunus domestica* (plum), *Ficus carica* (fig), *Morus nigra* (mulberry) and *Vitis vinifera* (grape) can be seen in both the cookbooks and in the macrofossil assemblage. A recipe for making a cherry pie or berry pie stated how one part of the cherries had to be pitted and one part not (Braekman, 1986, p. 49), which can potentially show us how such fruits were used and how the present of the remains of these fruits can be explained. Other than this, *Foeniculum vulgare* (fennel) and *Linum usitatissimum* (flax) have been present in recipes from *Een nieuw Zuidnederlands kookboek*.

Some plants that were mentioned in the cookbooks are used for parts other than seeds. This can be for leaves, as is the case for parsley, or their rhizomes and or bulbs as is the case with ginger and onion. Though it is known that vegetables such as onions and herbs such as parsley were eaten during the Medieval period, they can not be seen easily in the macrofossil record (van Haaster, 2003). Another reason why some of the plants in the cookbooks were not seen as easily is that some recipes called for the plant materials to be processed in such a way that they would

not be recognizable for what they are afterwards. This has been the case with turning almonds into almond milk or having certain cereals be ground up before using in the rest of the recipe. Other processes may include food preparation practices and also cooking practices such as roasting or baking though it may include more biological processes such as digestion as well (Cappers & Bekker, 2021, p. 35).Such pre-depositional processes would ensure that certain species may be little to not visible at all.

A large amount of recipes in both cookbooks consisted of instructions for preparing fish. Though not always linked to recipes for fasting, some of the recipes were indeed intended to be made for during the fasting days. Aside from the amount of fish recipes present in the books, there were also a lot of recipes present for preparing other animals for food. These included meat of birds, quadruped animals and fowls.

Something that is noticeable in recipes of both the examined cookbooks is the amount of spices used in the kitchen. These are spices such as *Crocus sativus* (saffron), *Syzygium aromaticum* (clove), *Elettaria cardamomum* (cardamom), *Zingiber officinale* (ginger) and *Myristica fragrans* (nutmeg) to name a few. Though these have not been found at the site, it would be odd to believe that these plants would not have been used. As pepper, saffron, cinnamon, ginger and sugar were the most commonly used spices used in the Medieval period (Freedman, 2012, p. 328), and as all these spices were, with the exception of saffron, the least expensive spices one could buy (Freedman, 2012, p. 336), it would make sense to a certain degree that ingredients as such would have occurred in the food the nuns of the Sint Agnietenklooster had. As for more locally sourced herbs, parsley seems to be one such herb that was used often enough in recipes.

The recipes in the cookbooks can be linked to what people may have eaten in case they had the means to buy all these ingredients. Given that these ingredients may not have been readily available to everyone given the prices that were linked to these food sources (as highlighted in van den Hoven van Genderen, 2003), the food that would have been made with the recipes in these books may not have been seen everywhere. These may have been limited to people with the means to afford having dishes as such.

4.4.4. Late Medieval diet in Leiden

Though the sources used for the reconstruction of the diet are in no way fully conclusive, one could already derive certain information on the way food would have been eaten among people of different standings in Leiden.

The diet of people in Leiden around this time would definitely have differed according to the status they would have had in society. In this, the nobility and clergy would have had the most variety of food items. The clergy may not always have had a large amount of meat to be consumed given their stricter adherence to religious practices.

As to the meat consumption of people in this time period in general, results by Ijzereef (1985) point at more consumption of bovine meat and poultry. Since meat was becoming more and more available to everyone in the time period (Muusers, 2011, p. 69), the meat that belonged to phase 1 of the excavation may indicate that meat was more eaten among people in Leiden. However, since it is assumed that the people who were inhabiting the houses before it became a content may have had a wealthy background (Kuiper, 1985), it may be more likely that higher meat consumption might have been more available to people of a higher status.

Food of people from a lower class would have more foods like cheaper cereals and pulses in their diet. As there is a lack of representation on the part of diet from people of a lower status, the diet of people in Leiden would not have been completely highlighted. Though common traits such as *Secale cereale* (rye) and *Fagopyrum esculentum* (buckwheat) consumption would have occurred among everyone and fish consumption in Leiden might have been high given the fact that Leiden is close to many resources from where fish would be taken.

4.5. The lifestyle of the nuns

As all of the sub questions have been answered, one can see the lifestyle of the nuns a lot clearer now. The answer to the questions of what the lifestyle of the nuns would have looked like will be given by comparing the interpreted botanical finds, the excavation results and the historical sources linked to the Sint Agnietenklooster with that what was happening in and around Leiden between 1400 and 1572. From all of this information, one might be able to look at how the nuns were navigating through this time.

Since the results found are only related to one time period and not necessarily the entire time period, the assumption as to what time period the cesspit assemblage was from will be after 1400 when the convent was found and before the mid-16th century when there seemed to be a decline in Leiden cloth industry leading to an economic decline. Even though this is still a large period of time to deal with, it can be assumed that this time would have been more fitting for the heydays of the convent.

4.5.1. The good nuns?

"Subdue the flesh, so far as your health permits, by fasting and abstinence from food and drink."

The rule mentioned above is the first rule from chapter three of the Rule of St. Augustine, which were the cleric rules the nuns would have been following as they were part of the Congregation of Windesheim (Pejza, n. d.).

What was considered to be a fast and what was abstinence may be a bit different from the current day connotations one may have with the words. According to van Dam (2008, p. 311), abstinence was considered to be giving up meat only whereas fasting was about not having any meat or animal byproducts at all. Both the fasting and the abstinence from meat would have most definitely been done by the nuns. Yet, this would not have limited their elaborate food intake in any way still.

It is already known that the Medieval humour doctrine was not necessarily followed as such given the amount of fruits the nuns were eating. And when they were eating, the kind of food that they would have would have had elements of being quite elaborate and luxurious. Of course, it was not as elaborate as people of even higher cleric positions or people of nobility would have had, but it is definitely enough to see that there may be a discrepancy between what the religious teachings would have said about food and diet and what the nuns themselves would have been doing.

Seeing how the nuns were not strict on following rules regarding dietary restrictions and how they were seen as rebellious sisters (Prinsen, 1910, p. 119), there is a possibility that the nuns were among the clerics in the late Medieval who were resented by non-noble and non-clergy commoners. On this basis, the principle of dominance as highlighted by Ames (2008) can be

reflected on the nuns. Though there is no way to know if they did this willingly or not, the nuns did have a certain level of dominance that could be shown over people of a lower status.

When thinking about the general wealth of the nuns, one looks at where the nuns were living and what kind of finds had been found at their convent. On top of that, one can also look at historical sources on the nuns, though these are limited and the ones present are quite biased as is the case with *Uit het notaris-protocol van Salomon Lenaertzn. van der Wuert* (Prinsen, 1910). Salomon Lenaerts van der Wuert has written unflattering accounts of how the nuns were behaving. From the sources that can be found on Salomon one sees that he was a notary public of Leiden and that he was married in 1589 at a Reformed church (Erfgoed Leiden en Omstreken, n.d.). Though Leiden had already chosen the side of the Reformation by then, it is important to realize the notary public may have been a bit biased towards the kind of behavior that was thought to have been among the nuns. Though some accounts may have an element of truth in them, they can at best be handled with a grain of salt.

If one considers that the common folk would often have pulses and cereals as their main food staple, the diet of the nuns is already varied in that regard. Though the preservation of the cesspit is to be thanked for that in part, the case of the nuns having had a larger variety because of a larger economic access to different kinds of food stuff would make a lot of sense too.

What is interesting is that van Heeringen (1985) stated that the archaeological finds, aside from the glass materials from pit VI , do not indicate a large amount of material wealth among the convent's residents. Along with that, the daily activities of the nuns were also not clear from the archaeological finds (van Heeringen, 1985, p. 109). However, as was also seen before, the nuns kept on buying new pieces of land in order to expand their convent (de Boer & Pompe, 1985, p. 70). The amount of material wealth the nuns would have had in that case would have been quite large as could be reflected by the total amount of land they would have ended up owning. This adds to the wealth the nuns may have had in the time period, suggesting that they may have had a somewhat luxurious lifestyle. All in all, one could say that the nuns were living a comfortable lifestyle among the clergy.

Chapter 5. Conclusion

The Sint Agnietenklooster used to be a convent located between the Korte Agnietenstraat and the Lange Agnietenstraat in Leiden, the Netherlands. The convent was excavated in 1984 by drs. R. M. van Heeringen. The excavations yielded a large amount of finds including six cesspits which have been researched for their archaeobotanical contents previously by W. J. Kuiper.

The convent existed between 1400 and 1572, when the Leiden was going through a lot of changes over time. It was the time during which Leiden experienced its initial wealth with the cloth industry and its first decline and inevitable end by the time the city was under siege in 1573. The convent was dismantled one year before the start of the siege as a result of growing tensions of the people against the church. These tensions were magnified by the disparities of wealth between the common folk and the clergy.

One way to see how the nuns at Sint Agnietenklooster might have enjoyed this amount of wealth as well is by looking at what the nuns may have eaten. Another botanical sample from the excavation has been examined for this thesis. The pit from which the sample was taken is unknown though it is known that the sample belonged to the time period of the convent.

The new results should shed light upon the following questions:

1. How does the diet of the nuns correlate with what has already been researched about what a late Medieval diet in Leiden would have looked like?
2. How do the dietary related finds at Sint Agnietenklooster relate to what else is known of the convent and what has been excavated there?
3. What can one say about the status of the diet of the nuns living at the Sint Agnietenklooster based on these results?

This in turn should give information on the main question which is: what would the lifestyle of the nuns at the Sint Agnietenklooster have been like?

The results showed a large amount of fruits with *Ficus carica* (fig), *Vitis vinifera* (grape), *Fragaria sp.* (strawberry) and *Corylus avellana* (hazelnut) being the most numerous. Other than fruits, there were also a lot of fruit valves from *Fagopyrum esculentum* (buckwheat). As for the waterside and wild plants, there were a lot of *Atriplex sp.* (saltbushes) and caryophyllaceae pieces in the assemblage. With the exception of *Silene flos-cuculi* and *Carduus/cirsium*, all plants were present in the paper written by Kuiper (1985).

Aside from the plant remains, there were also a few other finds from the assemblage including fish bones of *Anguilla anguilla* (eel), Cyprinidae (freshwater minnows and carps), Pleuronectiformes (flat fishes) and shell remains. The presence of these fish also tells us that fish were used extensively in the diet of the nuns, both freshwater and marine fishes.

First the question on the status of the nuns to be seen from their diet was answered. The variety of plant remains one can see in the assemblage already indicates that the nuns had large access to all kinds of different foods. The types of fruits they were having also pointed at a possibility of imported goods, which may not have been available for everyone to have. The grains that were found did not necessarily point to exceptional wealth, as *Fagopyrum esculentum* (buckwheat) was one of the grains that could be accessed by people of all standings in society. The same could be said about the herbs, though since herbs are not easily found in the archaeological record, it might be harder to draw conclusive remarks from the results yet. However, the fish remains, especially *Anguilla anguilla* (eel), did indicate that the nuns would have had a more luxurious diet. All in all, their diet may not have been as high status as people from high clergy or nobility would have it, but the nuns did have a certain level of high status as seen through their diet and were quite well off.

The excavation of the Sint Agnietenklooster was divided into three phases, one before the existence of the convent, one when the convent existed and one after the dismantling of the convent. The second phase, the one aligning with the convent's time period, had a number of household material remains and a small amount of larger bones. The archaeobotanical cesspit remains from this phase were exceptionally large. The comparisons with Kuiper's assemblage (1985, p. 140-141) and the results from table 1 of this thesis were quite alike when one keeps in mind that Kuiper did go through a larger amount of material. Taking into account the finds of the assemblage, the sample could have come from cesspit I, II, III, IV and VI, though the largest resemblance is with cesspit II, though there is no full certainty that this is indeed the pit the archaeobotanical sample researched for this thesis is actually from.

Since most publications found on diet from the Medieval period include the diet of people with more wealth, the general diet of people in the Late Medieval period in Leiden might not be fully highlighted yet. The macrofossil assemblage that was researched does not necessarily aid to the bias, but it does provide more insight to the diet of people from the clergy and of a higher status.

The plants present in the assemblage could have been cultivated by the nuns themselves, as they may have had the means and places to do so. They would have also been imported from the Mediterranean area. If the nuns were to use spices, these would have been imported from afar. Herbs would have grown locally, either by then nuns themselves or they would be locally sourced.

Not many animal bones were found in the cesspits, which may add to the nuns not eating a lot of meat. The amount of fish bones seem to be in line with the abstinence and the amount of fasting the nuns would have had to do living in the convent.

The cookbooks corroborated with a lot of the edible finds that were in the archaeological macrobotanical assemblage, though the cookbooks also showed that there were potentially a large number of herbs and spices eaten which can not be seen back in the assemblage.

All in all, though the archaeological finds may not have alluded to a certain amount of wealth among the nuns, the botanical finds have shown that the lavish meals the nuns may have enjoyed did mean that they were wealthy enough. Their lifestyle may have been a little lavish given also the position of the church at the time period and the kind of wealth that Leiden had at the time as well.

Abstract

The Sint Agnietenklooster used to be a convent located in Leiden, existing from around 1400 to 1572. The convent was excavated in 1984, yielding a large amount of plant macrofossil remains among the archaeological finds. Yet, aside from one publication in 1985, not much is known about this convent. In this thesis, another sample of archaeobotanical material from the Sint Agnietenklooster has been examined. The plant and small animal remains that were found in there have been interpreted in order to answer the question of what the lifestyle of the nuns would have been like. The results have shown that the nuns at the Sint Agnietenklooster were consuming a variety of food items and that the kinds of foods would point at a certain amount of wealth and status among the nuns. The other archaeological finds that were published earlier did not necessarily point at a large amount of wealth among the nuns, which is why the plant remains help provide a different insight in the lives of people in the past. Given that the nuns were enjoying the amount of wealth they had as seen through their diet is not surprising since the clergy was seen with a high regard in this time period.

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