DIET, SOCIAL STATUS AND DAILY LIVE IN A 15TH CENTURY ALMSHOUSE

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Figure 1: Voldersgracht Delft, Netherlands
with the Oudemanhuisbrug

www.geheugenvannederland.nl

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INHOUDSOPGAVE

1 INTRODUCTION

1.1 Area

Delft is situated in the Netherlands, in the province of South Holland, near the Dutch North Sea coast and on the river the Maas.

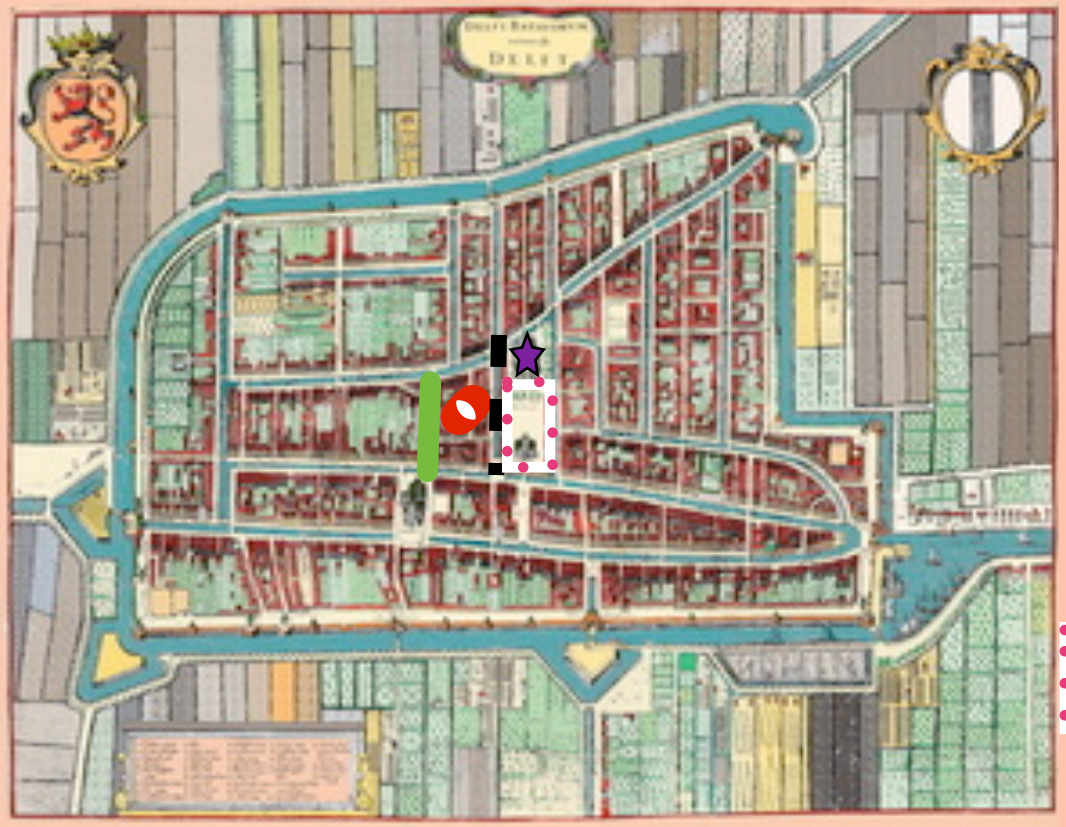

Figure 2: Map of the city Delft in 1652 by Willem Blaeu. (to: www.guidovanderwedden.ning.com)

In 1246 Delft became a city, by obtaining it's city rights from the Earl of Holland; Willem II. Delft was expanded a lot in the 13th and 14th century, so by the time of 1355 Anno Domini, the city is almost as big as it was in the 19th century. (www.delft.nl)

Delft was connected with the river the Maas in 1389, when the Schie canal was dug and bigger ships could enter the harbour of Delft. (www.delft.nl) This harbour is visible on the map in figure 2 on the right downside.

Trade goods from all over the world were sold in Delft and even the VOC (East Indian Trading compagny) had an office in the city. On 14 Novembre 1572 Willem of Oranje Nassau moved in to the Prinsenhof in Delft. He was later burried at the Nieuwe Kerk on the central marketplace, as are most other kings and queens of the Netherlands. (www.delft.nl)

The site Voldersgracht 21 is situated in the center of the city Delft, near the marketplace and the “Nieuwe Kerk”, as can be seen on the map in figure 2.

On the South side of the excavation, the Voldersgracht borders the area situated opposite to the “Oudemanhuissteeg”. The Northern border is the Vlouw, and on the East and Westside of the parcel are other premises. The parcel has the size of half a square kilometer. (Bult 2004, 4)

1.2 Stratigraphy

According to the soil map of Bult and Paans from 2004, the excavation area is on the edge of a silted up tidal creek dating back to the Dunkirk I transgression. Therefore several sediment layers composed of sandy marine clay are present at the site. (Bult 2004, 4)

A transgression at the elevation of the sea level, which results in a marine sedimentation layer (mostly sandy clays) upon the earlier formed peat. Most transgressions are followed by a regression; a decline of the sea level, which enables plants and mosses to grow in the wet area’s left behind by the declining water levels. During regressions layers of peat are formed.

The central and Western part of the Voldersgracht is also located on an old bank of the Gantel River, which makes it one of the oldest parts of the city. (Bult 2004, 4)

The parcel is elevated several times by layers of debris, manure and clay, (Bult 2004, 4) creating a protective time capsule around all present archaeology. This is the main reason why (parts of) mediaeval structures have survived to the day.

1.3 Excavation cause and parcel history

1.3 Excavation cause and parcel history

In 2004 the Vermeer primary school was demolished to make room for a new apartment building and business accommodation. Underneath the new estate a cellar was planned. (Bult 2004, 4)

Because of its relative high altitude to the surrounding area, the banks of the Gantel River were already in use by the Romans. Ditches, earthworks and Roman pottery are already excavated in the direct surroundings of the Voldersgracht. Therefore it was to be expected Roman archaeological features where present at the site. (Bult 2004, 4)

The construction of the Voldersgracht took place before the year of 1349 Anno Domini, when the canal is first mentioned in a sales agreement. It was first used to serf the fulling industry[1];

[1] Fulling is a proces used to thicken and waterproof woolen clothing by getting rid of all the impurities in the wool.

water for the fulling process was taken from the canal, and industrial waste was dumped into the canal, seriously contaminating the water with fuller's earth and urine. (Bult 2004, 5)

During this time small, probably wooden, houses were built on the Voldersgracht. Once the city became bigger and more crowded in the 14th century, the need of clean water raised and the fullers were moved further away of the city's brewery's. However the canal always kept its name (Fuller's canal). (Bult 2004, 5)

In 1411 an almshouse for the elderly men of Delft was built on the plot. (Bult 2004, 5) According to the founding documents of the almshouse, all men had to be aged 50 years and up, or so weak of health that they couldn't take care of themselves, and had to live in the city of Delft for at least 5 years. (Nusselden 1972, 72) The accompanying chapel of St. Christopher was built at the Voldersgracht-side of the lot. West of the chapel was an ally that led to the actual almshouse and garden. (Bult 2004, 5)

The almshouse was destroyed in the fire of 1536, which burned down the whole area around the marketplace and Voldersgracht, but was soon rebuild on the same plot. (Bult 2004, 5) On an anonymous painting of the city of Delft (Bureau of Archaeology Delft) is shown that only the chapel has survived the fire.

How the fire started is not known for sure, but it is thought most plausible lightning hit the wooden tower of the Nieuwe Kerk. The fire must have spread from there, turning over 2300 houses to ashes. (www.delft.nl)

After the Protestant Reformation of 1568, the chapel was remodeled and turned into houses for the elderly men of the almshouse. It is possible that the choir section of the former chapel was sold to the owners of Voldersgracht 22. (Bult 2004, 5)

In the year of 1661 Anno Domini the chappel was sold to the city of Delft (cadaster Delft), who sold it to the St. Lucas guild of artists. The St. Lucas guild transformed the former chapel into a guildhall, which existed until at least 1876. (Bult 2004, 5) The old men moved out of the rest of the buildings on the Voldersgracht in 1792, caused by the lack of funding. (Nusselder 1979, 73)

After 1876, the guildhall was demolished and a schoolhouse was built on the parcel, on the exact spot with about the same proportions of the guildhall. The schoolhouse was broken down in 1956, to be replaced by the Vermeer school in 1958. (Bult 2004, 5)

Due to its long (Mediaeval) occupation period, it was to be expected Mediaeval archaeological remains were present at the site. There has been no other archaeological research on the site before the excavations in 2005, and thus Dutch law obligated archaeological research.

1.4 Research context

Although a lot of mediaeval cesspits contain fairly well preserved botanical remains, most research on mediaeval cities in the Netherlands is based on archaeological remains, such as pottery, glasswork and jewelry, and historical sources. (Van Haaster 2008, 1)

Most of those historical sources are bills for food and goods. A lot of almshouses did however, have their own farms, gardens and livestock. Therefore there is not that much information about the daily diet in institutions like the almshouse at Voldersgracht 21, while diet is such an important part of human life.

Also most of the archives of the almshouse were destroyed during the city fire in 1536. As other cities have some documentation to work with, the city of Delft has almost none. For a better understanding of the life in the almshouse, it is thus important to conduct an (botanical) archaeological investigation on material from the site.

Other aspect of the site Voldersgracht are also research at this moment, and in the near future. A Bachelor student form Leiden University is studying the ceramics at the moment, and research has already been done on textiles found in cesspits on the site. This study on the botanical remains can hopefully add some valuable information to the ongoing research on the almshouse and the city who build it.

This thesis will research the daily diet (and life) of the old men living in the almshouse by comparing my data to published data from the city of Den Bosch, and historical information on the almshouse in Breda.

1.5 Research questions

What was the nature of the diet and daily life of the old men in the almshouse at Voldersgracht 21 in Delft based on the botanical macro-fossils from cesspit s128?

- Did the old men in the almshouse have expensive additions to their daily meals, like imported fruits and spices?
- Were the old men, or their staff, able and/or allowed to collect local fruits and nuts like *Corylus avelana*, *Juglans regia* or *Casteana sativa*?
- If possible from comparing with other data: What is the age of the sample, and from which layer of society would these men most likely come from?

2 METHODS AND TECHNIQUES

2.1 Excavation

March 2005 the excavation of Voldersgracht 21 was started by the Bureau for Archaeology of the city Delft, after putting up sheetpile walls to keep out the groundwater.

2.2 Processing the sample

From the 3-litres excavation sample, I took a sub-sample of 200 cm3, measured by the standard procedure used at Leiden University.

First the sample was soaked for a week in water with washing up liquid. The sample was steered every few days to loosen the sediment. After the soak I wet sieved it with a nest sieves with a course of 2, 1, 0.5 and 0.25 mm. I repeated this process 3 times, in order to get the sample as clean as possible. The third time each separate course was put in a glass beaker filled with water.

Once the sieving was finished, I started to pick out, and count the botanical remains under a Leica low power binocular. Botanical remains were preserved in preservation liquid in Petri dishes, in order to be able to identify them later on in the process. Fossils with a count of over 100 were noted just as such, and not counted separately.

2.3 Identification

The identification of the Botanical remains is done with references and reference material from the Leiden University. This includes several articles and botanical atlasses. The exact literature can be found in the reference list at the end of this thesis.

2.4 Literature study

For this thesis comparing data was taken from earlier published work of botanists, historians and archaeologists. Some of the literature came from my own bookshelves, some from the University Library. Also drs. E. J. Bult provided some books from his private collection, and the excavation data.

Queries were taken in the archives of the city Delft, the province South Holland, the archaeological bureau of the city Delft, the Library of the Leiden University and the national archive of the Netherlands.

5 Archaeological sites were picked from the book "Archeobotanica uit 's-Hertogenbosch: milieuomstandigheden, bewoningsgeschiedenis en economische ontwikkelingen in en rond een (post)Middeleeuwse groeistad" by Henk van Haaster (2008).

These sites were used to compare the diet of the old men at the almshouse in Delft, to the diet of people from different layers of society in the city of Den Bosch, from the 14th until the 17th century (Van Haaster 2008), roughly the same dating as the Sample from Voldersgracht 21.

Also some books about mediaeval institutes, such as hospitals, almshouses and schools, and books about the city of Delft in general were used to create a complete image of the daily life in the almshouse.

2.5 Dating the results

In order to produce a conclusion on the (social) value of the diet in the almshouse, it is neccesary to date the researched material. Dating the material also makes sure that the cesspit actually belongs to the almshouse, not to the fullers on the Voldersgracht or the painters in the guildhouse.

Ceramics recovered from the cesspit (s128) are processed and dated to give an indication for the period in which s128 whas in use. The ceramics are researched by drs. E.J. Bult from the archaeological centre of the city Delft. The results of this research, and the way it was conducted can be read in chapter 3 "Dating the almshouse".

3 DATING THE ALMSHOUSE

The ceramics from the cesspit s128 were processed by drs. E.J. Bult, archaeological centre of the city Delft and professor at Leiden University.

3. 1 Classification of the ceramics

Almost all classification of ceramics in Holland are done according to the (Dutch) Classification System for Late Medieval and Post Medieval Ceramics and Glass, also known as the **Deventer systeem**.

The Deventer systeem ensures all Medieval ceramics found in Holland, are classificated and documented in the same way, to enable archaeologists to compare data from different sites without the need to actually handle and classify all the ceramics themselves.

All ceramics classified in the way of the Deventer systeem have a code that includes information on material, shape and type. A Pitcher made of red clay therefore is documented as "r kan 28" (kan = Dutch for pitcher). (www.geschiedenisvanvlaardingen.nl)

In order to make table 1 a bit more understandable, the Deventer systeem codes used in the classification of the ceramics found in cesspit s128 have been translated in English if possible.

3.2 Dating the cesspit

Slate found in the cesspit s128 indicates a stone building with a slate roof was already in place when the cesspit was used as a waist container (table 1). It is not very likely the earlier inhabitants of the Voldersgracht, the fullers, were living in stone buildings, setting the first possible date for the use of the cesspit after the construction of the almshouse in 1411 Anno Domini.

In paintings from directly after the city fire of Delft in 1536 it is suggested all of the almshouse was lost in the fire. Most of the almshouse was probably constructed of wood. The almshouses' chapel however survived the city fire of 1536 (as shown on several anonymous paintings) and was later used as a guild house for the painters guild of the city Delft. (Bult 2004, 4-5) This indicates that the cesspit had to be in use during the times of the almshouse or guild house.

The ceramics found in the cesspit have, of course, all been dated differently as can be seen in table 1. Over all however, the ceramics indicate that the cesspit was in use between 1425 and 1475; very early in the life span of the almshouse at the Voldersgracht.

Table 1: Description and dating of the ceramics found in cesspit 5128, Voldersgracht Delft 2005 (drs. E.J. Bult)

Type of ceramics	Number of finds	Dating
Roofing slate	several	1350-1525
Red baking Grape	2	1375-1425
Red baking Grape 3	3	1350-1450
Red baking Grape 5	3	1375-1475
Red baking Grape 6	2	1375-1500
Red baking Pitcher 28	1	1450-1600
Red baking Bowl 12	1	1425-1550
Red baking Bowl 40	1	1425-1600
Red baking Bowl 33	1	1450-1475
Red baking Chamber Pot 1	3	1375-1400
Red baking Chamber Pot 18	1	1475-1525
Red baking Chamber Pot 29	1	1430-1450
r vet 1	1	1375-1575
Stone ware Pitcher	2	1375-1575
Stone ware Pitcher with salt glace	2	after 1450

4 HISTORICAL BACKGROUND

The almshouse in Breda

Unfortunately there is not much written about the almshouse at the Voldersgracht 21 in Delft due to a city fire in 1536 by which the archives were burned. However there is a quite thorough publication about the almshouse in Breda, from about the same period of time.

To help fill in the gaps about the daily live in an almshouse, a small historical background study is provided in this chapter.

4.1 Short chronology

The almshouse was first founded as a hospital. The first time it is mentioned in any historical source (1246), is thus in this form. (Brekelmans 1954, III)

This hospital was built to care for anyone in need of it, including the senior citizens who couldn't fend for themselves anymore. Though the main character of the institution was to take care of sick and/or tired travellers. (Brekelmans 1954, III)

The hospital was situated outside the city walls until 1530 AD, unlike the almshouse in Delft. (Brekelmans 1954, 1) In mediaeval times sick travellers entering the city situate most hospitals just outside the city walls to prevent the spread of diseases.

In the 16th century the institution was mentioned as "hospital or also almshouse" in an old bill. (Brekelmans 1954, 12) By this time the main focus of the institution had to be the care for the old citizens of Breda.

The almshouse of Breda continued caring for the senior citizens of the city Breda until far in the 19th century.

4.2 Three types of residents

In the almshouse are, as in all parts of mediaeval society, several defined social layers, based on profession, wealth and income of each individual.

The first (and main) group is called "**provenier**". A provenier is someone who gets his daily food and drinks from the almshouse, but lives in an individual house on the grounds of the almshouse. (Brekelmans 1954, 27) The luxury of an individual home is however not without its' prize; during an intake session was stated how much an individual had to pay (in total, in laboring hours, or every year). Some proveniers were still married and brought their wife's to come live with them in the almshouse. (Brekelmans 1954, 28)

The second group is called "**broeder**". A broeder came from a less privileged layer of society. Most broeders couldn't afford to pay for the board and other expenses at the almshouse, so they lived of the charity funds of the city. Obviously the provenier was thought superior to the broeder. (Brekelmans 1954, 27) Due to this minor position in the ranks of the almshouse broeders weren't allowed to walk in the almshouse garden, or leave the almshouse grounds. They were also living in shared quarters.

A third group is the "**buitenprovenier**". The buitenprovenier was living outside the walls of the almshouse, though close by. The almshouse would provide them with butter from the cows, or money for medicines. Buitenproveniers usually left all or most of their goods to the almshouse in their will. (Brekelmans 1954, 27-28)

4.3 Admittance policy

The almshouse was never meant to house large groups. Usually at most 30 old men were living in the almshouse, except for the year 1604 when many died of the plague. (Brekelmans 1954, 29)

It's hard to construct a set of admittance rules for an almshouse, as any individual was treated as a separate case based on the amount of private recourses and the craft and health of the individual. (Brekelmans 1954, 29)

List of several admittance "fees": (Brekelmans 1954, 29-32)

- Some men had to pay a total fee differing from a few florijngulden to almost f1000,-
- Some men had to pay an amount of money each year
- Is someone couldn't afford to pay for their life-support, but had some goods of (relative) qua ity; they had to bring their own bed, clothes and bed linnen.
- Some men couldn't afford to pay for their life-support and were still able to do some labor. The almshouse was also caring for wounded soldiers, brewing it's own beer and baking its own bread.

Not all of the old men were citizens of the city Breda before they cam to live at the almshouse. Most admitted strangers were proveniers though. (Brekelmans 1954, 29-32)

4.4 Rules

Life in the almshouse is strict. The old men have to obey the rules in order to be permitted to continue living in the almshouse. Rebelling citizens are kicked out, mostly without the (partly) return of their entree fee. (Brekelmans 1954, 51)

In 1660 new rules are written (apparently to replace older ones that aren't found in any historical source). (Brekelmans 1954, 45-46)

1. Before and after every meal the men had to pray for the wellbeing of the Prince of Orange, the city council, the board of directors and everyone in general who made a donation to the almshouse. They also had to ask for a blessing on their food and drinks.
2. All healthy men had to attend church on Sunday and a sermon at the almshouse at Thursday afternoon. Truants missed out on meals.
3. No cursing or offending each other.
4. All men had to work on the fields or on the grounds of the almshouse, as long as the board of directors though they were able to.
5. All healthy men had to be on time for supper, or miss out on the meal.
6. Greediness was punished.
7. Leftovers had to be left at the table.
8. No man could take beer, any other goods or food from the cellars. This is the task of one single person.
9. No men could have a fire in his room without permission from the board of directors.
10. All men have to be obedient to the board of directors and their wife's.
11. No men could let strangers in to the almshouse, except for tourists who merely want to visit the house.
12. Anyone who rebelled to this rules are kicked out of the almshouse.
13. No men could sleep outside the almshouse without permission.
14. Every men has to make his own bed and empty and wash their own chamber pot, except for the sick, crippled and blind.
15. Smoking is prohibited inside the house, dormitories, stables and shed.
16. The board of directors is allowed to punish the old men in the almshouse.

4.5 Entombing and inherritance

Normal procedure after the death of one of the old men in the almshouse was to be buried by the almshouse (and thus not by their own family). The board of directors and their wife's will be present at the funeral and the almshouses neighbor's will carry the coffin to the cemetery.

As a fee for their services the neighbor's will receive a barrel of the almshouses best homemade beer each year. (Brekelmans 1954, 49-50)

After the funeral the goods of the late individual will be sold of. The resting old men at the almshouse buy most clothes. Other goods are sold of to the highest bidder. All money that is made from this inherritment goes to the almshouse funds. (Brekelmans 1954, 49)

5 RESULTS

5.1 Introduction to the results

In table 1 the results of the botanical research of the sample of Voldersgracht 21 are presented. The results are divided up in several categories, such as fruits, herbs, weeds, etc. They will be discussed in the same categories in chapter 6 ("Discussion").

All grains are neglected in table 2, as none complete seeds were recovered. The fragmented parts of the grains were recovered in thousands, but the preservation wasn't well enough for me to be able to identify them.

Although there was some charcoal present in the sample, none of the recovered seeds was charred. Also no mineralized seeds were present.

Table 2: Results from the archaeo-botanical research on the sample from Voldersgracht 21, Delft.

NAME	ENGLISH NAME	DUTCH NAME	PLANT PART	NUMBER OF COMPLETE	NUMBER OF FRAGMENTED
Fruits					
Ficus carica	Fig	Vijg	Seed	>1000	>100
Malus sp.	Apple	Appel	Seed	2	1
Malus sp.	Apple	Appel	Core	0	>100
Vitis vinifera	Grape	Druif	Seed	11	0
Rubus sp.	Black berry	Braam	Seed	1	0
Morus nigra	Black Mulberry	Zwarte Moerbei	Seed	0	4
Morus alba	White Mulberry	Witte Moerbei	Seed	1	0
Herbs					
Sinapis alba	White Mustard	Witte Mosterd	Seed	5	0
Brassica nigra	Black Mustard	Zwarte Mosterd	Seed	0	2
Allium sp.	onion/garlic	Look	Seed	0	3

Name	English name	Dutch name	Plant part	Number of complete	Number of fragmented
Alliaria petiolata	Garlic mustard	Look zonder Look	Seed	1	2
Crops					
Brassica rapa		Raapzaad	Seed	10	>100
Brassica sp.	Cabbage	Kool	Seed	5	>100
Centaurea benedicta				0	2
Field weeds					
Chenopodium album	White Goosefoot	Melganzenvoet	Seed	2	0
Atriplex sp.	Saltbush	Melde	Seed	4	0
Stellaria media	Common Chickweed	Vogelmuur	Seed	1	0
Agrostemma githargo	Sommon Corncockle	Bolderik	Seed	1	>1000
Centaurea sp.		o.a. Korenbloem	Fruit	0	4
Milium effusum		Bosgierstgras	Seed	1	3
Anthriscus sylvestris		Fluitenkruid	Fruit	0	50
Waterside plants					
Schoenoplectus mucronatus	Bog Bulrush	Ribbelbies	Seed	2	
Bog vegetation					
Sphagnum sp.	Sphagnum	Sphagnum	Plant particle	0	1
Unknown					>100

6 COMPARING DATA

6.1 Introduction

For this thesis the results from the Voldersgracht 21 in Delft will be compared to the results from several sites in Den Bosch (figure 4) in the province Noord-Brabant (figure 3), in order to try form a conclusion on the social status of the old men living in the almshouse between 1425 and 1475. For this reason all sites are from a different location in the city, and social status.

Also a comparison will be made between the hospital of the city Delft and the almshouse, as they both have botanical remains from cesspits dating to the 15th century. (Brinkkemper and Haaster 2011, 127-130)

For this comparison weeds recovered from the samples will be neglected, as these are no part of the actual diet of the people who disposed them in the cesspits. Weeds sometimes make up the bigger part of the samples in the cesspits used to compare to the Voldersgracht. The com-

Figure 3: Map of the Netherlands with Delft and Den Bosch ('s-Hertogenbosch). (www.kaartnederland.net)

Figure 4: Cityplan of Den Bosch from 1645, pressed by Frederik de Wit in Amsterdam after 1695. (www.zandstad.nl)

parison of farming and harvesting strategies and plant sociology of the several food sources from both cities can easily produce enough research data to fill an entire thesis an thus will not be included.

Waterside plants, bog and moor vegetation will be no further discussed, as there are not present in all sample and no similarities are found on this matter. A comprehensive overview with the full results from all sites compared to the Voldersgracht is included at the end of this thesis.

6.2 Why compare to archeo-botanical research in Den Bosch?

Den Bosch is like Delft, founded around the time of the 11th century in an area with rivers. A swampy area that has to be cultivated to allow the city to grow surrounds both cities.

The expansion of the two cities was a result of (Van Haaster 2008, 3):

- International trade via rivers and canals
- Function as a regional trade center
- Broad industry within the city

In his book "Archeobotanica uit 's-Hertogenbosch: milieuomstandigheden, bewoningsgeschiedenis en economische ontwikkelingen in en rond een (post)Middeleeuwse groeistad" Henk van Haaster tries to get a complete picture from Medieval live in the city Den Bosch. In order to do so, Haaster collected data from several archaeological sites with (mostly) cesspits.

The sites researched (Haaster 2008) are from different times, places within the city and differ in social status. This is why the book offers the ideal opportunity to not only compare two mediaval cities, but also compare data from different Medieval diets.

6.3 Voldersstraat Den Bosch

Originally the Voldersstraat was, as the name suggests, the Fuller's street of Den Bosch; home to the ordinary working-class people (Van Haaster 2008, 26-28).

The data from the Voldersstraat facilitate a comparison with the diet of the ordinary working class people in Den Bosch with the diet from the old men in the almshouse on the Voldersgracht in Delft.

From earlier excavations on the Voldersstraat in Den Bosch, two samples from one cesspit were selected to compare to the data presented in this thesis. Criteria for these samples was mostly their date; both 1425-1500. (Haaster 2008, 123-126) This is about the same date of the cesspit from Voldersgracht 21. More cesspits were excavated on this site in Den Bosch, but they were dated 14th and 16th century, and thus of no use to this thesis.

When regarding fruits and nuts some similarities between the two sites are evident. All fruits recovered from the Voldersgracht in Delft (table 2) are also found in the sample from the Voldersstraat in Den Bosch, except for *Morus alba* which is only found in Delft. Striking is the sample from Den Bosch holds many more species than the sample from the Voldersgracht in Delft. (Haaster 2008, 123-126)

Species found only in the sample from Den Bosch are (Haaster 2008, 123-126):

- *Mespilus germanica*
- *Prunus sp.*
- *Pyrus communis*
- *Ribes sp.*
- *Sambucus nigra*

The herbs found at both sites couldn't have been more different from each other. No similarities were discovered. The Voldersstraat in Den Bosch only hold "grains of paradise", or *Afgramomum melegueta*. (Haaster 2008, 123-126)

This species was used only by the very wealthy before the 15th century, but was loosing it's place as expensive spice on the table to pepper and other imported spices from the East Indies. Starting from the 15th century *Aframomum melegueta* is found in archaeological sources. Use of the spice before the 15th century was only known from literature. (Haaster 2008, 13)

The only crop both sites have in common is *Brassica rapa*. Remains in this genre from the Voldersgracht in Delft are not very varied. By far the largest amount of the remains of crops from Delft consists of *Brassica sp.* The only other species besides *Brassica rapa* is *Centaurea benedicta*, known in Mediaeval times for it's ability to cure and prevent the plague, basal skull fracture and all sicknesses of the eye. (Pahlow 1980, 182)

The Voldersstraat in Den Bosch has a much more varied list of crop species; 6 in total. (Haaster 2008, 123-126)

6.4 Spuistroom Den Bosch

The hospital at the Spuistroom in Den Bosch is like the almshouse at Voldersgracht in Delft also an institute based on the charity of the citizens of the city, and the people who use this institution (Van Haaster 2008, 34-36).

This comparison between the two institutes might answer the question weather there is some kind of standardized 'institutional cuisine'. Hypothesis is, both institutions had to carefully use

their budgets, and thus would serve healthy but cheap meals. On the other hand, an institution could gain more status by serving better food to their customers.

The data from the Spuistroom is gathered from two samples from one cesspit dated both between 1450-1475. During excavations in 1981 cesspit of significant size were discovered. As there were several waste tubes going into the cesspit, and the presence of a hospital in the 15th century in the area was already known from literature, it is presumed the finds belong to the hospital. (Haaster 2008, 34)

The sample from the Spuistroom is incredibly rich for an institution that had to manage everything out of a charity-budget. The category fruits and nuts contains for example: *Corylus avellana*, *Fragaria sp.*, *Juglans regia*, *Prunus sp.*, *Pyrus communis*, *Ribes sp.*, and *Sambucus*. None of those species were found in Delft. All species that were present in the sample from the Voldersgracht are also found in the sample from Den Bosch, except for *Morus alba* and *Ficus carica*. (Haaster 2008, 135-138)

When comparing the herbs, however, it is the other way around. In this category the Voldersgracht contains much more species comparing to the Spuistroom were only *Brassica nigra* was found. This species was also recovered at Voldersgracht. (Haaster 2008, 135-138)

As there isn't that many crop species found in Delft, the sample from the Spuistroom is far richer. However the sample from Spuistroom is very similar to the sample from Voldersstraat, also in Den Bosch.

6.5 Boerenmouw Den Bosch

In 1989 the site was excavated. Several Late Mediaeval time houses were recovered. On the border of two parcels a large cesspit was discovered with tubes for both houses. It was clear this cesspit served two households. (Haaster 2008, 9)

Archeaological finds from the end of the period the cesspit was used (end of the 16th century and younger) make clear the contents of the cesspit are of a high value. (Haaster 2008, 9) Possibly this was the home of the richer inhabitants of Den Bosch.

When comparing the botanical data from the Boerenmouw to the Voldersgracht, it is very clear these samples are not of the same standard regarding the number of species. With 12 different species of fruits and nuts alone (Haaster 2008 111-116), it is certainly much richer than the diet the old men in the almshouse in Delft could afford.

6.6 Hospital Delft

Comparing data from two different cities can be very tricky, especially when they are situated in other half's of the country. That is why data from the hospital in Delft are also compared to the Voldersgracht, even though there already was a hospital compared to the site.

The sample from the Hospital in Delft is different from the rest of the samples in the way that it apparently doesn't contain any weeds and waterside plants (Brinkkemper and Haaster 2011, 127-130), were all other samples include those in their list of species. It is most likely that these results were left out of the publication.

The species of fruits and nuts match almost perfectly for both samples, with only a few differences. In the sample from Voldersgracht *Morus alba* is present, this is not the case for the hospital. In the sample from the hospital *Prunus sp*. and *Ribes sp*. are present, but not at the Voldersgracht. (Brinkkemper and Haaster 2011, 127-130) All other species found at the Voldersgracht (table 2) are also present in the sample from the hospital.

From the hospital no herbs or spices were recovered. (Brinkkemper and Haaster 2011, 127-130) This was absolutely not the case for the Voldersgracht. But then again, sick people are not known for their craving for strongly tasting or spiced food.

In the sample from the hospital *Foenicum vulgare*, *Linum usitatissimum* and *Pisum sativum* were found. (Brinkkemper and Haaster 2011, 127-130) None of these species are found in the sample from the Voldersgracht.

7 DISCUSSION

7.1 Fruits and nuts

In the sample of Voldersgracht 21, most of the fruits that are present are very normal for the 15th century mediaeval life. (Van Haaster 2008, 11) Especially *Vitis vinifera* was present in all of the samples compared to the Voldersgracht in Delft. (For full overview of the comparative literature study see attachment at the end of this thesis.)

Except for *Morus alba*, all fruits in the sample are also found in the other 4 sites compared to the Voldersgracht. *Morus alba* seems to be a special species for this site. Possible explanation for this fact is that the fruits of *Morus alba* don't have that much taste in them. For that reason *Morus nigra* is usually (still) favored over *Morus alba*.

Morus alba is, more recently, mostly used as espalier in gardens. As a tree or bush they are very high maintenance. In historic times the *Morus alba* was mostly used for the silk industry, although it is not very likely the almshouse produced silk.

All species can be produced in the Netherlands during mediaeval times, even the *Vitis vinifera*. The Mediaeval climatic optimum is probably the cause of that. The Mediaeval climatic optimum is a period of time between about 1000 and 1400 in which the summers where drier and the winters less cold as they are now. During this time *Vitis vinifera* was grown in England, and *Ficus carica* was grown in Parts of Germany. (Mann 2002, 1)

Although the climatic optimum came to it's end around the time of the use of the cesspit from the Voldersgracht, 1400 is not an absolute date and farmers will not likely have abandoned their vineyards right away when the climate started to get colder.

In dried form *Vitis vinifera* can also be transported and kept for a long time without spoiling. This means there is a possibility the Vitis vinifera has been imported as raisins.

After comparing with the sites in Den Bosch, one thing stands out; the lack of all nuts and *Prunus sp*. The absence of nuts could possibly be explained by the condition of the old men's teeth. Most men are 50 years and up of age and not able to live unassisted (Nusselden 1979, 72), they might not have had any teeth left at all. Eating nuts like *Juglans regia* and *Corylus avelana* could have been nearly impossible for this men.

Another explanation is the huge volume of researched material in Den Bosch. Compared to the 200cm3 of this thesis, this could be the cause of some of the differences found in this comparison.

7.2 Herbs

When comparing the herbs found at Voldersgracht with the other sites from Den Bosch and Delft, it is evident the sample from the Voldersgracht is unusually rich with herbs and spices. Although none expensive species like *Pipum sp*. and *Coriandrum sativum* were found at the site, the number of species discovered exceeds that of the other sites by far. (Brinkkemper and Haaster 2011, 127-130; Haaster 2008, 111-116 & 123-126 & 135-138)

When comparing the Voldersgracht in Delft with the city's hospital, the total lack of any herbs or spices present in the sample from the hospital is very striking. Although the rest of the sample from the hospital isn't that rich as well, all the other elements of a healthy daily diet are present (fruits, nuts and crops). (Brinkkemper and Haaster 2011, 127-130)

All herbs found in the sample from the Voldersgracht can be grown in the Netherlands during the 15th century. It is possible the different herbs were grown by the old men or the board of directors in the almshouse garden, in this way enabling the cook of the almshouse to use different kinds of herbs without having to buy them at a market or from a local farmer.

7.3 Crops

Both the sample from the Voldersgracht, as that of the hospital in Delft are very poor in the number of crop species they contain. (Brinkkemper and Haaster 2011, 127-130)

When comparing the samples from Delft with the samples taken in Den Bosch, it is evident all samples from Den Bosch are much richer based on this category. (Haaster 2008, 111-116 & 123-126 & 135-138) As it is not very likely the old men in the almshouse ate only *Brassica sp*. baked in oil from *Brassica rapa*, this difference is probably a matter of conservation en selection in disposition of the kitchen waist.

If the old men had some kind of vegetable / herb garden on the almshouse grounds, most of the organic kitchen waist could have been used as fertilizer for their garden. The remains of any *Brassica sp*. cannot be used for this purpose, as *Brassica sp*. related diseases spread very easily this way and are almost impossible to remove from a garden once introduced. This could be a reason for the assumed underrepresentation of crops in the sample from the almshouse.

7.4 Weeds

From the sample from cesspit s128 several weeds were recovered (table 2). These weeds all have their own environmental standards, and can thus tell us something about the conditions they were harvested in.

In this case *Stellaria media* and *Chenopodium album*, both found at the Voldersgracht, indicate a grain field environment. Both species belong to the *Stellarietea mediae* or field communities.

(Haveman *et al.* 1998, 199) *Stellarietea mediae* is a group of species that resides on recently worked soil, mostly on fields but also on construction sites and on the side of the road. (Haveman *et al.* 1998, 202) As all species from Voldersgracht were found in a cesspit and probably part of the old men's diet, it is most likely the weeds came from a field.

Table 3: Weeds found in the sample from cesspit s128 at Voldersgracht, grouped in 4 different habitat zones based on information from www.soortenbank.nl

LATIN NAME	HABITAT	HIGHT IN METERS	BLOOMING MONTHS
Chenopodium album	On open humid and nitrate-rich recently worked soils on fields and on the side of the road.	0,15 - 1,20	(Therofyt) July - autum
Atriplex sp.	On open humid and nitrate-rich siol on fields in clay soils, on the side of the road, or on the coast.	0,10 - 0,90	(Therofyt) July - September
Stellaria media	On open dry - humid fertile recently worked soils. Mostly on fields or in gardens.	0,10 - 0,40	(Therofyt) around the year
Agrostemma githago	In fields of Rye on loess or sandy clays.	0,20 - 1,00	(Therofyt) June - July
Centaurea sp.	On open dry fertile grain fields, sometimes on the side of the road.	0,30 - 0,60	(Therofyt) June - August
Milium effusum	On humid slightly fertile soils in forrests.	0,50 - 1,80	(Hemikryptofyt) May - June
Anthriscus sylvestris	On humid fertile soils in grasslands and forrests.	0,60 - 1,50	(Hemikryptofyt) May - June

As is shown in table 4, four different habitat zones are present in the material. All four habitat zones will be discussed in this chapter.

The **first zone** (*Chenopodium album* and *Atriplex sp.*, shown in yellow) consists of humid fields, which are rich on nitrate. The vegetation of the field was probably between 0,15 and 0,90 meters in height, as this is the biggest minimum and smallest maximum of the height the weeds are able to grow. (www.soortenbank.nl)

In this habitat zone no small weeds are found. Opposed to the weeds of the second zone, all weeds of the first zone can grow up to 0,90 meters in height. (www.soortenbank.nl) Therefore it is not probable a scythe was used to harvest the crops on the field. Most likely the crop on the fields was about the same height as the weeds, and a sickle was used to cut of the harvest at the top of the plants.

Medieval farmers who harvested with a sickle usually let the stem of the crop rot on the fields. This way they could be used to enrich the soil of the fields. Also the stems were left to hold the soil of fields in a coastal area with dunes. In that way the wind wouldn't blow away the fertile top layer of the fields.

Chenopodium album can still bloom in the autumn, so in order for the plant to been able to produce seeds, harvest of the crop and weeds had to take place in the late autumn.

The **second zone** (*Stellaria media* and *Centaurea sp.*, shown in dark green) is set in a dry, open and fertile environment. (www.soortenbank.nl) Possibly a garden, but more likely a grain field, as both weeds won't grow over 0,40 meter. (www.soortenbank.nl) Harvest probably took place with a scythe, taking the weeds together with the actual crop which was most likely taller than 0,40 meter.

Harvest on the fields from the second zone had to take place after August, when the blooming period of the *Centaurea sp.* ends. (www.soortenbank.nl) This will probably have been in the month September.

The **third zone** (*Agrostemma githago*) consists of only one species for this particular sample. The Sommon Corncockle, as it is also known resides in fields of *Secale cereale* (rye) on loess and sandy clay soils (Meijden 2005, 292-293; www.soortenbank.nl) and in fields of winter grains. (www.wilde-planten.nl)

The seeds of the *Agrostemma githago* have almost the same weight and size as the seeds of the *Secale cereale* and other grains. Therefore the seeds of the *Agrostemma githago* were not separated from the grains before it was processed as flour.

Each year part of the harvest was saved for planting season in the next year. As the seeds of the *Agrostemma githago* were not separated from the harvest, each year they would be planted on the fields as well.

The presence of *Agrostemma githago* in the harvest and cesspit is very important for the understanding of the daily life of the inhabitants from the almshouse, as the plant is in fact poison-

ous. Consumption of *Agrostemma githago* can cause for example teeth shivering, dizziness, diarrhea, nausea, muscle weakness, excitement, delirium, manic behavior, fever or/and backache. (en.diagnosispro.com) The old men (and all other people eating the poisoned grains) must not have been feeling very well.

The **fourth zone** (*Milium effusum*~ and *Anthriscus sylvestris*) is on the edge between a forrest and grasslands. The zone has fertile, humid soils. (www.soortenbank.nl)

7.5 Water side plants

Only one species was found in this category; *Schoenoplectus mucronatus*. As this was not likely a part of the old men's diet nor their daily life, the *Schoenoplectus mucronatus* will be no further discussed in this thesis.

7.6 Bog vegetation

Traces of *Sphagnum sp.* were found in the cesspit s128 at Voldersgracht, Delft. Although it is not very likely the Sphagnum was consumed by the inhabitants of the almshouse, or growing in their garden, there is a very logical explanation for it's presence in the sample.

Sphagnum sp. grows in bogs and can form very thick layers of organic material that can be cut in pieces and then dried, better known as peat. Peat can be used as a fuel to burn in ovens and fire places. As Delft is situated close to boggy area's, peat is a very logical choice of fuel for the old men in het almshouse.

Sphagnum sp. can also be used to improve the structure of a sand soil, by adding small pieces of *Sphagnum sp.* to the soil. The *Sphagnum*~ helps retaining the water in the top layers of the soils were the plant is added. Another result however is the acidification of the soil, as the *Sphagnum*~ takes the magnesium and calcium. (www.wikipedia.org) It is, however not very likely the *Sphagnum*~ was used as a soil improver in this case.

7.7 Herbal remedies

The find of the species *Centaurea benedicta* implicates some species were also used as a herbal remedy to cure or prevent illness. According to the Digital Atlas of Economic plants (Cappers et al. 2009 2a, 204) *Centaurea benedicta* was used as a medicine. During further research on this matter was discovered that in Mediaeval times all *Centaurea sp*. were thought to cure almost anything[2], as it was very beautiful and therefore had to contain great power. This was especially the case for *Centaurea cyanus*. (Pahlow 1980, 182)

[2] This includes the plague, eye diseases and basal skull fractures.

Centaurea benedicta could possibly have been grown by the almshouse as a medicine, or bought on the market or from a local farmer for this purpose. If this was not the case, *Centaurea benedicta* is just another weed that somehow made it's way into the cesspit from the Voldersgracht.

8 CONCLUSION

8.1 Daily diet: are there any imported fruits or spices?

Keeping in mind the fruit species found at the Voldersgracht can all be grown in the direct environs of the city Delft, or elsewhere in the Netherlands, it is not very likely any fruits were imported by, or for the almshouse.

Possibly the almshouse had their own farm to produce the fruits consumed by the old men, but no evidence of such a farm was found during this research.

No expensive imported spices like pepper were found in the sample from the Voldersgracht. An explanation would be the prize of the daily meals, and the aim to keep that prize as low as possible. All food and other goods for the almshouse had to be bought of the entry fees and the inheritances left by the old men. Although there must have been some money from the city counsel involved, the entry fees and inheritances was all the almshouse could count on. May be there weren't enough funds to buy pricey spices.

In the sample no other crops than *Brassica sp*. were found. It is not likely this was the only food source for the almshouse. Possibly the remains of other crops were recycled as fertilizer for the almshouse garden. *Brassica sp*. can not be used as a garden fertilizer, as this can cause the introduction of diseases in the garden.

The existence of an almshouse garden can also explain the large amount (compared to other sites in Den Bosch and the hospital of the city Delft, see attachment) of native Dutch herbs found in the cesspit. If the old men have grown their own herbs in the almshouse garden, this would be a cheap way to spice their daily meals.

Based on the find of *Centaurea benedicta* it is possible the old men were treated with herbal remedies in case of illness, as it was believed the species could cure anything varying from the plague to a basal skull fracture. The *Centaurea benedicta* can have been grown by the old men, specially for this purpose, or bought on the local market. However it is also possible the *Centaurea benedicta* was just another weed.

8.2 Local fruits and nuts

In the literature study is shown the inhabitants of the almshouse weren't always aloud to go of the premises. If that is the case in Delft cannot be concluded from this botanical research material only.

What can be concluded is absolutely no evidence was found for the consumption of (local) nuts like *Corylus avelana* and *Juglans regia*. It is possible the condition of the theeth of the old men didn't alow them to consume nuts anymore.

One single seed of *Rubus sp.* was identified in the sample. The *Rubus sp.* might have been growing on the side of the road, and thus have been collected by the old men from the almshouse. However it is still only a single find and no further evidence for the collecting of local fruits has been found.

8.3 Comparing with other data: dating the site

The site Voldersgracht 21 was recently dated with ceramics by drs. E.J. Bult from the archaeological center of the city Delft. From this research was concluded the cesspit s128 dates from the 15th century (about 1425-1475).

This date correlates with the Medieval climatic optimum in the 15th century, which allows grapes and figs to be grown in the Netherlands.

8.4 Comparing with other data: social status

The exact social status of the old men living in the almshouse cannot be measured on this botanical research alone, as most of the consumed crops are not present in the sample. What can be concluded is the old men didn't live like noblemen, as no evidence for any imported food or spices were found.

Probably the limited funds, as mentioned before, prevented the consumption and purchase of any luxurious goods.

No matter who the old men were before they came to live at the Voldersgracht 21, once living in the almshouse, they were probably having the daily diet of the ordinary working class of the city Delft.

9 ABSTRACT

None of the fruits present in the sample from the Voldersgracht are imported for or by the almshouse and no evidence of the consumption of nuts is found. Compared to other sites in Den Bosch and Delft the Voldersgracht has an unusual amount of herb species present in the cesspit. This can possibly be explained by the possible presence of an almshouse garden.

Crops are underrepresented in the results from the Voldersgracht, as only *Brassica sp*. were found. It is likely other organic waist was recycled as an organic fertilizer for the garden.

The exact social status of the old men in the almshouse cannot be concluded from this research alone. However it is clear the daily diet was that of the ordinary 15th century working class people.

Geen van de vruchten die zijn gevonden in het monster van de Voldersgracht zijn geïmporteerd door of voor het oudeliedenhuis. Er is geen bewijs gevonden voor de consumptie van noten. Vergeleken bij andere vindplaatsen in Den Bosch en Delft heeft de Voldersgracht een ongewoon hoog aantal kruiden soorten in het monster. Dit kan mogelijk worden verklaard door de eventuele aanwezigheid van een tuin in het oudeliedenhuis.

Gebruiksplanten zijn ondergerepresenteerd in de resultaten van de Voldersgracht, omdat er alleen bewijs is gevonden voor de consumptie van Brassica sp. Waarschijnlijk is ander organisch afval gerecycled als compost voor de tuin.

De exacte plaats of de sociale ladder van de oude mannen in het oudeliedenhuis kan niet uit dit onderzoek worden geconcludeerd. Het is echter wel duidelijk dat het dieet gelijk staat aan dat van de 15e eeuwse arbeidersklasse.

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