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‘Seal and Deal’

Cloth Production and Trade between the Netherlands and Scania during the Late Middle Ages and Early Modern Times

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Abstract

During the 15th, 16th and 17th century many commodities were traded from east to west and vice versa through The Sound. One commodity of great importance was cloth. To these large quantities of cloth lead cloth seals were attached as a hallmark of quality control. In this study the cloth trade between the Netherlands and Scania during the Late Middle Ages and Early Modern Times is investigated for the first time. This had been done by combining data retrieved from the material study of lead cloth seals, found on archaeological sites in Scania with several written sources concerning the production and trade of cloth in the Netherlands. This has resulted in new insights concerning the production of cloth, but especially of cloth within the strongly competing and changing trading networks in Europe during the Late Middle Ages and Early Modern Times.

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Preface

In December 2009 I came to Lund as an exchange student from the Netherlands and when attending the course *Life and Death of Medieval People* I first came in contact with the department of Archaeology and Antique History and the next year I came back to Lund, now as a historical archaeology master student. Now exactly two years later this experience has come to an end as well, but the knowledge gained on the Swedish field of archaeology is hopefully flowing through the coming pages. The subject chosen for this master thesis is strongly influenced by my academic background. Four years long I was a bachelor student at the University of Amsterdam, where I became highly interested in the Early Modern Period and specialized myself in the field of Historical Archaeology and the city of Amsterdam. With this background and the two years of studying in Sweden the idea arose to combine these two fields of knowledge. From here on the step to investigate the Late and Post Medieval trading relationships between the Netherlands and Sweden and in particular Scania was quickly taken. But what types of commodities, which can still be retraced in the archaeological record were traded between these two geographical places? In the search of such a commodity I received great help from my supervisor Anders Ödman, who told me how little is known in Scandinavia from the import of cloth, fabricated in the Netherlands. A very interesting topic was born.

I would like to take this opportunity to thank the Archaeological department of Lund and especially Anders Ödman, who was my supervisor during the process of writing this thesis and had provided me with great assistance and inspiration. In addition, I would like to thank Johanna Bergqvist and all master students in the thesis group of 2011 for keeping me focussed and for discussing my ideas and problems with me. I could not have succeeded this research without the help I received at the different museum and institutions and I would like to thank Catharina Ödman from Malmo Museum, Gunilla Gardelin from Lund Kulturen, Anders Ohlsson and Jenny Bergman from the storage depot at Gastelyckan, Katalin Schmidt-Sabo from UV Syd and Per Magnus Johansson from Helsingborg Museum. My special thanks goes to Renaud Collet for retouching the photographs and assisting me in drawing the cloth seals. All ideas, interpretations and mistakes made in this study remain my own, and only I can be held responsible for them.

Lund, May 2011.

1. Introduction

"Rewriting and rethinking old themes is, as we know, one of the exciting hobbies of historians. It is fascinating indeed to see how easily new light can be shed on so old-fashioned a subject as medieval drapery by new questions, by new sources, and by the placement of old information in a new framework."

Boone and Prevenier, La draperie ancienne des Pays-Bas, 1993, p. 11.

The title chosen for this paper describes as concise as possible what the reader may expect of this research, but for a better understanding of the topic tackled in the following pages it needs further explanation. During the Late Middle Ages and Early Modern Times different trading networks existed on the map of Europe. Originating from the 12th century one of Europe's most important trading networks in history, The Hanseatic League was still dominating the trade in the 15th century and had important staple markets and trading outposts, of which some were situated in Scania. The struggle for control over these markets, their hinterlands and the seaborne trading routes that linked them is the common element in the history of the maritime powers east and west of the Sound and the changing patterns of trade in the region (Brand, 2006). In the course of the 16th century the German Hansa slowly lost her leading position, due to wars and international deals and it was the Netherlands and especially Amsterdam who took over the trade in the Baltic. The Baltic trade was based on the exchange of raw materials, foodstuffs and minerals from the east, and on the influx of the rich commodities and domestic industrial produce from the west. One of the most important commodities traded eastwards within this network was cloth. This brings us to the first part of the subtitle of this paper.

In the Early Middle Ages the production of cloth was only carried out in rural areas as a local and small scaled craft. During the latter part of the Early Medieval Ages in different towns in northern France and Flanders the industrialisation process of cloth production started and flourished here in the 12th and 13th century. After 1400 the production centres shifted to the northern parts of the Netherlands, where high quality cloth was produced in different centres. The largest cloth production centre in the world by this time was situated in the province of Holland in a town called Leiden. During the 15th century cloth meant for international markets was produced here on a large scale. In the 16th century this market was taken over by England,

but reclaimed in the 17th century by Leiden and other cities in the Netherlands, which eventually produced cloth that was exported all over the world.

If we want to gain more insight in the cloth trade from the Netherlands to Scania from an archaeological point of view a problem occurs. Due to the organic nature of cloth it does not preserve well in the archaeological record and fragments of cloth are rarely found, but this does not make the presence of cloth in the past invisible. Tangible proof of the presence of cloth in Scania during the Late Middle Ages and Early Modern Times comes from lead cloth seals found in the archaeological record. These seals attached to the cloth were the visible part of a system of industrial regulation and quality control. This brings us to the main title of this paper *'Seal and Deal'*, referring to the Sealed cloth from the Netherlands, that was Dealt to Scania within the Hansaetic League and the Baltic Trade networks, during the 15th, 16th and 17th centuries. The title explains the main topic of this paper, but does not give meaning and purpose to this research.

1.1. – Aim and purpose

The main purpose of this paper is to see to which extent the lead cloth seals, found in different archaeological context in Scania can be used to reconstruct the Late Medieval and Early Modern Time cloth trade between the Netherlands and Scania. The choice of this topic and the importance of such a study come from the need to gain more insight in this poorly investigated subject. Some larger research has been done on cloth seals found in Northern and Western Europe (Egan, 1996, Orduna, 1995), but the gross of the cloth seals are published on a few pages, within larges studies and are not further interpreted. The cloth seals found in Scania have not been published and analysed in their entity so far and by doing this the second aim of this research is fulfilled.

To cloth as historical commodity many studies are devoted, but these studies are mainly concerned with the production of cloth. The trade of cloth is not by far as intensively investigated and to the best of my knowledge, the cloth trade between the Netherland and Scania had not been studied at all. We know from historical sources that a great amount of the cloth, produced in the Netherlands was meant as an export product to the Baltic area, but unknown is which part of the cloth produced in the Netherlands ended up in Scania. When realizing this interesting questions arise: How was the cloth industry in the Netherlands organised in the Late

Middle Ages and Early Modern Period? What were the largest cloth production centres, which of these centres produced for an international market? What do the cloths seals indicate, why were they put on the cloth and by who? Which trade networks were in existence during the Middle Ages and Early Modern Period in North-Western Europe? Who were involved in the cloth trade? And most important; How could a Dutch piece of cloth reach Scania and is there a change visible over time?

1.2. – Material

To find answers to the questions pointed out above, two kinds of archaeological sources are used. First, material remains; the lead cloth seals coming from different excavation in Scania and secondly written sources (which could be considered as archaeological material, when used in historical archaeology), dealing with the cloth production and trade during the Late Middle Ages and Early Modern Period. The archaeological material exists of sixty-two lead cloth seals coming from different museum collections in Scania. They are documented in the databases of Malmö Museum, Lund Kulturen, Lund Universitet Historiska Museum (LUHM), UV Syd - Riksantikvarieämbetet and Helsingborg Kulturmagasinet/Helsingborgs Museum. The sixty-two seals have not been selected with specific selection criteria in mind, but the selection is based on the aim to catalogue all known lead cloth seals from the different databases mentioned above. Although the focus of this study in on the 15th, 16th and 17th century a seal from the 13th century and a few seals from the 18th century have also been included, but the gross of material can be dated in the Late Middle Ages and Early Modern Times. Most of the seals are found in urban centres, but some seals come from more rural areas.

The written sources used for this research are medieval and post-medieval regulations, about the organisation of the cloth industry, mainly from Leiden. Their usefulness must be seen through an historical perspective, but their value in present times is also of great importance, since they are a firsthand source for investigating the textile industry, whether a social, economical or political angle is used. A very important written source used in this research is the standard work of a Dutch social-economical historian named Nicolaas Wilhelmus Posthumus.

He published three big volumes, *De Leidsche Lakenindustrie I II* and *III*[1] in 1908 and 1939. This study is mostly based on the regulations concerning the industry of cloth production in Leiden from the 14th until the 18th century. The work of Posthumus is used as a first hand source, but indirect sources based on his standard work are used as well.

1.3. – Theoretical framework

The fact that Historical Archaeology uses a mass of other sources of information available, notably written sources and for later phases also iconographical sources to interpret the past has led to much debate. The theoretical discussion in the field of Historical Archaeology is mainly dealing with how the two (or more) disciplines of history and archaeology (should) interacted with each other, in different approaches to the archaeology of different periods. It has been tried to treat written and iconographic documents as a form of middle-range documentation. Binford argued that we could look to independent sources of information to built 'robust'' arguments. Many have argued that in historic periods, documents can play a similar role. Conversely, other scholars have turned to elements of postprocessual and interpretive thought for an alternative model of the integration of archaeology and history (Johnson, 2010). One of these scholars is the British archaeologist Ian Hodder.

Ian Hodder has pointed out the importance of looking at the context of artefacts. He advocates contextual archaeology involving "the study of contextual data, using contextual methods of analysis, in order to arrive at two types of contextual meaning" consisting of "the environmental, technological and behavioural context of action" and "with-text" (Hodder 1986:153-154). For Hodder material culture preserves the contextual data necessary for coming to know its meanings. He wrote: "The meaning of material culture often depends on the context of use rather than solely on the context of production or on the 'author'. Even more than a written text, material culture meanings embody pragmatic and functional concerns. Text, rather than language, is thus an appropriate metaphor for the dual nature of material culture (as technological and functional object and as a sign) [...]" (Hodder 1986:154.)

[1] Posthumus, N.W., *De geschiedenis van de Leidsche lakenindustrie*, deel I: De middeleeuwen (veertiende tot zestiende eeuw, II: De Nieuwe Tijd (zestiende tot achttiende eeuw)& III: De lakenindustrie en verwante industrieën. 's Gravenhage: Nijhoff, 1908-1939.

What does this mean if we applied to the artefacts of study in this research; Late Medieval and Early Modern Time lead cloth seals found in Scania? The seals can be given a particular meaning through the context in which they are found. Four different scales of context concerning the cloth seals in Scania can be separated; the stratigraphical context, the context within a specific town where the seals are found, the context within the region of Scania and finally, the context within the North-Western European society of the Late Middle Ages and Early Modern Times. The combinations of the last two contexts take up a central role in this research. The horizontally spread on the cloth seals on the Scanian landscape and the processes that have led to this distribution can be connected to the vertically spread of the seals in time. This will show a pattern, which will be interpreted or explained in different ways, with reference to a number of different possible processes. The same pattern or trace in the archaeological record, for example a cloth seal distribution, could be produced by a range of different simulated processes. Hodder felt that there was no way to test absolutely between these alternatives. This is often referred to in subsequent literature as a problem of *equifinality*. That this can be said about the distribution pattern of the cloth seals can be read in the conclusion.

1.4. – Methodology and approach

When dealing with periods of history from which we have written sources, archaeologists have the possibility to combine these sources with the archaeological material. The cross-cutting influence of different disciplines, for example archaeology and history throws new light upon, not only the material, method and interpretations, but also on theoretical debates as a whole. The importance of the concept of 'context' (Ian Hodder, see above), within this research to answer the relevant questions has already been explained. Now will be looked at how this can be done. The structure of the contents of this paper, i.e. the arrangement of chapters stands in strong connection with the chosen methodology during different stages of the research. By following this structure the choice of method, through which the questions can be answered will become clear.

The second and third chapter deal with the production and trade of cloth and are based on information taken from written sources. Used are the regulations from the 15th, 16th and 17th century drawn up around the cloth industry and special focus is put on the ones dealing with the control on the cloth's quality, since the chosen material in this research is an immediate result of

this. The already mentioned Dutch scholar, Posthumus has studied these countless number of regulations, which were entailed by the cloth industry over the years of its existence and his work takes up a central role in these two chapters. The method used is thus an interdisciplinary study between the regulations, different sources of written history based, which are partly based on the regulations and iconographic sources in the form of paintings. These two chapters form the important socio-historical context, in which the lead cloth seal must be placed to understand their meaning.

In the fourth chapter the lead cloth seals are studied as the archaeological material. They are closely looked at and the information that they withhold is described and analyzed. First the find conditions and find locations are described. Secondly the seals (and with that the actual commodity; cloth) are retraced to their origin and thirdly they are dated (when possible). These various variables are looked at statistically to interpret from which production centres the cloth was coming, during different times and where the cloth as a trade commodity ended up on the landscape of Scania. An illustrated catalogue of the seals, which state their size, material, find location and condition, origin and dating (to which extent that can be found out) is made and attached as appendix.

In the fifth chapter; the Discussion, the obtained insights from the three previous chapters will be combined to answer the main question. It must be seen if the use of the two types of sources, historical (literature) and archaeological material can be used to create a comprehensive picture of the past. With historical archaeology it is possible to look at the archaeological results in the light of what the written sources tell us, but the written sources must not be looked upon at as the 'right answer'. My opinion is that the archaeologist has the responsibility to interpret the archaeological record, even if it does not correspond with the written sources. After the discussion the process that led to the results and the most important results will be summed up in the conclusion.

2. Cloth Production and Organisation

The history of the cloth production in Western Europe during the Late Middle Age and Early modern period is an interesting, but complex one. The production grew from a local craft, mainly carried out in rural areas, to an urban industry, which eventually produced cloth that was exported all over the world. The start of this industrialisation process started during the latter part of the Early Medieval Ages in different towns in northern France and Flanders, where the production of cloth flourished in the 12th and 13th century. After 1400 the production centres shifted to the northern parts of the Netherlands, with Leiden as the leading figure. The first part of this chapter will concentrate on this city in Holland and the changing textile industry during the 15th, 16th and 17th century.

This chapter will start with an overview of how Leiden, a cloth production centre in the Netherlands developed itself to the most important textile production centre in the world during the 15th century, its collapse in the 16th century and how it clambered up again during the 17th century. After that the entire chain of cloth production, from the import of wool from England to the final cloth, checked and sealed with a proof of quality will be covered. Than the constantly adopting organisation to the changing social-economical background, with a focus on the organisation branches and professions who were concerned with the control of quality are dealt with and finally the importance and different types of cloth seals are discussed.

2.1. – Leiden as an example

Most of the old textile production centres known in Europe have been subject to archaeological and historical research over the years. Quite a lot has been published about the early 14th century cloth centres in Belgium and France and also the later 16th century centres in England are not strange to us anymore. During the intermediate 15th century the cloth was almost completely originating from production centres in Holland. All these different European centres had their own local way of producing cloth, when it came down to the form of organisation, quality and style, but it is generally accepted that they followed the same main lines in the production process. In the Netherland, three towns especially have been subject of study; Haarlem,

Amsterdam and Leiden. Haarlem's[2] focus was on linen, made from flax and Amsterdam[3] had an extensive silk production. These two industry branches have been investigated as well, but by far not as intensive as the fine wool production of Leiden. And there are good reasons for the fact that Leiden has always held a prominent place in the research of the textile industry in Holland.

The far most important reason is that the textile production in Leiden grew to the biggest in whole of Europe during the 15th century. From this centre the most town regulations, first hand testimonies, street names connected to the industry and archaeological material is known. In sum plenty of conserved historical evidence for scholars to work with to endeavour reconstructing the past. One of these scholars was a Dutch social-economical historian named Nicolaas Wilhelmus Posthumus, who published three big volumes, *De Leidsche Lakenindustrie I II* and *III*[4] in 1908 and 1939. The three thousand pages form a complete overview of every aspect relevant to the textile industry in Leiden from the 14th until the 18th century. He discusses the rise of the industry, the social, economical and political history, the organisation of the different branches, the production figures, the quality control, the labour division, etc. For many years it was thought that this study was both the high point and end point of historical research regarding the textile industry in Holland. And the opinion that; 'It's all in Posthumus', has possibly kept many historians from tackling this problem (Harte, 1997). But, the last fifteen years the work of Posthumus has been challenged and revised[5]. Attempts have been made to change this Leiden-oriented perspective.[6] But despite the attempts to sketch a broader image of the textile industry in the Netherlands, Leiden has always taken in the leading position. This is however not surprising, since compared to other Dutch towns, both the production numbers as the number of regulations are far highest. The extreme high number of production could only be achieved, because of a

[2] Rombouts, H., *Haarlem ging op wollen zolen. Opkomst, bloei en ondergang van de textielnijverheid aan het Spaarne*. Rombouts. Schoorl: Pirola, 1995.
[3] Hofenk de Graaf, J., *Geschiedenis van de textielindustrie: een drieluik*. Centraal Laboratorium voor Onderzoek van Voorwerpen van Kunst en Wetenschap, 1992.
[4] Posthumus, N.W., *De geschiedenis van de Leidsche lakenindustrie*, deel I: De middeleeuwen (veertiende tot zestiende eeuw, II: De Nieuwe Tijd (zestiende tot achttiende eeuw)& III: De lakenindustrie en verwante industrieën. 's Gravenhage: Nijhoff, 1908-1939.
[5] Most important studies: L. Noordergraaf, *The New Draperies in the Northen Netherlands*, 1500-1800, p. 173-193. In: *The New Draperies in the Low Countries and England* by N.B. Harte, 1997., Kaptein, H.J.M., De *Hollandse textielnijverheid 1350-1600 : conjunctuur & continuïteit*. Hilversum: Verloren, 1998.
[6] Rombouts, H., *Haarlem ging op wollen zolen. Opkomst, bloei en ondergang van de textielnijverheid aan het Spaarne*. Rombouts. Schoorl: Pirola, 1995. Noordegraaf, L., *Textielnijverheid in Alkmaar, 1500-1850* in: Cordfunke, E.H.P., *Alkmaarse silhouetten : uit de geschiedenis van Alkmaar en omgeving*. Zutphen: Walborg pers, 1982.

strict and solid organisation, something that was lacking in the other towns. The existence of hundreds of gild and municipal regulations show this organisation in every aspect and their usefulness in previous times can only be understood when realizing what a major production centre it was during the 15th, 16th and 17th century. But their value in present times is also of great importance, since they are a firsthand source for investigating the textile industry, whether a social, economical or political angle is used. Posthumus based his study for the most part on these regulations.

Most criticism on the work of Posthumus comes from the historical-economy camp, which focuses on; when the exact production figures increased and decreased and the reasons behind these tendencies. This specific criticism is in my opinion just, but that does not make this standard work of less importance when it comes to the clear image of the production line and organisation of the different branches, as described in detail by Posthumus. The description in this chapter of the production process from wool to cloth and the different forms of industrial organisation during the 15th, 16th and 17th century are mainly based on the work of Posthumus as a first hand source, but indirect sources based on this standard work are used as well.

In consideration of this paper, there is a second, more important reason for why Leiden is (as well) chosen as an example to illustrate the production process and organisation of the industry in Holland during the Late Middle Ages and Early Modern Period. Leiden produced not only for the Dutch national market, but in fact most of the cloth produced in Leiden was mend to be sold on staple markets, like Bruges, Antwerp and Amsterdam. From which it was traded on, first into big parts of Europe and later to the other side of the world. This second reason is thus closely connected to the trade of the '*Leidsche laken'*, which could by the existence of far-reaching trading network reach its way to Scania. How these networks were built up, sustained and changed during time will be discussed in the next chapter.

2.2. – The course of an industry

Geographically seen the textile industry in the Netherlands developed from medieval centres in the south, like Artois, Tournai, Ypres, Ghent and Bruges via the province of Brabant, where it reached its peak in the 14th century in Leuven, Brussels and Mechelen to reach a number of towns in Holland, like The Hague, Delft, Gouda, Haarlem, Leiden and Amsterdam in the middle

of the 14th century. From the earliest sources it is known that in the early 13th century in Leiden, presumptive on a small scale wool was made into cloth (Moes & de Vries, 1991). Not only archaeological evidence shows this, like a wool comb made from bone en lead cloth seals, but written source material indicates this as well. The cloth production in that time was carried out on a small scale, but started to flourish after the mid-14th century. This development was related to the shift from local wool as the raw material, to wool imported from England. England by this time did not have a widespread cloth production, but had an extensive sheep breeding industry. The surplus of the fleece was therefore exported to mainland Europe. At first the English wool was transported to Bruges, but after 1346 this staple market shifted to Calais. The people from Leiden bought their fleeces there, which than were first shipped to Zeeland and there the wool was transhipped on to shuttle boats, which brought the raw material further up north to Leiden (Moes & de Vries, 1991). In the course of the 15th century the cloth industry grew steadily and around 1480 the cloth industry in Leiden reached its peak and more than 300.000 fleeces were imported from Calais. The production in Leiden run up to about 250.000 pieces of cloth (See Appendix I), of which each piece was 40 el[7] long (about 27 ½ meter) en weight about 65 pounds (about 31 kg). The larger part of this production was meant for the international market and was traded through the Hanseatic network; more on this can be read in the next chapter.

In the course of the 16th century drastic changes took place and the cloth industry of Leiden collapsed. Most studies concerning the cloth industry have been on this very economic subject and various scholars have been trying to find the reason for the strongly visible decline in both the cloth production numbers and the quality of the cloth produced in Leiden during the 16th century. And when reading these studies it becomes clear that there are several reasons, which explain this retrogression. The first reason is that England started to produce its own cloth, which was disadvantageous in two ways; firstly less wool was being exported from England to the staple market and the raw material that was being exported was of lesser quality, because for the second reason that the English started to use the high quality wool for their upcoming textile industry. This had as a result that in Leiden and in the rest of the Netherlands the high quality cloth became more expensive, while the demand for cloth produced in Holland was going down. With the growing competition on the other side of the North Sea, the producers in Leiden were

[7] And el(l) is a unit of measurement, derived from the Dutch word for ulna, 'ellepijp' and is approximating the length of a man's arm. Over time several national forms existed, with different lengths. For the measurement of cloth, the Flemish el was traditionally used and is converted 69 cm.

Ill. 1. Map of the Netherlands from The Historical Atlas by William R. Shepherd, 1923. Visible are the important market towns mentioned in this paper; Calais, Bruges, Antwerp and Amsterdam, and different cloth production centres; Ypres, Tournai, Ghen, Haarlemt and Leyden are visible.

forced to produce cloth of a lesser quality, which lowered the demand even more (Kaptein, 1998). The second reason is that the Hanseatic League fell apart in the end of the fifteenth century and with it a very important export market for Leiden's product. And beside these two contingencies a change in fashion took place. Leiden was famous for producing thick, high quality cloth, which explains why it was such a wanted commodity in the colder areas of Europe, e.g. Scandinavia. But by the end of the 15th century and especially during the 16th century a great demand for thinner and lighter cloth arose (Noordegraaf, 1997). This serge was mainly produced in towns in Flanders and manufactured from wool imported from Spain. This formed a second, next to the English, rivalry market for Leiden. The last reason for the declining market is that the industry in Leiden was weighed down by the burden of taxation, which was constantly strengthened by the municipal government after 1470 (Moes & de Vries, 1991). These regulations also restricted the entrepreneurs to adapt themselves to the changing socio-economical environment.

Without getting to deep into the ever changing turbulent political events that took place in the whole of Europe and thus in the Netherlands, some events are too significant to disregard. During the 15th and 16th century the Low Countries were formed by a personal union named 'The Seventeen Provinces'[8] (See Ill.1).Over time they were governed by different houses, of which the Habsburgs has been the most important. In 1556, when King Charles V abdicated, the Seventeen Provinces went to his son Philip II. The new king and his subjects came more and more in conflict with each other and this resulted eventually in a declaration of war in 1568, which would later be known as the beginning of the Eighty Year's War. The seven Northern Provinces, of which Holland (in which Amsterdam and Leiden were situated), gained independence and formed the Dutch Republic from 1581 until 1795. The southern provinces were restored under the Spanish crown. One of the most important events in history for the city of Leiden is the Siege of Leiden in 1573/74, when the city fought against Spain to prevent its attempt to recapture the city under its crown, which ultimately failed. Not only for Leiden was an important historic event, but also for other parts of Europe, especially the Southern Netherlands who were oppressed by Spain. Leiden became a safe haven both for religious reasons and for

[8] The Seventeen Provinces roughly covered the current Netherlands, Belgium, Luxembourg, a good part of the North of France and a small part of Western Germany.

people who took refugee from the force of arms. This can be best made visible by looking at the changing population numbers. The total population of Leiden grew from 12.000 in 1580, 45.000 in 1622 (Moes & de Vries, 1991:15) and 72.000 in 1635 (Harte, 1997). Many of these immigrants were drapers and weavers and brought the technique of making the lighter cloth serge with them. These serge-workers had a strong industrial spirit and soon the thick, heavy '*Leidsch laken*[9]*'* was pushed into the background (Moes & de Vries, 1991). The textile industry started to restore itself and around 1630 the textile industry in Leiden reached an unprecedented growth.

It was been generally accepted that after 1675 a long-lasting decline of the cloth industry in Leiden fell in, which took more than a century. The main reason for this downturn is the loss of foreign markets; the domestic market had never been of a significant size. Leiden lost most of its markets in Europe (Levant, France, Austria, Sweden and Venice) to England and France, due to warfare (Moes & de Vries, 1991). But at the same time these areas started to produce their own cloth and the international completion grew fast. As said, this decline lasted the whole 17th century and in the course of the 18th century the production shifted from the cities to the countryside, because of lower production costs. In the 19th century, when the industrial revolution also reached mainland Europe, important inventions, like the Spinning Jenny and others machines driven by steam made the production process move to a totally different level.

2.3. – The production process

During the centuries, from the Middles Ages until the industrial revolution, in which cloth was produced from wool, the production process changed with new ways of economical, social, political organisation and technical developments (e.g. the spindle, spinning wheel, dyeing techniques, etc.), but the main line of processing wool remained the same over time. In this chapter all steps from the import of wool to the final product will be discussed. To make the chain of production more clear, the process is divided into different phases; the preparation, spinning, weaving and finishing processes. A fifth process has been added to the production

[9] The woollen cloth produced in Leiden, was called 'Leidsch laken'.

chain, but was not necessary done in the same town or even the same county in which the other processes took place. Sometimes this final step of dyeing was not done at all.

Wool import from England

As in our own time, medieval breeds of sheep had different characteristics. For making cloth a long-fibred wool type hair coming from a white, adult sheep was desirable. Lamb's wool has less strength and the beige, brown or grey fleece from coloured sheep was never uniform in colour, and could therefore not be used for a high quality fabric. Treating the fibres with chalk or lime has to enhance the appearance of a not uniform white fleece (De Ploerck, 1951). Wool from dead sheep, which were slaughtered for meat all year round, was less strong and lustrous, and therefore also not suitable for a good quality fabric. Another problem was that the fibres on sheep slaughtered in the summer were short. The best wool came from the sheep shorn in late spring; May/June. After cutting the wool with shears, the fleece was washed and sheared, sorted for quality, rolled up and ready for sale. Blair & Ramsey mention the division of the wool at Beaulieu Abbey in the years 1269-70, where the wool "was divided into 'good', 'medium' and 'coarse lockets' (loose pieces of wool), 'warpelok' and 'gardus' (wool with impurities in it)" (Blair & Ramsey, 1991:323). During the following centuries, with the growth of the textile industry and with it the demand for wool, more regulations were made. In the 16th century, when the requirements of the industry significantly changed, fleeces were carefully divided individually and many prohibitions on the mixing of different qualities of wool were made (Bowden, 1962).

In early medieval times, when the cloth production was only carried out on a small, local scale people depended on local wool, but when towns and populations got bigger, the demand for more wool grew with it. After the mid-14th century the textile industry in the province of Holland began to flourish, in with Leiden took a key position. This development was related to the shift from local wool as the raw material, to wool imported from England. At first the English wool was transported to Bruges, but after 1346 this staple market shifted to Calais[10]. Merchants went to there to buy the wool, which we from there further shipped to the production

[10] This town had since Roman times grew importance as a port, as it was located on a strategic geographic point between England and continental Europe. Over time sovereignty over Calais passed from one authority to another. Calais became part of England from 1347 to 1558, when it was finally recaptured by the French.

centres. Thus, in the 14th and 15th centuries English wool had a reputation of high excellence, but this market was during the two following century dominated by Spain. In the 16th century she was a major producer of very fine merino wool, which was more suitable for lighter types of cloth, which by than had became fashion.

Preparing the wool; sorting, washing and combing.

When the wool, first as fleeces and later packed in bales, arrived in the city of Leiden on board of the charter ships the wool was well inspected and sorted again according to quality. This process, in preparation of the spinning and weaving, was of great importance, because the quality of the raw material determined the excellence of the final product; the cloth. The highest quality wool was used for making pure wool cloth, while wool of lesser quality was often mixed with hair of other animals, like goats, cows or even camel hair to produce different kinds of mixed fabrics (Moes & de Vries, 1991).

After sorting, the wool needed to be washed to lower the high level of natural lanolin and to remove dirt, dead skin, sweat residue and vegetable matter. This process is called scouring and was an important step in all cloth making centres. Sometimes some lanoline was left on the wool, to make the spinning process easier, but if the wool had to be dyed later all the wool wax had to be removed, since it would influence the absorption of the dye (Dewilde et al., 1996). In general the wool was scoured before being combed and spun and later animal fat was added again to make these processes easier. In Leiden the scouring of the cloth was done by the '*volwassers'*, who washed the raw material with their hands in the canals of the city. In earlier times, when the wool was imported as fleece, the wool first needed to be removed from the skin so it could be washed and processed further. This was a separated craft carried out by *'vachtenploters'* (Moes & de Vries, 1991).

As soon the wool had dried, it was ready to be combed. The curly hairs of the sheep were often entwined and to make long-fibred wool more workable, lard or tallow was put on the wool first. The oiled wool was than mounted onto a long-toothed iron comb and next a second comb was drawn down though the first. The length and number of teeth of the comb was often decreed in regulations, a regulation from Brussels dating from 1376 for example, mentions that one comb should have 21 teeth (Favresse, 1946). The second comb was continuously heated during the

combing process, so the hairs were separated from the lard or tallow without breaking them (Moes & de Vries, 1991). This made the fibres lie straight and parallel, than the spinster slowly draw out the fibres from the comb through a ring called a diz. This resulted in a thin, uniform and smooth yarn, which was ready for spinning. The diz was often made from horn (Dewilde et al., 1996) and shows a strong resemblance with a button. I would not surprise me if diz's have been found on archaeological sides all over Europe, since this technique was in use in certain parts of Europe right up to the 19th century (Dewilde et al., 1996). But I have found no examples of this.

Ill. 2. Oil painting form Isaac Claesz, van Swanenburg (Leiden 1537 – 1614), 1594-1596. This painting shows the several preparation processes of wool before the wool could be spun into thread. First the wool needed to be stripped from the fleece, than it was beaten and washed in the canal of the city and hung out to dry (seen on the left). In the back the scouring process is visible and in the middle the combing of the different qualities of wool, separated in different baskets. Note the water pot in which the combs were kept warm.

From the 14th century onwards, hand-carders, flat square boards with handles and many small iron teeth became more common. In many of the Flemish cloth making centres carding was

introduced in the 14th century. As opposed to combing the wool, carding did not separate the long fibres and the fibres did not end up parallel over the entire length after carding. This technique was therefore only used for wool of lesser quality and even permitted for a few types of wool (Favresse 1946). In some northern countries the wool-comb fell out of use once the carders arrived, as if one served the same purpose of the other, and in countries were combs did survive, they seem to have become longer-toothed and heavier, suggesting that their role had changed (Blair & Ramsey, 1991).

Spinning

The longer-stapled wool could be mounted on a distaff for spinning. This long wooden rod could be set in a stand or slotted through the belt so that the spinner was free to move about. Shorter-stapled wool was simply held in the hand as a roll of prepared fibre. The fibres were then drawn out from the distaff or the roll and twisted by means of a free-hanging spindle, weighted at one end by a whorl, which also acted as a fly-wheel (Blair & Ramsey, 1991). These whorls were made out of stone, pottery, wood, bone, etc and are often found at archaeological sites. Spinning on a spindle is not described in any gild regulations from Flanders, but spinning is occasionally mentioned towards the end of the 13th century. This was the time when the spinning wheel was introduced. This might seems like a revolution, but in the 13th and 14th centuries the newfangled spinning wheel was often mistrusted. De Ploerck mentions that "as late as 1475 warp[11] yarn was still spun on a spindle in Leiden" (De Ploerck, 1951:69). A simple form of spinning wheel seems to have reached Flanders in the second half of the 14th century. In the 15th en 16th century the spinning wheel underwent changes, which made it possible to keep the wheel spinning at all times. Innovations like that had a big influence on the amount of yarn that could be produced. Eventually the yarn was wounded up on shuttles and bobbins, after which it might have been washed and dyed, before it was brought to the weaver.

Weaving

[11] In weaving cloth, the warp is the threads on a loom over and under which other threads (the weft) are passed to make cloth (Oxford dictionary). Because the warp is held under extreme tension during the entire process of weaving, warp yarn must be strong. The spun yarn from a spindle was probably, by that time of a stronger, thus better quality.

It is clear that various types of wool were used for the production of different textile types, but all other steps in the production process were of great influence on the final product as well. Weaving is certainly no exception. The weave structure depends on how the warp in threaded through the shafts of the loom and the higher number of shafts used, the more complex and finer the weave structure. This stood in close relation to the hours put in the production, the quality and the final price of the cloth. The technical side of how different types of looms exactly worked or were used during previous times will not be discussed in this paper, since I ought it to be irrelevant for this research. [12] I will point out the most important innovations, which were of great importance for the textile industry during the Late Middle Ages and Early Modern Times. Prior to the 11th century, cloth was usually produced on a vertical warp-weighted loom and around the 11th century a new type of loom starts to appear in all parts of Europe; the treadle-operated loom.[13] Weaving was a highly time consuming job and required strict accuracy. As mentioned above the warp was subjected to a lot of strain and friction and it needed to be extremely strong. In the 17th and 18th centuries it was common to strengthening the warps with glue, but it seems to have been forbidden in medieval times. In Komen, another cloth centre in Flanders, a regulation of 1366 stipulates "that seizing the warp with '*pappin*' and drying it with a flame was not allowed" (De Ploerck, 1951:73). Why this was forbidding does not become clear and is surprising on one side, since a common weaving error was the breaking of warps. On the other side the cloth production was kept 'pure' by these kinds of regulations and restrictions. During this time-consuming process weavers must often have been tempted not to repair broken threads. After the finishing processes like fulling and napping they would not have been visible, but they did constitute weak spots in the fabric.

The starting and finishing borders of the cloth, the so called selvedge was very important and needed to be made with a different, stronger type of yarn. The length of a piece of cloth was generally fixed in the gild regulation, to ensure that all finished pieces of a given type had a uniform size and quality (Dewilde et al., 1996). In the selvedge a weaver often sewed the 'master mark' of his master/draper. A gild regulation of 1365 from Brussels states; "*item, soe sal elc man*

[12] A more detailed description of looms, there place in the archaeology can be found in Blair, J. & N. Ramsey, *English Medieval Industries* (1991) and Jørgensen, B., J. Banck-Burgess & A. Rast-Eicher, *Textilien aus Archäeologie und Geschichte* (2003).

[13] "The treadle-operated loom was evidently in France and Poland by the 11th century (Blair & Ramsey, 1991:328). And also in England and the Netherlands it seems unlikely that the urban weaving centers of the 12th century have been using anything else.

sij laken tekenen met denselven tekenen datter ingeheweven steet achter...” (Every man has to mark his cloth is marked with the same mark woven in at the end) (Favresse, 1946:180). How long a piece of cloth should be to be suitable for trade on the regular markets varied enormously in different times and centres, but the tread used for the selvedge was often of a different colour and served as codes to recognize qualities of cloth. Ones the cloth was taken of the loom another mark of quality was put on the fabric; a lead seal. “This quality control ensured that all fabrics had the required dimensions and weight and no weaving errors” (Dewilde et al., 1996:26).

Finishing

During the main processes described above it becomes clear that, from the choice of raw material up to the used weaving technique, the sequence of these operations could vary. These variations were there, because different types and qualities of cloth were fabricated, but this difference in type and quality did not stop after the textile was taken of the loom. The operations described below, were not necessarily carried out and the exact sequence and repetition was subject to change, again depending on what kind of cloth was produced and value of quality perused.

The first operation was often to full the piece of cloth. The cloth was put in a big wooden tub or a hollowed out tree[14] to which other products, like butter, lime, urine, soap and mainly fuller’s[15] earth and soap were added. Fulling was traditionally done by foot (*sub pedibus hominus*) to make sure that the earth fully penetrated the cloth. Later, this process was replaced by working the cloth with a perch (*ad perticam*), which came close to the mechanised process whereby a water-powered fulling mills with wooden mallets was used to speed up the work. There seem to be a great variety within Europe on when these technical changes took place. Grenoble already acquired a fulling-mill in 1040 (Dewilde et al., 1996:26), while Norwich only got one in 1429 (Blair & Ramsey, 1991:332). Moes mentions that the fulling (*Dutch: vollen*) was done in Leiden up to the end of the 16th century (Moes, 1991).

The additions to the warm water had to reinforce the process of shrinking and felting, which made small impurities invisible and resulted in one even piece of cloth. During this process regulations were very strict and the adding of additional products went together with

[14] Hollowed out tree trunks are found in several places in Flanders and in Beverly, England (Blair & Ramsey, 1991:330).

[15] In England the washing of the cloth after it came of the loom is referred to as fulling. A naturally occurring clay; Fullers earth, of which there are extensive bed in Surrey and Bedfordshire was added to the washing water “to remove grease and speed the matting process” (Bair & Ramsey, 1991:330).

prohibitions of cities and gilds to use them. Favresse mentions a ban of soap in Brussels in 1368 (Favresse, 1947:22). Fulling one piece of cloth took one or two days and great expertise and precision, because strict gild regulations needed to be complied with. When a piece of cloth was folded it needed to be washed again to get clean it from the added products. After fulling the cloth was set in a frame firstly to dry, but secondly to be worked on by teasels[16], a process called napping. This was done to raise the wool fibres in other words; to raise a 'nap'. The teasels were largely cultivated from at least the early 13th century and still used during the late 15th century, after which this procedure was also slowly mechanised in Europe (Blair & Ramsey, 1991). Knots and other imperfections were now clearly visible and were, when necessary, carefully repaired. The nap that was sticking out was cut to a uniform length with the use of a large iron cropping shear[17]. In the changing sequence of fulling, napping and shearing, another process was often added; the stretching of the cloth. The cloth was set into a framework with horizontal and vertical bars, in Dutch this is called a '*raam'* and in many old textile centres in the Netherlands and in Belgium, street names still remind us of this profession.[18] Stretching the cloth took several days and could easily be irreparably damaged, when stretched to fast or to wide, even though this would not show until it was in use (Dewilde et al., 1996). Of course there were also rules for the stretching of cloth, since it could not be stretched to wide, because than it would lose its quality.

It were these last dressing processes that gave the cloth from Leiden its perfection. This does not mean that the technical processes described above were of less importance. On the contrary, each step formed a necessary link in the chain of production, but even the spinning or weaving could not give the cloth its excellence, for which the '*Leidsche laken'* surpassed all other cloth made in Holland and made it was such a well known and wanted commodity for the Late and Post Medieval world market.

Dyeing

Even though dyeing could be done as one of the first steps in the production sequence of cloth it will be discussed in this paper last. This might seem strange, since dye penetrates the wool best, when dyed in the fleece (Dewilde et al., 1996:27), but it was very common to dye yarn and

[16] The seed polls of teasels (Dipsacus Fullonum L. or Dipsacus Silvestris L.) were admirably suited to raise wool fibers from the weft of the fabric.
[17] Schaar in Lakenmuseum, Leiden. Plaatje?
[18] In Ghent; Raamhof. Amsterdam, Raamgracht. Leiden, Raamsteeg.

finished cloth a well. After the wool was washed and cleaned, the high quality wool was dyed, while wool of lesser quality was generally dyed after it was fully woven. From the literature it does not becomes why this was done in different parts of the process, but it has undoubtedly to do with the final outcome and quality of the cloth.

Dyer's gilds had strict regulations about when the dyeing should take place and which dyes were allowed to use. A gild regulation from Brussels from 1376 states, that cloth could not be dyed before the final inspection after it had been stretched on the frames (Favresse, 1946:148). The raw materials available to the medieval dyer included cultivated plants, such as "madder for red and woad for blue, the meadow plats weld and woadwaxes for yellow; and the imported dyes; kermes, orchil and brazilwood for richer reds and purples" (Blair & Ramsey, 1991:333). The dyeing material used and thus the final colour of the cloth was of great influence on the final price. Some like kermes coloured cloths were only used for the very best wools and these expensive and exclusive fabrics were only to be afforded by the elites, as visible on many Renaissance paintings.

2.4. – Organisation and Quality Control

During the process of textile production, as described above, it becomes clear that every step, from the import of wool to the final cloth was laid down by regulations. Most of them were enforced by the gilds or the city council. From the city of Leiden many of these laws and regulations have been kept save for centuries and can now be found on meters long archive shelves. Today these regulations form a countless source of information, regarding the different activities in the chain of production and what was required from a piece of cloth to meet up to the standard. They are a tangible and concrete material source through which the textile industry has been made visible and better understood.

The oldest regulation known from Leiden dates from 1363. After that the number of regulations grew fast and this resulted in a tight web of rules, laws and prescription. These restrictions took the free initiative away from the entrepreneurs (Moes & de Vries, 1991), which made it difficult for newcomers to set foot in the industry, especially during the later centuries. Many of these stipulations came in to life because producers, during different stages of the process, were in breach with the law and the necessity for more regulation arose. These laws were drawn up on behalf of the city council. If someone was in offence with a regulation, they

could have to pay a fine or be discharged from office, depending on the seriousness of the misdemeanour. The latter happened in 1371 to two sealers[19] in a smaller cloth production town in the Netherlands than Leiden; 's Hertogenbosch. The two men sealed cloth which did not meet the quality regulations and did therefore not have the right to a seal[20]. This was regarded as a crime against the city, since they had sworn by oath to hold down the office of 'sealer of the cloth' in the correct way. The punishments were harsh; "never to practise a trade or hold an administrative function" (Hofenk de Graaff: 1992:63). One of them even got abandoned from the city. This example shows the highly importance of the quality control of seals and when defiled serious consequences followed.

It would take an extensive research to look at the countless individual regulations and ordinances which were drawn up in relation to the cloth industry in Leiden during the six centuries of its existence. For this study it is enough to realise the scale of the industry and its importance for the city of Leiden during the Late Middle Ages and the Early modern period (and with that all other cities during that time, which had an industry of great importance to them, even though the industry was of a less greater scale than Leiden). The fact that even the smallest details were regulated in rules and laws shows the incredible form and need of organisation behind a single piece of cloth. And all this was done because the city attached great value to its product.

For the authorities it would not have been easy to master the cloth industry, during changing periods of its development. This is not only seen by the amount of regulations, but also by the foundation and disappearing of different bodies, which had the duty of making sure the rules were followed. The type of organisation and control of different bodies, which were called into being during different times, varied, depending on changing contextual events concerning the social, economical and political environment. It seems that the extremely quick growth of the industry in the 15th century was partly unforeseen, since during this time it was a coming and going of different bodies, almost as if the authorities were trying to find out what would be the best type of organisation. During the 16th century several of these disappeared for good, because due to the decreasing production figures they became superfluous. During Leiden's second

[19] Sealers are the person who physically attached the seals to the cloth under instructions from the 'wardijns'.
[20] Van de Heuvel, Rechtebronnen nr. 12.2

'Golden Age' the 17th century, again a different type of organisation was needed to control the production and trade of the cloth.

The posts that were important to the quality control of the textile during the 15th, 16th and 17th century will be discussed here, since they form the background of the highest form of control and it them who decided if a piece of cloth was up to quality standard and worth the prestige Leiden seal.

Quality control

During the 15th century the quality control stood completely under direction of the so called '*wardeins'* (warden[21]). This was the title of an official which came from the French word *gardien*, meaning supervisor. Via the Northern French *wardien* it reached the Netherlands were the word changed to *wardijn* or *wardein*. The wardeins had the job to check the pieces of cloth, first when they were being stretched on the frames to make sure they had the right dimensions and secondly after they were taking off and the fulling process was completed. After these checks the pieces of cloth received a lead seal, as a sign that it had met the quality standards. If the cloth was not of the right size or the fulling process was not satisfactory carried out, the piece would not receive a seal and was send back to the manufacturer. Posthumus mentions that a certain piece of cloth could only be declared unfit three times, after that it was turned down for good (Posthumus, 1908:157). During the course of the 15th century the task of the wardeins was made easier, because of the great growth of the industry. By the city council every wardeins as given several people who worked under him, for instance the *'ofscrivers'*, who kept count of how much cloth was produced and checked for quality and the '*wol-beziender's'*, who's responsibility it was to make sure that all the wool which was imported to the city was of the right quality. In 1455 an important body (especially during the second prime of Leiden's cloth industry in the 17th century) was brought into existence, which strongly eased the task of the *wardeins:* the 'College van S*taalmeesters'* (Board of Syndics) (Posthumus, 1908:159). This college has a very specific purpose and the need for its establishment strongly shows the concern of the authorities for the very important dying industry. They had to make sure that every piece of high quality cloth was correctly dyed. This was checked by comparing the dyed cloth to a

[21] Egan used the term *alnager* in his study Lead Cloth Seals and Related Items in the British Museum to describe the official supervision of the shape and quality of manufactured woollen cloth.

'*wederstaal*' (corresponding sample) which were kept in a large book. When dyed correctly the piece of cloth got a special dying seal. In 1548 the College van Staalmeesters was abolished, due to the decline of the industry in the 16th century and their task was taken over by the *wardeins*.

Ill. 3. 'Stalenboek' with black cloth, 1730. In this book the Board of Syndics kept the 'wederstaal'. Visible are the samples of black dyed cloth next to the name of the dyer and the quality of the dye.

In the 17th century enormous changes took place, since the industry grew extensively after 1630. Because of the tremendous size and with the introduction of new techniques and the production of different types of fabrics an adequate organisation was an absolute necessity. The different branches of the cloth industry were subdivided and these were called *neringen* (trades). These can best be described as union branches, but fundamentally differed from the medieval guilds[22], because of the automatic membership and the non-democratic character (Moes & de Vries, 1991). The different neringen were connected to the different types of raw material used for the cloth production or the type of cloth that was produced. Examples are; lakennering (cloth), saainering (serge) and the baainering (baize[23]). The administration of every nering consisted of a rich cloth entrepreneur and representatives of the city government of Leiden. The authorities exercised supervision over the production process though the neringen and (just as in the florescence of the industry in the Middle Ages) tried, by numerous regulations to guarantee the quality of the products and with that the name of the city (Moes & de Vries, 1991).

Every nering had its own building/hall, where the specific cloth was inspected and sold by the town inspectors. Today in Leiden one can still visit the Lakenhal, which was build in 1640 as the

[22] The concepts of 'guilds' has not been discussed in this paper, since it they were of little importance in Leiden for the cloth industry in the Middle Ages.
[23] Baize was and is still today most often used on snooker and billiards tables, but is also used on other kinds of gaming tables.

'Laecken-Halle', but is now used as a museum. Before the need arose for a bigger building, because of the growing industry an older hall form 1604 was used for the same purpose. When setting foot in the 'new' hall, it is not hard to imagine the atmosphere of quality discussions, negotiations and trading engagements. Several rooms within the museum are reminiscent to the important quality checks. Centrally situated is the big 'Measuring Room', with in the middle a large table on which the cloth was checked on its right dimensions and quality. Furthermore there is the highly decorated 'Staalmeesters Chamber', who were in charge of the control on dyed cloth and a Governors' Room, in which governors on behalf of the city council were responsible for drawing up and maintaining quality control inspections. They kept a close watch on fraud and when they came across cloth of lesser quality it was ripped and displayed in the cloth hall as an example as a bad example. A special room was designed for applying seals, the 'Seal Room'. Here 'sealers/stampers' attached lead seals to the cloth, after the excellence of the cloth was examined and approved by the wardeins. During different periods various seals were used to indicate different characteristics of a piece of cloth; the dimensions, colour, quality, etc. This will be closely looked at in the next paragraph.

Ill. 4. The 'Lakenhal' in Leiden, built in 1640 in 1640 by Arent van ' Gravesande. This is where the famed Leiden cloth was inspected and where the Governors and Syndics of the cloth industry held their meetings. Since 1874 the Municipal Museum of Leiden has been housed inside.

2.5. – Cloth Seals

The main purpose of sealing has already been mentioned above, but next to the control of quality and on the manufactures, the seal was a guarantee for the buyer to show that the quality of the cloth was bona fide. During the Middle Ages, there thus existed a prophylactic strive, in which control and guarantee of the best quality of products held a prominent place.

The earliest lead cloth seals so far identified in north-west Europe are all originating and found in the Netherlands. One of the oldest seals dates from 1275 and is associated with the city of Leiden (Baart, 1988). Not surprising, since Leiden was the first city in medieval Europe to give the cloth seals. Seals dating from the 13th century are very rare, as are seals dating from the following century. It could be that during these earlier periods, when the production was low and not many towns were specialized in producing cloth for a bigger market, the need for sealing did simply not exist. Another possibility, given by Geoff Egan, is that stamps or marks were at first put on seals of wax rather than of lead. In England both materials seem to have been used at some point in the 15th century in England, though the less robust wax was outlawed by the beginning of the next century (Egan, 1985). Which caused these changes in sealing material does not become clear, but when the production of cloth went up and more value was attached to cloth and quality in general, one would expect that the wax seal did not suffice anymore, simply because of their fragility. For the Netherlands there are no wax cloth seals found so far and it is thus not considered as a used method for quality control of cloth. During later centuries, the 15th, but especially the 16th and 17th century the quality control on cloth by the endless regulations grew enormously and this resulted in a more frequent use of lead seals on cloth. Egan mentions that by that time, a piece of cloth could, theoretically, have upwards of half dozen seals by the turn it reached the market stall. This was a result of the many quality checks during the production process e.g. the stretching, fulling, shearing, right dimensions and weight and dyeing. Egan explicitly mentions the thorough sealing in the Dutch cloth community of Colchester ion England, something that might indicate that it was a custom brought from the other side of the North Sea. In the Dutch literature the high amount of seals on one piece of cloth is not specifically mentioned and since the lead would at some weight, especially if the cloth was traded in a high quantities to for example Scanidanvia, extra weight would not have been desired. It might be more convincingly that a previous seal would be removed before a new seal

was attached to the cloth, with the assumption that this second seal implied the first seal as well, the third seal the second seal, etc. The 'old' lead seals were melted and later reused.

An attempt to categorize the different types of hallmarks used in medieval times has been done by the German historian Rudolph Eberstadt in 1899.[24] For the textile industry two types of hallmarks should be considered useful for further studies concerning the cloth industry. Since 1899 no other scholars seem to have cast doubt on the terminology of Eberstadt and both Posthumus as Egan have (partly) taken over his categorization. His categorization will be mentioned below.

Hallmarks on cloth can be divided between marks that serve to indicate a certain type of good (Stückzeichen), for example a type of cloth and 'trademarks' (Verkehrszeichen), which hold specific characteristics/qualities of a piece of cloth. The first type of marks can both be found in the cloth industry and trade, although not in large numbers (Posthumus, 1908:189). It does not become clear how these marks have looked like, but in the 15th century every draper was obliged to mark his pieces of cloth. From the same time a regulation states that a bag of wool, which was bought from the staple market in Calais, had to have a similar kind of mark; "and the bag will be marked met the merchant's sign[25]". The trademarks are divided up into three sub-categories; the 'master marks' (Haftungszeichen), the 'control marks' (Prüfungszeichen) and 'origin marks' (Herkunftszeichen).

Ill. 5. Oil painting form Isaac Claesz, van Swanenburg (Leiden 1537 – 1614), 1607 or 1612. The stripping of the imported fleeces, note the privy marks on the back of the fleece.

[24] In: Das französische Gewerberecht und die Schaffung staatlicher Gesetzgebung und Verwaltung in Frankreich vom dreizehnten Jahrhunderd bis 1581. Leipzig, duncker & Humblot 1899, p. 186 – 226.
[25] DRap, Kb, I, II, 16 § 2: "ende die sack sel geteykent wesen mit des coopmans merck."

The ‘master marks’ are already mentioned in the production process. After the cloth was woven the weaver could sew a mark in the selvedge, so his cloth could be recognized especially by the wardeins, who had to check that a draper did not produce more cloth than permitted and to approve on the quality. This medieval trademark was thus for completely different reasons put in to the cloth than an applied brand mark in this day and age.

The second type; the ‘control marks’ guaranteed to the public, that the cloth underwent and passed all quality inspections. For the buyer this was the sign that showed that the cloth had the presumed quality, and could as such be regarded as the most important quality mark. In the very beginning of the cloth industry, every master needed to make name for himself, but when the cloth industry grew extensively in Leiden during the 15th century and with it the influence and involvement of the authorities the buyer could only recognize the quality by the city (Posthumus, 1908:171). This was advantageous, because with the coordinated organisation of the government a commonly equal product was put on the market and inferior cloth was thereby kept off. That fact the ‘*Leidsche laken’* was a precious commodity becomes well visible by the constant complains from the inhabitants of Leiden concerning the imitation of their seals in both domestic areas and foreign countries (Posthumus, 1908:171).

Important for this study of lead sloth seals is that not every piece of cloth received the same or the same amount of lead seals. From different regulations dating from 1406 Posthumus has reconstructed the following for Leiden. “Only the ‘*voorwollen*’ (the highest quality) cloth received a big seal, together with two small seals, the other woollens three smaller seals and the cloth made from third category wool, two” (Posthumus 1908;173). By this we may conclude that there were two main lead seals circulation in Leiden during the 15th century, a big one for very high quality and a smaller one for cloth of lesser quality. Besides these two main seals others could also be applied, depending on various conditions. In accordance to the different stages of control (fulling, washing, napping, etc.) interim seals could be given to cloth, which Eberstadt calls “between-seals” (Zwischenstempelungen). Pieces of cloth which were of the right quality, but did not have the correct dimensions got a special, small seal, but cloth that did not meet up to the quality standards were unworthy to receive any seal at all. What was done with this poor cloth differed, sometimes it was hang up as a bad example, sometimes is was cut in smaller pieces, which could be sold separately on local markets or in the worse case the cloth got burned (Posthumus, 1908).

The third group of medieval trademarks described by Eberstadt are the 'origin marks', which told the buyer where a certain product was manufactured. A purchaser of medieval cloth could, most of the times already trace the origin of the cloth back by looking at the lead seals attached to the fabric, but there were other indications concerning the cloth itself. Every production centre had its own regulations on how long and wide a piece of cloth should exactly be. Eberstadt argues that this difference solely existed for the costumer to distinguish and recognize the origin of the cloth. Perhaps he goes a little bit too far with this. It would be more plausible, that fixed dimensions were agreed upon to make the trade easier, because re-measuring the cloth after the quality check became unnecessary. On the other hand the idea that the production centre of a piece of cloth could be traced by certain dimensions should not be totally rejected, since it must have been an important indication but not the reason why different lengths were distinguished.

Dyeing seals

Before and after the dyeing process several leads were attached to the cloth as well. Already in the early 14th century it was laid down in a regulation that "cloth that was to be dyed black (Old Dutch: *moreyt*) should first get a dyeing seal from the wardeins[26]" and when the college of Staalmeesters was brought into existence in 1455 they had to attach a special '*staallood*' (sample lead) to every piece of cloth that matched their dyed wool samples (Posthumus, 1908:173). Not all textiles were dyed in the same centre where they were produced. It could be that the textile was exported from the Netherlands, but died locally in foreign towns.

Other centres

The regulations regarding organisation of the quality control and the placing of the lead seals are about the same in the different production centres in the Netherlands during the late Middle Ages and Early modern times. In these centres the same global division "between 'Stückzeichen' and 'Verkehrszeichen' is made, and even though the last differ (which is not completely surprising) in detail, here sealing was also done with big seals" (Posthumus, 1908:176). Interesting to mention is the fact that, some branches of trade and industry e.g. the goldsmithery, especially during the 15th century, were regulated by the national government. The central authorities made

[26] Kb, n°. 3, 147 § 19. Also Drap. Kb, III, 24 shows this.

nation-wide regulations concerning trade mark laws, but the laws for the textile industry were always left in the hands of the city administration.

In this chapter the production process and the strict control on the quality of the cloth has been discussed. After the final control and sealing, some cloth was brought to local tailors to be made into clothes, but the mass production of cloth coming from Leiden mostly ended up on the international European markets. How the trading networks were organised during the 15th, 16th and 17th century and how it was possible for a sealed piece of cloth coming from the Netherland to end up in Scania will be discussed in the next chapter.

3. Cloth towards Scania within "The Mother of all Trades".

This chapter will deal with the question how it was possible for a piece of 'Leidsch laken' to end up in Scania during the Late Middle Ages and the Early Modern Period. To answer this it is required to look in to the different trading networks that existed in Europe during these centuries. In the Middle Ages a new commercial network was set up and is often regarded as one of Europe's most important trading networks in history, The Hanseatic League. At the end of the 15th century drastic changes took place, when the economical power shifted from the Hansa towards the Netherlands and England. In the 16th century it were the Dutch merchants that completely controlled the Baltic trade and this lasted long into the 17th century when finally the merchants lost interest in Baltic trade by the strongly competing colonial markets. The second part of this chapter will describe the importance of Scania, within the Hanseatic trade and with that in whole of North and Western Europe. Finally there will be zoomed in on one specific commodity of interest for this paper, the cloth exported from the Netherlands, once more with a focus on Leiden towards Scania.

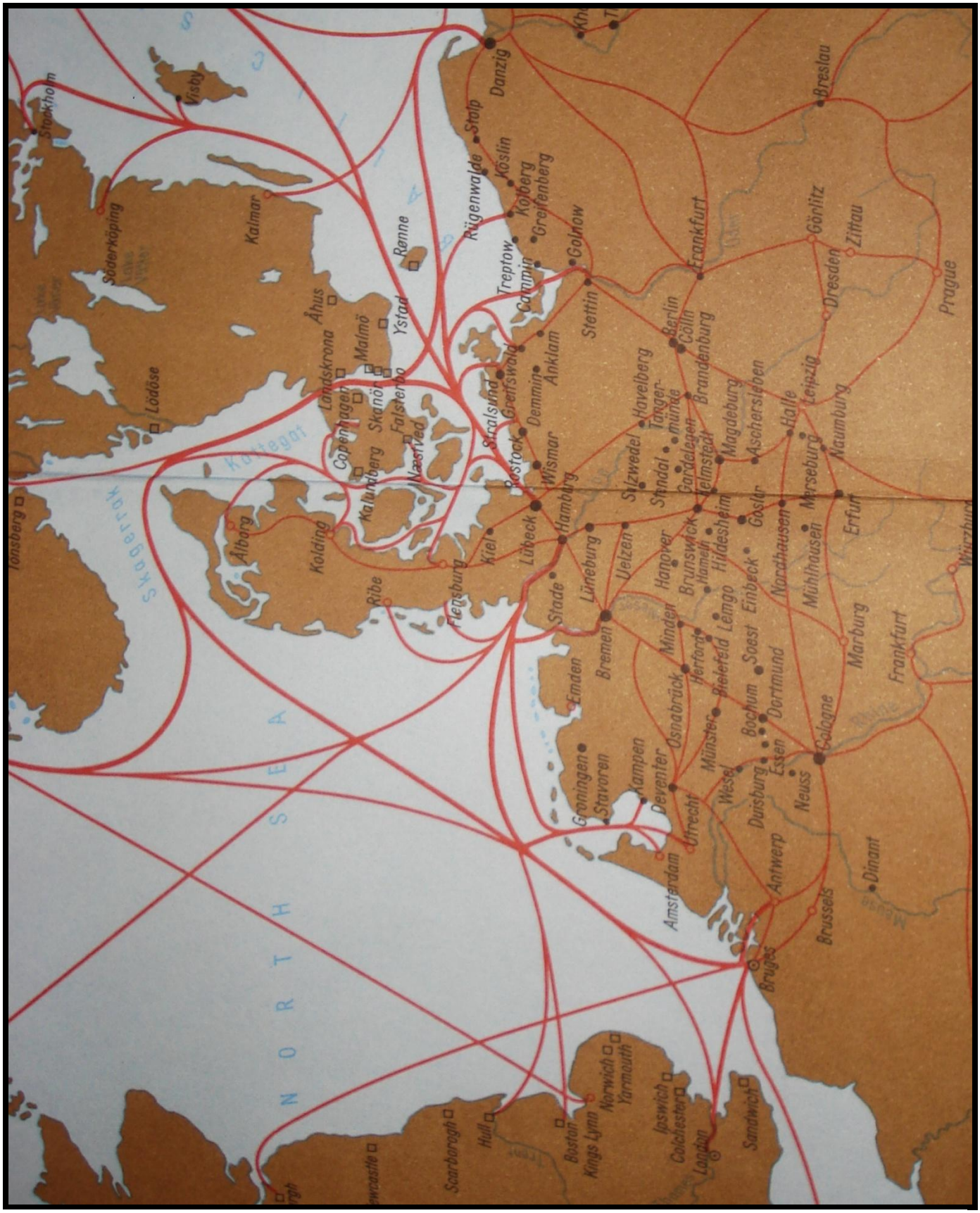
3.1. – The Hanseatic League and the nautical rise of the Netherlands

Well organized trading and travelling facilities were already established in southern and central Europe by the time of the Roman Empire (0-400 AD). Scandinavia and the Baltic region[27] had occasional contact with the Roman culture via the river Elber, Odra (Oder) and Wisla (Weichel). Archaeological remains of Roman origin found in these regions are material evidence of this. But at that time, the Baltic was still very much on the periphery of European trade and culture and trading connections were established through the Roman Britain and the western coast of the European continent. During the Migration Period in the 5th and 6th century enormous changes took place, not only demographically and socially, but it had also a major impact on the economical trade networks. The centre of trade excellence shifted from northern Germany westwards to the Netherlands and Dorestad, founded at the mouth of the Rhine by the Frisians

[27] The Baltic States, in the broadest sense are all the states having an access to the coast of the Baltic Sea. Ten of them are members of the Council of the Baltic Sea States (CBSS): Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Norway, Poland, Russia and Sweden.

during the late 7th century, grew to become the leading trading centre of northern Europe (Westholm, 1996). From the late 8th until the mid 11th century various Viking attacks took place in Europe and due to these Dorestad lost its central role as trading place and England was successfully conquered in 1013, but one generation later the Viking period in England ended in 1042. The 11th century was also the time during which the conversion to Christianity in Norway and Sweden took place and conversion of the pagan Slavs and Balts followed soon. The 'ideological conquest' behind these missions is clear, but scholars have agreed to the idea that of greater importance was the conquest of territory, resources and trading networks. The local rulers of that time reacted on the Viking raids, which eventually led to a complicated system of landownership and the spread of defensive feudalism. Trading centres developed around castles and monasteries in order to supply the rulers with the goods that they required. Soon these small production centres with craftsman and merchants grew and with the surplus they produced trading networks were set up, first on a small scale but later the trade expanded to surrounding countries (Westholm, 1996). So by the beginning of the 12th centuries different small production and trading centres were visible in the European landscape. Within these centres lived merchants with similar trading interests and since there were no navies to protect their cargoes, no international bodies to regulate tariffs and trade, the merchants banded together to establish tariff agreements, provide for common defence and to make sure ports were safely maintained. The Hanseatic League was born.

In the 12th century, merchants from the old Roman towns situated along the Rhine were the first to form a Protective League, but did not travel on the Baltic Sea by themselves. Most of the exchange took place in the Danish trading centre Schleswig, the successor of Hedeby, but this changed dramatically when the first direct German access to the Baltic, the modern city of Lübeck was founded in 1143 and almost eighty-five years later Lübeck became the most important trading port between east and west Europe and was at the same time the Headquarter of the Hanseatic League (Westholm, 1996). The original network linked Lübeck, Westphalia, Saxony and Gotland, but it quickly spread both east and westwards to Livonia and Londen during later centuries. During the 14th century the Hanseatic League grew into a powerful compact of cities, with far-reaching trading agreements and almost total control of the north European trade (See Ill. 6).



Ill. 6. Map showing the established Hanseatic trading networks in North- West Europe during the of the Hanseatic League. The closed black dots represent Hanseatic Towns, according to size. The open circles with a point in the middle are Hansa stationsm the squares Hansa outposts and the red circles non-Hanseatic towns.

Around the end of the 14th century and the beginning of the 15th century the Hanseatic Empire started to decline, due to the several changes in the political and socio-economical environment. Skirmishes between the Nordic countries, the growing piracy in The Sound and the Baltic Sea, but mostly the rising of other nautical powers were factors that severely damaged the Hanseatic trade. The economical rivals of the Hansa that entered the stage were the English and Dutch merchants and their interference in the Baltic trade resulted in a conflict. Denmark played a central role in this dispute, for it was Denmark that controlled the access to the Baltic Sea, while Scania with its herring grounds and Fairs was a part of the Danish domination[28] (Schildhauer, 1985). Even though Denmark and the Hansa had long term trading relations, Denmark formed an opposition against the Hansa, together with the Dutch and English merchants. This resulted in enormous losses for the Hansa and especially for its Headquarters in Lübeck.

In the course of the 15th century the signs of crisis only increased and the 16th century brought the gradual dissolution of the Hansa (Schildhauer, 1985). Dangerous competition from England, but especially from the Netherlands was threatening the Hanseatic merchants. In particular the province Holland was experiencing a rapid economic boom, thanks most of all to its commodity production, geared efficiently to a large market. The new and fast growing cloth industry was one of the most important commodities that pushed the economy of the Netherlands upwards during the end of the 15th century. The Dutch merchants gradually squeezed the Hansa out, for the League was relying on its old privileges and trying to hang on to its role as a mere intermediary. The Sound Toll registers show that a second Dutch advance in the Baltic was taking place in the 1590's as Dutch trade in Mediterranean and colonial wares started to eclipse that of Hamburg and Lübeck. The Dutch could rapidly expanded their sphere of influence with a philosophy of free trade, unhampered by privileges and quotas, and in this way they prevailed over the obsolescent trading policies of the Hansa. The Dutch soon become the biggest traders through The Sound and in the mid 16th century they gained trading supremacy in the North and Baltic Seas. Johan Schildhauer nicely summarizes this process of shifting nautical power; "The

[28] The province of Scania, up until the Treaty of Roskilde in 1658, formed part of the kingdom of Denmark. The transition to Sweden was later confirmed by the Treaty of Copenhagen in 1660, the Peace of Lund in 1679 and the Peace of Travendal in 1700. The last serious Danish attempt to retake the province failed in 1710, after the Battle of Helsingborg.

modern principle of the *mare liberum*, the freedom of the sea, prevailed at last over the medieval principle of privileged trade incarnated by the Hansa" (Schildhauer, 1985:235).

While the Dutch traded luxury goods and served as a middle man in the grain supply to the Mediterranean region, the Baltic was primarily the source of the Dutch domestic market and the Republic's main supplier of grain, timber and naval stores. The availability of these basic commodities – especially of grain – gradually transformed the Amsterdam market into the focal point of European trade (Brand, 2006). For the 16th century we can conclude that the Netherlands were not bounded to the Hanseatic trading networks anymore, the Dutch now had the means; strong international merchants connections in important foreign market towns, ships and money to do business on their own. But Hanno Brand states that despite the impressive number of ships passing through The Sound in the sixteenth century, both the volume and the value of the Dutch Baltic trade remained modest (Brand, 2006). The modesty lies here in the 'value' of the products that were imported by the Dutch into the Baltic, not much colonial luxury goods were transported to the east. The majority were sailed eastward on ballast, which consisted mainly of salt, herring, cloth and wines. This changed dramatically in the 17th and 18th century when Dutch exports — and in particular the influx of such colonial wares as sugar, tea, coffee and tobacco — to the Baltic rose dramatically. Dutch ships carried 14.5 million pounds of colonial wares through The Sound in the years 1661-1670. Fifty years later, the volume had more than doubled. Being the Low Countries' main supplier of basic commodities and the main market for its domestic and colonial produce, their political leaders could only acknowledge the key position of the seaborne mercantile traffic through The Sound, calling it "*the mother of all trades*" Brand, 2006).

Without focusing too deeply on the political changing situation, the growing competition on the European Seas many wars were fought, between England, the Netherlands, Spain, France, Germany and the countries of Scandinavia. These 17th century wars struck hard on Europe, as especially on Germany, where most Hanseatic towns were totally destroyed. The Hanseatic League survived the wars but was deprived of most of its power and significance and by the end of the 17th century not much was left of the League, although formally Bremen, Hamburg and Lübeck formed a pact within the League until 1870 (Westholm, 1996).

3.2. – The Trading history of Scania

Above the most important trading networks, relevant to the cloth trade between the Netherlands and Scandinavia and in particular Scania, during the Middle Ages and Early Modern Times have been discussed. Before dealing with the question how a piece of Dutch cloth could 'travel' about 800 km towards Scania during these periods the importance of the medieval markets in Scania specifically is examined, since they form the basis for later commercial trade in this region.

The markets in Skanör and Falsterbo

Scania became an area of great interest during the Middle Ages because of the large amounts of herring the spawned off the coast. Two towns on the Falsterbo peninsula, Skanör and Falsterbo developed themselves during the 12th century and by the start of the 13th century they were fully established market places for the sale and trade of herring. According to Lars Esgård the growth of these two towns as market places is an immediate result of the increasing commercial importance of the herring fishing (Esgård, 1988:209). In the latter half of the 13th century the market in Skanör expanded considerably and copious written testimony from this period shows that the Danish king at that time gave foreign towns in north Germany and the Low Countries the right to pursue trade in Skanör. The towns were granted concessions of coastal land in Skanör; they were entitled to use particular areas, known as *fit* (German *witte/vitte* or *fitte*, Dutch: *vitte*), for the duration of the market (which ran from August until the end of October). These areas were originally only loosely organized campsites, but after 1300 permanent booth were built, from where the herring was sold. During the 14th century the regulations got stricter and in the mid 14th century a castle was erected at Skanör, which was the administrative and juridical authority that the Danish king exercised over the market in Skanör (Ersgård, 1988:212).

In the 13th century the market in Falsterbo was of smaller size than the one in Skanör. One of the foreign towns to pursue trade with Falsterbo was Lübeck, which appears to have continued to dominate the market here. In the 14th century other German towns and Dutch towns also obtained a fit for themselves (Ersgård, 1988:213). One thing these towns have in common is that they were all member of the Hansa network. The leading part of Lübeck on the Falsterbo peninsula and in the Hanseatic League as a whole cannot be a coincidence.

The fits in Skanör and Falsterbo became very important outpost for the Hanseats during the 13th and 14th century. They were set up along the shore between July 25th and September 29th

(Westholm, 2006). At first it was the herring that attracted the merchants, but not long passed before the commercial intercourse between merchants from so many towns and several countries led to business of a grander style. On the Scania Fair, "where trade was plied , not only in fish, but also in cloth, canvas, salt grain, beer, iron, wax, skins, furs and other wares" (Schildhauer, 1985:45). It was not only Skanör and Falsterbo that enjoyed the lucrative supply of herring. Along the Scanian coast several trading towns grew because of the herring fishing, Landskrona, Malmö, Ystad, Simrishamn and Åhus (Westholm, 2006). But these towns were not as imported as the two markets on the Falsterbo Peninsula.

In the 15th century great changes took place, both in Skanör and Falsterbo. The large market area in Skanör fell into disuse and the trade activities from the fits shifted to the permanent town settlement. Falsterbo on the contrary, became more important during the 15th century and took on an increasingly permanent character. The fit areas were on one hand subjected to tighter control from the Danish king, but on the other hand they became legal and administrative entities with their own churches, cemeteries and offices (Esgård, 1988). This development can be placed in a broader picture and viewed upon as the beginning of an economic liberation of the merchant class from the social relation that had previously bound them to the crown. By monopolizing and total domination of the trade in Skanör and Falsterbo by the Hansa, the towns lost their previous function as international commercial meeting places together with the fall of the Hansa in the 16th century. In the region of Scania, it were the towns of Copenhagen, but especially Malmö who took over the role of being international harbours and market places to which goods were traded.

3.3. – Cloth Trade in the Netherlands

Trading relations between the Netherlands and Scania already existed during the Viking period, but became more official during later centuries. Before the Dutch sailed by themselves via the North Sea, through the Skagerrak, Kattegat and The Sound into the Baltic Sea, the trade from Scania to Holland had to go through important cities in Germany, which were in the hands of the Hansa. But before placing the cloth as a wanted commodity into these different trading spheres, the focus will be brought back to the beginning, i.e. the merchants in Leiden and their international contacts which made the cloth trade possible in the first place.

In the High Middle Ages the woollen textile in the Netherlands was marketed by retail traders called '*wantsnijders'* (cloth-cutters). They had to be part of a guild and to sell their cloth on a small local scale they rented a spot in a cloth maker's hall, from where they cut and sold the textile by the el. Some successful wantsnijders developed themselves to '*drapeniers*[29]*'* (drapers), who imported the cloth from the staple markets, oversaw the whole production process and sold the heavy woollen cloth on a large scale, mostly on the international markets. It is interesting to look deeper into the question if the organization of the cloth trade, as carried out by the drapers should be looked upon as solely a business of wholesale or were they also doing retail trade. Some scholars argue that the drapers were interfered in both branches at the same time, while others have the opinion that the drapers only worked as large-scale businessmen. The latter applies both for the drapers in Belgium[30] and in Leiden, where the drapers (apart from a few exceptions) did not sell cloth by retail. The draper can best be seen as a capitalist, who bought the raw material in bulk and sold his products on a large scale to make profit. He did not take part in the production process himself, but managed it and thus provided commercial guidance. A big difference with today's capitalists is that the draper did not own the means of production, i.e. the transportation ships, the loom, the dyeing room, etc. A third group which interfered in the trading business were the *poorters*. Poorter is a Dutch historical term for a type of Dutch or Flemish burgher who had acquired the right to live within the gates (Dutch: poort) of a city and had city rights. These poorters were often prosperous and by uniting themselves they could become very powerful. The influence and importance of these three parties for the cloth trade between the Netherlands and Northern Europe will be further discussed below.

Trade through the Hanseatic network

After the switch of raw material i.e. de high quality English wool in 1396 the number of sales markets increased steadily. In the 15th century several permanent markets, within a wide radius around Leiden are mentioned; Amsterdam, Kampen, Zwolle, Deventer, Zutphen, Bergen-op-Zoom, Antwerp and Bruges (Posthumus 1908:239). But the poorters of Leiden were restricted in their freedom of trade. Until 1447 they were only allowed to visit these towns during the annual

[29] From the French word *drap*, meaning big piece of cloth.
[30] Pirenne argues this in his book Historire de Belgique, II, p. 63-65.

fair and they could only sell their products in places designated to them, like cloth halls or houses. But cloth was produced in the production centres all year round and there was a need for a bigger market to sell the product to. This type of market existed and soon the cloth found its way on the widespread market of the Hanseatic trading network, the cloth from Leiden came available in every town connected to the network, but was especially wanted in the Northern countries, due to its high quality and thickness. (See Ill. 6.)

'Leidsch laken' on the Hanseatic market in the 15th century

The most important role in the international trade was played by the different merchants, including the drapers and poorters as well as the merchants that were part of the Hanseatic League. Important to mention is that Leiden was never part of the Hanseatic League as a city, but was strongly connected to the network as the biggest producer of cloth in Europe during the Late Middle Ages. From the written sources it does not become clear of in the beginning of the 15h century the cloth was only bought by German merchants, that is Hansa merchants in Leiden and other market places in the Low Countries or that the drapers and poorters themselves went to foreign towns to sell their goods, as they start doing after the middle of the 15th century.

Already by the beginning of the 15th century it becomes visible from several regulations, that the Hansa towns felt threatened by the Hollanders and the way they conducted their trade. Since then the drapers is Leiden tried to push aside the middlemen in the textile trade to put themselves in immediate contact with cloth buyers residing in foreign trading towns. Before this time, the drapers almost never did business outside the boundaries of the Northern and Southern Provinces in the Netherlands, but either sold their cloth to merchants coming to Leiden solely for this purpose or went to various markets[31] in Holland to sell their product (Posthumus, 1908). On their turn, the merchants who bought the 'Leidsche laken' created a local market in their hometown by selling the cloth to local wantsnijders. This only applied to the first half of the 15th century, during the second half of the 15th century it became more and more common for the drapers to travel together with their product to foreign towns, thus cutting out the middleman i.e.

[31] The size and importance of these markets shifted from year to year, while they were depended and influence by political, economical and social circumstances. The most important markets in the Netherlands by this time were; Amsterdam, Kampen, Zwolle, Deventer, Zutphen, Bergen-op-Zoom, Bruges and Antwerp.

the Hanseatic merchants[32]. However, more resistance from the Hansa merchants arose when a group of Leidse *poorters* decided to take total control over the cloth trade to the Baltic themselves. According to Posthumus this was the first type of organisation in the Netherlands that specialized itself as cloth wholesalers (Posthumus, 1908:256).

To prevent that the drapers and poorters from Leiden would trade their cloth to the Baltic area themselves, the Hansa determined in 1442 that the high quality cloth from Leiden, Amsterdam and Schiedam first needed to be brought to the staple market in Bruges, where the Hansa resided in a big office. The staple market in Bruges was of extreme importance for the trade of cloth to the Hanseatic merchants. All drapers from large and smaller cloth production centres in the Southern and Northern Netherlands brought their cloth here to sell it to the merchants. From Bruges, situated close to the North Sea, the cloth could be traded to England and the Baltic Area. In 1461, 1465 and 1470 this staple order was repeated, due to constant circumvention. Besides the big staple market in Bruges the cloth could also be brought to the two free markets in Antwerp and in Bergen-op-Zoom. The pieces of cloth that were brought to the market received a special seal there, given by the Hanseats to keep a good sight on what was brought on the market (Posthumus, 1908:248). The people in Leiden were everything but happy with this demand from the Hanseatic League. In 1471 the poorters of Leiden announced that from then on they refused to bring any more cloth to Bruges (Van der Ropp, VII, n°. 79 § 54)[33]. The next year the Hansa had to pull out from this and give the Dutch cities what they wanted, which resulted that the trade of Holland's' cloth grew once again in the Baltic area. The last attempt from the Hansa to oblige the Dutch cities to bring their cloth to Bruges dates from 1499, but was again unsuccessful.

In 1451 an important event took place. The Hansa severed their trading relations with Flanders and boycotted their goods from the market. The Hollanders benefitted strongly from this, since the cloth industry was its biggest rival by that time. The relationships between the Hansa and Flanders were restored five years later, but the Flemish cloth industry was weakened.

[32] Von der Ropp, Hanse-Recesse, VII, p. 182: […] "*seggen de van Leyden, dat dat waer is, dat de koplude van Leyden erstwerff ere laken sulven hebben begunnen so veel unde so starck in Ostland te bringen unde de kopmanscop daraff sulven hanteren, alse se dese naster jaeren gedaen hebben*" ([…] "*say from Leiden, that it is true, that the merchants from Leiden first started to sell the cloth themselves, so plentiful and vigorously in Eastland (meaning Germany) and with that taking over the trade of merchant, as they did for the following years.*")

[33] Amsterdam had in 1471 stated a ban on bringing cloth to the staple market in Bruges.

In these five years of boycotting the Flemish cloth, the cloth industry in Leiden increased highly. Leiden was leading the distribution of cloth in Europe by this time and exported their products mainly to the east into the Hanseatic trading network (Von der Ropp, 1923:182). Other towns in the Netherlands were also producing for this market but on a smaller scale, the only town that produced a noteworthy amount of cloth during this time was Amsterdam.

In 1473 and in the following years some Hansa towns complained more and more about the wholesale business from the poorters, whit Baltic towns. This organisation bought the cloth from the drapers in Leiden and tried to establish a monopoly of the trade. Partly they sold the cloth to Hansa merchants in Leiden, but the gross was send to Hamburg and Lübeck to be sold for cash, which was reinvested in the cloth production in their hometown, Leiden. By operating this way, the market value could be kept low, to great discord of the competing Hansa merchants. The monopolization of the cloth market went even further, when the poorters brought, besides the cloth, tailors with them to the Hanseatic towns as an extra source of income (Van der Ropp, 1892:297). Apparently this became too much for the Hanseatic towns, because a total ban on 'Leidsch laken' in their region followed and the city council of Leiden was on political grounds forced to break down the trading partnership of poorters. But by the end of the 15th century, the Dutch philosophy of free trade, which peaked in the 16th century, became already visible and the city council of Leiden could not stop the eager free trading spirits of its merchants. The trade had outgrown the authorities.

'Leidsch laken' on the Hanseatic market in the 16th century

As said, the free trade attitude of the Dutch and the trading supremacy in the North and Baltic Seas by the mid 16th century, conducted by hundreds of ships passing through The Sound made the Dutch economy grow rapidly. Even though the economy in the Netherlands was growing fast during this century, both the cloth industry and textile trade were deteriorating, mainly caused by the rapidly growing cloth industry in England. And even though merchants had a free spirit of commerce, the fact that drapers and poorters took the trade of cloth in their own hands and went themselves to the national and international markets to sell their products, should not only be viewed from this perspective. On the contrary, it was more a dire necessity than a choice. With the decline, due to the growing competition from England, the demand for 'Leidsch laken' disappeared and merchants were not travelling to Leiden anymore to buy the cloth. The drapers

from Leiden physically had to take their cloth trading centres and most of the 'Leidsche lakens' were brought to Amsterdam, which had developed to one of the most important harbours of Europe by now.

In 1530 a stock market was erected by the government of Leiden to prevent further recession and to financially protect the drapers, which had initially a positive effect. Thirty years later another initiative, this time coming from the drapers themselves was taken. No less than eighty drapers united themselves to form a cooperative 'sales office' specialized in black dyed cloth (Posthumus, 1908:259) to protect this particular market. Most of them had traditionally close connections with the city of Antwerp and since the cloth market by this time had shifted from Amsterdam to Antwerp, the 'sale office' was settled there.

'Leidsch laken' on the Hanseatic market in the 17th century

In the 17th century the textile production in Leiden started to flourish again, a phenomenon which is known in the literature as the 'new drapery'. For the 'new drapery', lighter and cheaper wool was used from Spain, Biscay, Pomerania and Scotland. The wool was bought in Amsterdam, which was the most important (wool) market in that time (van Dillen, 1970:181). From Amsterdam the wool was brought to Leiden to be made in to cloth and from there brought back to Amsterdam to be shipped all over the world. The prosperity of the cloth industry was visible in Leiden again by this time, but merchants we not coming to Leiden any more to buy the cloth straight from there, as was done during the first flourishing period of the textile production in the 15th century. The international importance of Amsterdam was too competing, but at the same time Leiden could sell more cloth than ever by bringing its product to the biggest harbour of the world. The sales areas of cloth by the 17th century had changed. Most cloth was brought to France, Spain and Italy, but expanded soon to Germany, Poland, Switzerland and East and West Indies (Moes & de Vries, 1991).

With the discovery of the 'New World' and the establishment of the Dutch East India Company (Vereenigde Oost-Indische Compagnie, VOC) in 1602 and the Dutch West India Company (West-Indische Compagnie, WIC) in 1621 the trading markets shifted and the commercial routes changed. The Baltic area was no longer the centre of the north European trade.

3.4. – The cloth trade between the Netherlands and Scania

One of the oldest regulations from Leiden deals with the trade of cloth by poorters from Leiden to Scania[34] (Old Dutch: Schonen), a market place where around the end of the 14th century many merchants from different trade centres in Europe went to carry on a business. The regulation states that the drapers were only permitted to sell the 'Leidsche laken', either per el or by the piece. Posthumus writes that around this time no other direct sales area of the cloth from Leiden is known from any regulations, just the trade '*oestwairt*' (eastwards) is mentioned. The written sources unfortunately do not withhold information how much cloth was traded to which town or region during different periods of time. But by looking at the different Hanseatic towns and the trading routes between them it is possible to reconstruct the most plausible routes chosen for the trade of cloth. This is attempted for the trade of cloth from Leiden to Scania during the 15th, 16th and 17th century.

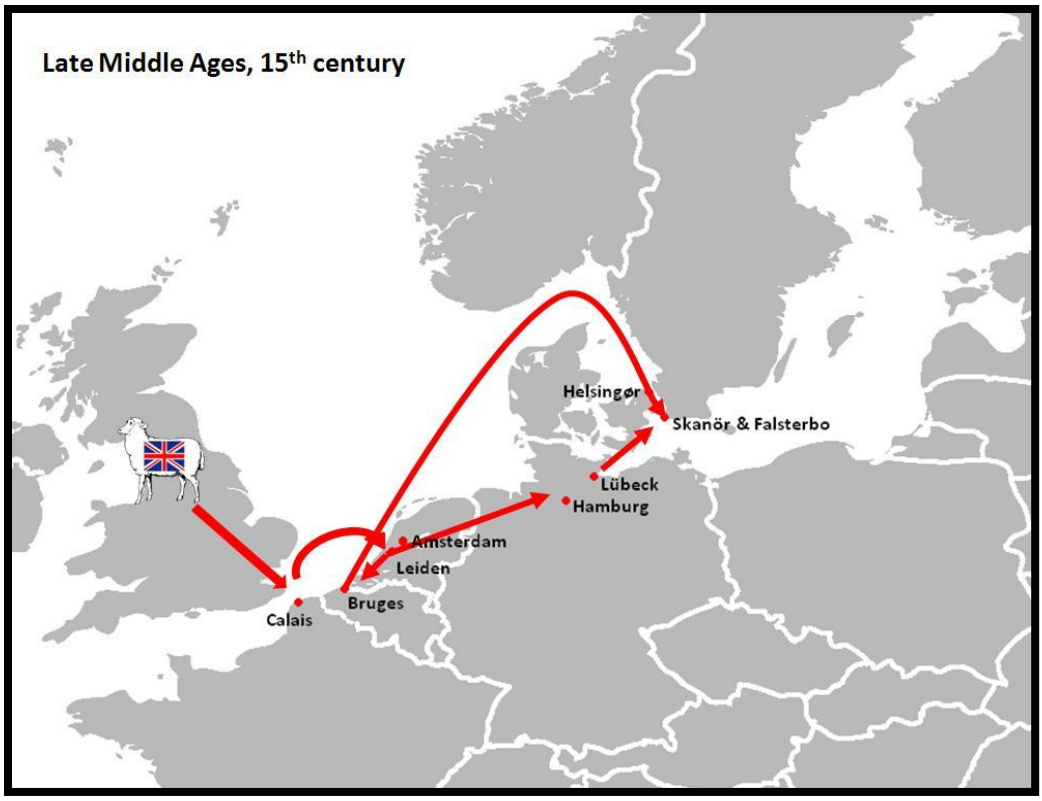
During the first half of the 15th century all trade from Leiden to Scania was either totally or partly controlled by the Hanseatic network and a piece of 'Leidsch laken' could reach Scania in different ways, depending on which trading route was chosen. The Hansa had different outposts in Scania, most importantly were Skanör and Falsterbo, but Malmö, Landskrona and Ystad were also connected in the Hanseatic trade.

The first route was over land. The Hansa merchants came from Germany to Leiden to buy the cloth, or they bought it from surrounding markets in the Netherlands and took it from there into Germany. Most likely the cloth was first brought to Lübeck and from there shipped up north to Scania's most important markets, Falsterbo and Skanör. Another possibility was to ship the cloth directly from the Netherlands towards Hamburg. From the sources it is known that ships from the west sailed to Hamburg, following the Elbe River and ships from the west sailed to the harbour of Lübeck. In both cities the cargo from the ship was unloaded, transported overland to the other city and reloaded into a ship on the other side, from where it sailed in opposite directions (Heers, et. al., 1988). A third option is that the cloth intended for the markets in Scania was directly shipped from the harbours in the Netherlands. Especially Bruges was of great importance during the 15th century.

[34] Hamaker, Kb n°. 3, 133 § 2.

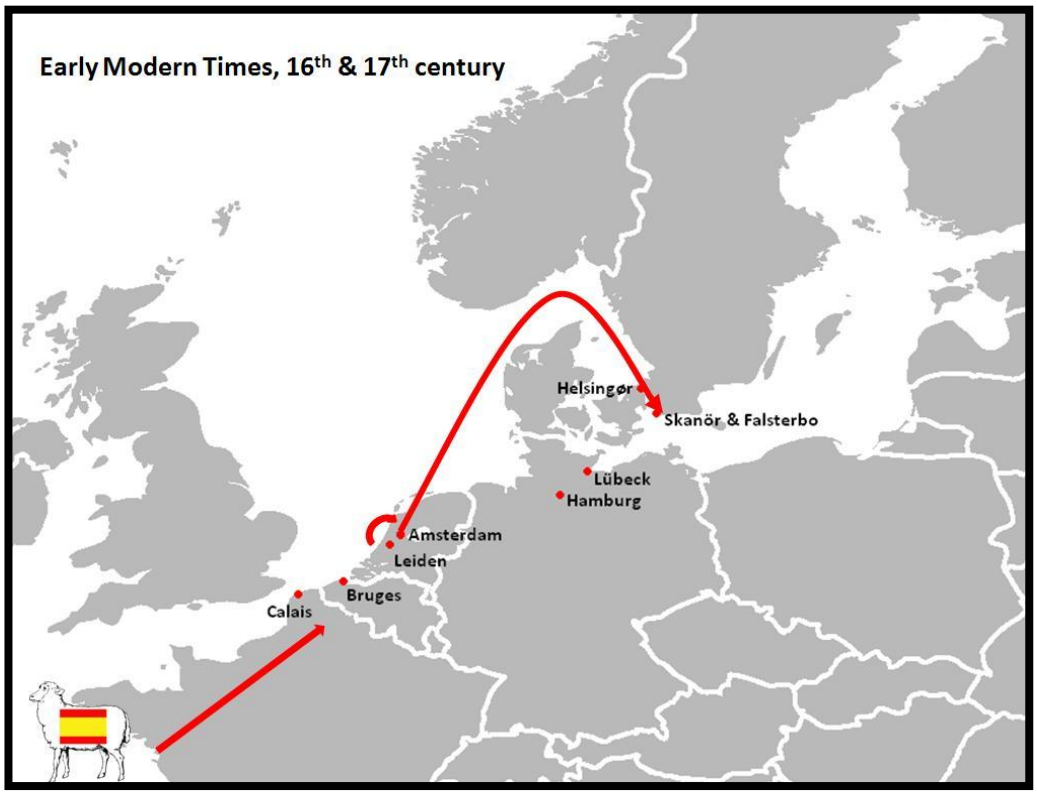
This changed during the second half of the 15th century when the drapers and poorters started to sell the cloth on their own by going to towns, mostly part of the Hanseatic network and thus cut out the middle man. The Hanseats were very disturbed with the free commercial spirit of the drapers and poorters and forced Leiden (together with other cloth production centres; Amsterdam and Schiedam) to bring the cloth to their staple market in Bruges. Between the years 1442 and 1471 this staple order was for the greater part complied with and for this period it is most likely that the cloth was shipped directly from Bruges towards Scania. After 1471 the drapers and poorters of Leiden refused the staple order from the Hansa and started again to conduct trade on their own, may it via land or sea.

In the 16th and 17th centuries when the free trading spirit was greatly supported by the Dutch and the influence of the Hansa in the European trade declined, the merchants turned more and more towards the harbour of Amsterdam. From here the cloth could immediately be shipped through The Sound to the harbours of Copenhagen and more closely; Malmö.



Ill. 7. A reconstruction of the 15th century trade system in wool and cloth in North-West Europe. English wool was brought to the staple market, from where it was brought by drapers to Leiden to be processed into cloth. From there the cloth was either bought by Hanseatic merchants or traded eastwards by the drapers or poorters. The central position of Lübeck becomes clear.

In the years that the cloth had to be brought to the staple market in Bruges, it was shipped straight to The Sound to Scania.



Ill. 8. A reconstruction of the 16th and 17th century trade system in wool and cloth in North-West Europe. During the 16th century the shift to Spanish wool as the raw material took place. This was brought to Calais, but after 1556 to Bruges, where it was bought by the drapers of Leiden. The cloth produced in Leiden was now sold on the market of Amsterdam and from there shipped to Scania.

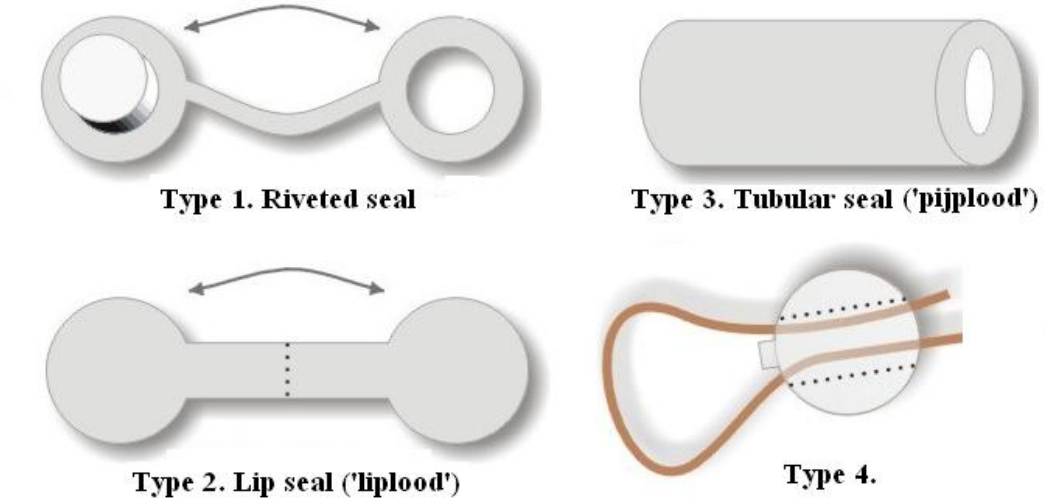
4. The Archaeological Material

In this chapter the archaeological material i.e. a total of sixty-two lead cloth seals from different archaeological sites in Scania are ordered and analysed to find location, origin, date, size and type.

4.1. – Technical aspects of cloth seals

From the 13th until the 19th century, when the sealing of cloth was carried out, a variety of seals were used in different regions. The rivet seal (see, Ill. 9) is the most common and seems to have been devised specifically for marking commercial textiles. These seals were attached to the cloth by folding the discs around each side of the textile so that the rivet on one disc could be pushed through the fabric and the corresponding hole in the other disc (FIGURE) (Egan, 1995:2). The rivet was than bend over and pressed together. Within the rivet seal type a division can be made between single and double rivet seals. Single rivets were usual in England, while the two rivets appear mostly in the Low Countries and France from the late 16th century onwards (Egan, 1995).

From the established type of rivet seal with two discs developed the four-part seals and first appeared near the end of the 16th century, but it is not known in which county it originated. With more discs available, more information could be put on the seals. This development grew hand in hand with tighter, centralized control of the system (Egan, 1995). Six-part seals are known as well.



Ill. 9. The four main technical types of seals used in the textile industry during the Late Middle Ages and Early Modern Time.

Besides the rivet type of seal a simpler type of seal is known, excising solely of two round discs connected by a strip (Dutch: 'liplood') (type 2, Ill. 9). This type seems to have been in use before the rivet type, but was most likely replaced by the rivet type when the industry started to grow in the 15th century and the demand for a more fastened type of seal arose.

The tubular seals (Dutch: 'pijplood', 'pipe lead') (type 3, Ill. 9) are probably of Dutch origin, since they are known, besides from the Dutch production centres, in immigrant Dutch communities in England (Egan, 1995:6). Threats were pulled through the tube after which the lead was pressed together so the seal would be stuck to the cloth (Baart, 1977). Seals made by the same principle, but of an oval or a more neatly circular shape (type 4, Ill. 9) were more common in England or in the silk industry of the Continent. This type of seal is known as *bulla* - a disc with a tunnel from side to side through which a string is passed. The bulla became a popular form of seal during the 18th century. It was found to be more versatile than the rivet-type seals hitherto used on cloth, as it could be attached to a wider range of goods, including the bags, bales and sacks in which they were distributed and was also widely used outside the textile industry (Egan, 1995:6)

Discussed here are the four main types (and variations on those types) of lead cloth seals found in the archaeological record in England, Continental Europe and Scandinavia. In Scania other types of seals, besides the ones described above have not been found (so far) and will therefore not be amplified in this paper.

Information on seals

After the lead seal was bend over fabric the seal needed to be pressed together to permanently attach the seal to the cloth. In the Middle Ages this was done by striking a mark into the seal using a anvil, but generally a pair of sealing tongs[35] was used (Ill. 10).

Ill. 10. A pair of sealing thongs in 'Lakenhal Musem', Leiden.

[35] These types of thongs are found in archaeological records, both in Leiden and Amsterdam. The tong found in Amsterdam dates from 1350.

Later periods a sealing press was used in which two dies (matrices) to close it firmly in place and to register the appropriate information, concerning origin, quality, colour, dimensions, etc. The information put on medieval seals is often very simple. Since there were not many production centres and regulations and control on colour, dimensions, finishing processes, etc. the seals only needed the most basic information. Often only a star or a *fleur-de-lys* was depicted. This makes the study of medieval seals difficult, since no information on the production centre or quality is reducible. In the Late Middle Ages this changed completely, with the strict control on the production process and quality. On one side of the seal the coat of arms of a city was often depicted, while the other side held information on the characteristics of the cloth, meaning the dimensions, colour, quality, dye, etc.

Material & Size

Although it is known that in the Middle Ages seals were made from wax, almost all other cloth seals known to us are made out of lead. Lead is a very soft and thus a suitable metal to strike marks into and it can easily be pressed together. Besides of lead having the property to be soft it is also dense, which makes the material rather heavy. For this reason, the seals could not be too big, otherwise their weight would tear the fabric. Small seals were generally used for thin fabrics, like silk and heavy ones were appropriate for coarser fabrics. From Leiden we know, that different sizes of seals were used to indicate certain characteristics of a piece of cloth. The larger seal could be considered as the 'main seal', while other smaller seals withheld more specific information on the size and colour for example.

4.2. – Lead Cloth Seals from Scania

One of the purposes of this research is to document all Late Medieval and Early Time cloth seals found in the Swedish province Scania. Access to this material was gained through different museums and has resulted in a total of sixty-two lead cloth seals. It must be stated that this number does not correspond with the total amount of all cloth seals documented in the different databases of these museums, since modern and dubious seals have been discarded from this research. When looking at the archaeological material the cloth seals dating from the periods of interest concerning this research i.e. the 15th, 16th and 17th were selected. Apart from the focus on this time span several seals dating from the 18th century have been deliberately included to

illustrate the shifting heart of cloth production and import from Western Europe to national production centres in Sweden.

The cloth seals recorded in this study come from different collections of five museums or institutions located in Scania. These are; Malmö Museum, Lund Kulturen, Lund Universitet Historiska Museum (LUHM), UV Syd - Riksantikvarieämbetet and Helsingborg Kulturmagasinet/Helsingborgs Museum. Below follows a list of the number of cloth seals coming from the different collections.

Cloth seals in collections	**Number of seals:**
Malmö Museum	13
Lund Kulturen	28
LUHM (Gastelyckan Magasinet)	11
UV Syd	9
Helsingborgs Museum	1
Total	**62**

Seals in the collection of Malmö Museum

The thirteen seals form the collection of Malmö Museum were all found in the city of Malmö or come from the immediate hinterland of the city. Seven seals are found in the city of Malmö, four seals come from a farm at Bunkeflo, situated just outside of western Malmö, one seal comes from Naffentorp, also from a farm situated outside of western Malmö and the last seal is found in Sunnanå, a small village east of Malmö.

Seals in the collection of Lund Kulturen

From the museum Kulturen in Lund come a total amount of 28 cloth seals. Twenty-four of these have been found in the direct city centre, of three the find location is unknown and one seals comes from the Berg's collection (Berg samling).

Seals in the collection of LUHM

Lund Universitet Historiska Museum (LUHM) has a regional responsibility for Scanian archaeological finds. The two exceptions to this are the already mentioned museums in Lund and Malmö. Regional finds are stored in the *Magasinet,* situated in the Gastelyckan Industrial Park, east of Lund. A total amount of eleven seals kept in their collection have been taken for this study. Seven seals coming from Skanör, one from Helsingborg, two from Hovdala and the last one from Falsterbo.

Seals is the collection from UV Syd

From UV Syd – Riksantikvarieämbetet a total number of nine seal were selected for this specific research. Seven are coming from excavations at Örja, a small village situated 1.5 km east of Landskrona. One seal comes from an excavation in Stora Uppåkra and one from gamla Laröd, 4 km north of Helsingborg.

Seals from Helsingborg Museum

In the collection of Helsingborg Kulturmagasinet/Helsingborgs Museum one item of interest could be found.

4.2.1. - Find conditions and find locations

For all seals discussed in this research no information was available about specific find conditions or stratigrafic contexts. For the seals from Lund Kulturen, most locations are known, but no additional information on exact finding conditions is given. The same applies for the seals from Malmö and from LUHM. The seals found in Örja, Hovdala, Uppåkra and Laröd are all coming from ‘layer 100’, which refers to the topsoil from which the seals were found by the use of a metal detector. The find condition of the seal from Helsingborg Museum is unknown. In the catalogue the find location and find conditions are included. Without focusing on the exact find location, within the different towns the table below shows how many seals were found in the different locations in Scania and this geographical spread is plotted on the map of Scania (Ill. 11).

Most seals are found in Lund and Malmö, which might not be surprising since these two towns fulfilled an important role in past times within Scania as a harbor city and as an important religious centre. In the harbor and market town of Skanör a fair amount of seals has also been found, as in the Örja, only situated 1.5 km north of the important harbor town of Landskrona during the Late Middle Ages and the Early Modern Period. Three seals have been found in the vicinity of Helsingborg, which is remarkably few. Being situated at the narrowest part in The Sound this town has always been of great importance for both Danes and Swedes, especially as a centre of trade. Besides the town of Skanör situated on the Falsterbo peninsula, two seals have been found in the market town of Falsterbo, One seal has been found in Stora Uppåkra and two seals come from excavations carried out in Hovdala.

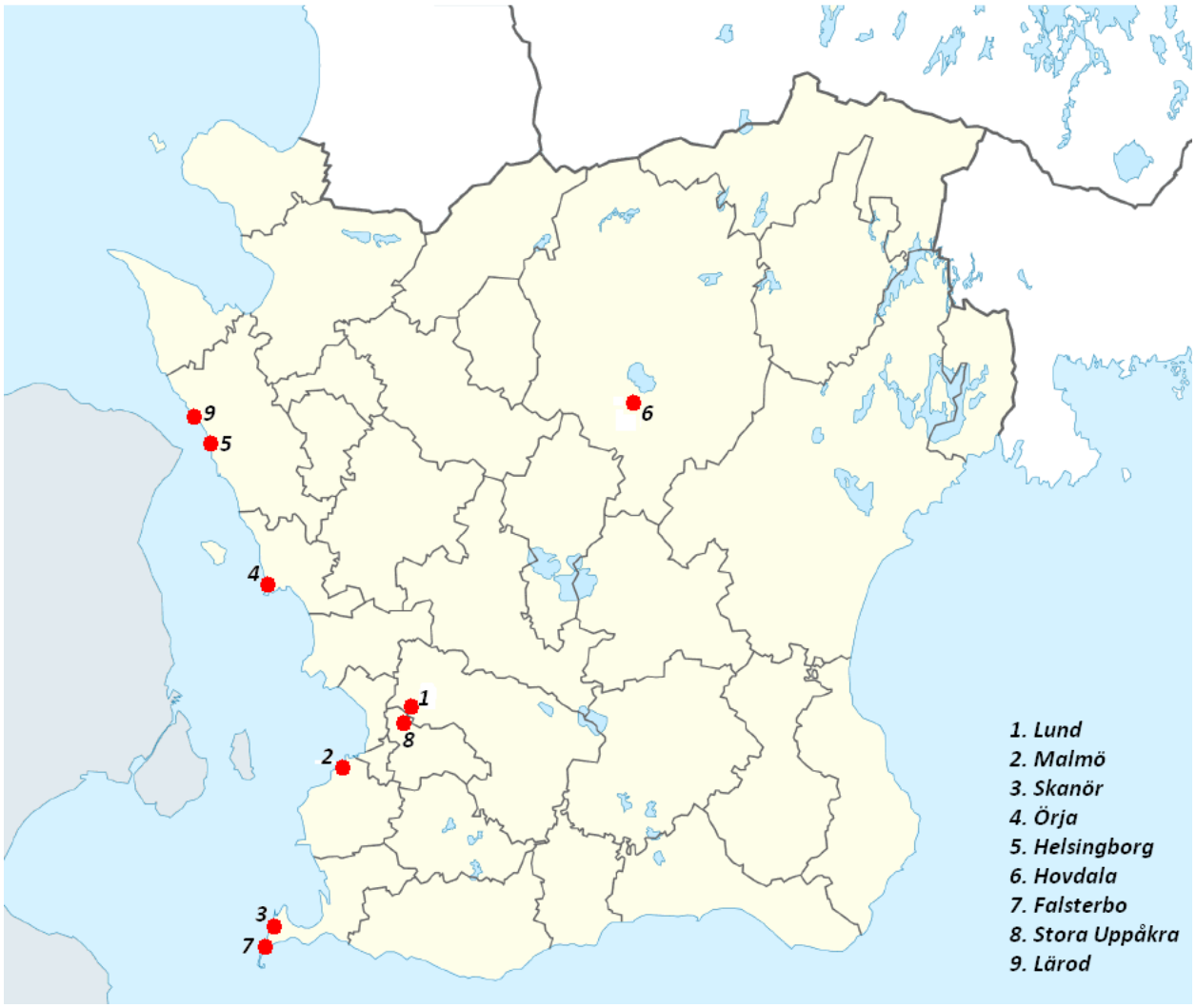
Find location of seals in Scania	**Number of seals**
Malmö	13
Lund	28
Skanör	7
Örja	7
Helsingborg	2
Hovdala	2
Falsterbo	1
Stora Uppåkra	1
Laröd	1
Total	**62**

When looking at the map of Scania (Ill. 11) most striking is the spread of cloth seals along the coast of The Sound. These six locations (Laröd (9), Helsingborg (5), Örja (4), Malmö (2), Skanör (3) and Falsterbo (7) are or are in the immediate vicinity of harbour and trading centres. Important exceptions to this are the large amount of seals found in Lund (1) and the seals found in Hovdala (6), which is situated far away for any coastal town.

4.2.2. – Retracing origin of the cloth seals

The geographical spread and the number of cloth seals found in Scania has been described and analysed above. This has given insight to which locations in Scania the cloth was traded (or at

least ended up there, in one way or another). The next interesting step is to retrace the seals and with that the actual product of cloth, to their origin of manufacture.



Ill. 11. On this map of Scania the different locations, where lead cloth seals have been found in the archaeological record are indicated by the red dots. It becomes clearly visible that the largest part of these places are located close to the water of the Sound and thus next to the main sailing route to the Baltic Sea.

Identification by place-names

The origin of the total of 15 cloth seals could be traced back by the place name (or part of it) imprinted on the seal. From Malmö Museum this could be done to five seals; Leiden (MHM 460,

cat. nr. 1), Colchester or Gloucester (MHM 6094:339, cat, nr. 7), Torgau (MHM 12749:22, cat. nr. 7), Deventer (MHM 1287:713, cat. nr. 8) and Göttingen (MMA 54, cat. nr. 12). From Kulturen Lund five seals: Tournai (KM 19470, cat. nr. 17), Malmö (KM 38330:2, cat. nr. 24 & KM 38357:3, cat. nr. 29), Nörrkoping (KM 47645, cat. nr. 34) and Göttingen (KM 78415:81, cat. nr. 41). From the cloth seals for Skanör one is provided with an origin name: Kampen (29303:7a, cat. nr. 42). From the seals found in Örja two seals have a place-name: Landskrona (1321, cat. nr. 51) and Copenhagen (1692, cat. nr. 55). From Helsingborg one seal: Haarlem (p.1723, cat. nr. 57) and the seal found in Gamla Laröd: Göttingen (cat. nr., 62)

Identification by coat of arms

Most of the seals mentioned in the paragraph above have next to the place-name also an imprinted coat of arms. These will not be mentioned here, since a written place-name is considered more reliable than a coat of arms, when it comes to identifying the place of origin of a cloth seal. Eight cloth seals studied in this research are only identifiable by the imprinted coat of arms. A coat of arms is a symbol unique to a person, family, corporation, town or state. On cloth seals a coat of arms mostly refers to cities in which cloth was produced and checked for quality. From Malmö Museum one seal can be identified to come from Hamburg (cat. nr. 13). From Kulturen Lund four seals bear a coat of arms and can be traced back to Hamburg (KM38331:2) and Leiden (KM 38346:1, cat. nr. 26, KM 38383:3, cat. nr. 27 and KM 52739, cat. nr. 38). From Skanör two seals coming from Kampen (29303:7b, cat. nr. 43) and Haarlem (29303:19, cat. nr. 44) can be identified. The seal found in Falsterbo comes from Breda (28070:17, cat. nr. 60).

Identification by privy marks and manufacturer name

Two identical seals from Malmo Museum (MHM 454728, cat. nr 11) and Kulturen Lund (KM 16836, cat. nr. 15) can broadly be traced back to Germany. Both seals have a privy mark with the initials LB and two names are imprinted on the seal corresponding with these initials; ‘Lehte und Bürling’. The type of privy mark used is often associated with dyers (Egan, 1995). The names referring to a draper of dyer could not be traced to a specific region or town of production by the author.

Identification by writing

One seal in the collection of Kulturen Lund (KM 15946, cat. nr. 14) cannot be traced by a name of origin, but the language written on the seal is clearly Swedish. It states; "TULL - STEMPE(L) – TILL O U – INKOMN – HRO.

Conclusion

From the total of sixty-two cloth seals looked at in this study, the origin of twenty-six seals could be traced back. This is almost 42%. The table below shows the towns and countries for which this was possible. From the seals from which the origin is known, 42% comes from the Netherlands, 31% from Germany, 4% from England and 23% from Denmark and Sweden.

The Netherlands		**Germany**		**England**		**Denmark & Sweden**[36]	
Breda	1	Göttingen	3	England	1	Copenhagen	1
Deventer	1	Hamburg	2			Landskrona	1
Haarlem	2	Torgau	1			Malmö	2
Kampen	2	Germany	2			Norrköping	1
Leiden	4					Sweden	1
Tournai[37]	1						
Total	**11**		**8**		**1**		**6**

There are five cloth seals (KM 19331, cat. nr. 16, KM 34977:1, cat. nr. 23, KM 49186:301a, cat. nr. 37 and Hovdala 1142, cat. nr. 58 and Laröd, cat. nr. 61) in this study of which the exact origin could not be traced back with a hundred percent certainty, see table below. The two cloth seals,

[36] The author has chosen to combine these two countries in one row in the table, considering that some towns in Scania (Landskrona and Malmö) were part of Denmark during most of the period of interest of this study i.e. the 15th, 16th and 17th century.

[37] Today Tournai is located in Belgium, but was situated within Dutch borders until 1830, when the Netherlands and Belgium permanently split up.

which are attributed to Germany and England show a contradiction when it comes to retracing origin. On one side of the seal a Tudor Rose is visible, a clear indication of a 16th century production in England, while in the other side the name 'GVILHELMUS ALMANDETE' can be read, which is strongly associated with Germany. If these uncertain seals were included in the statistics of the seals of certain origin, the picture would not change much. The largest amount of imported cloth still originates from the Netherlands.

From the total amount of sixty-two cloth seals, the origin of twenty-six seals could with certainty be identified, of five seals the origin is not certain and of the remaining thirty-one seals the origin could not be retraced.

The Netherlands		**Germany**		**Germany or England**	
Gouda	1	Göttingen	1	Germany or England	2
Ypres[38]	1				
Total	**2**		**1**		**2**

4.2.3. Dating of the cloth seals

As said above, no cloth seals in this study come from stratigrafic contexts and dating of the seals can solely be done by investigating the material itself. There are different methods available to do this at these will be discussed here.

Absolute dating by year

Dating a cloth seal is most simple and certain when the seal is fitted with a year of production. In the collection of cloth seals from Scania a total of eight seals have an exact date imprinted on them. Two seals from the collection of the Malmö Museum: origination from Torgau and dating from 1611 (MHM 12749:32, cat. nr. 7) and a seal from Hamburg dating from 1565 (cat. nr. 13). From Lund Kulturen six seals have an exact year on them, these are two seals coming from

[38] Idem as stated above.

England or Germany (discussed above), dating from 1570 and 1583 (KM 19331, cat. nr. 16 and KM 34977:1, cat. nr. 23), two seals origination from Malmö, dating from 1765 and 1803 (KM 38330:2, cat. nr. 24 and KM 28357:3, cat. nr. 29), one seal origination from Norrköpping dates from 1740 and the seal coming from Sweden (KM 15946, cat. nr. 13, discussed above) dates from the 1730's, the last number is not visible.

Dating by seal type

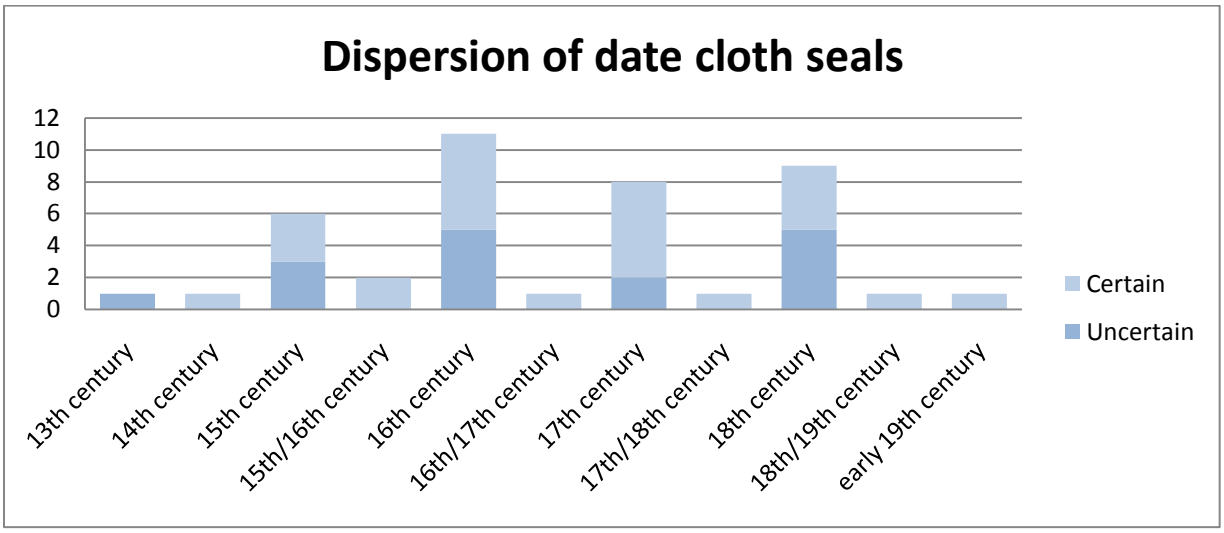
The different techniques of seals used during previous times can be an indication for the date of a seal. The most common 'riveted form' was most common during the 15th, 16th and 17th century, but was already used in the 13th century as is known from a lead seal found in Leiden dating from 1275 (Baart, 1977). A simpler variant of the riveted type, the 'Lip seal' is known to be used before the growth of the cloth industry in the 15th century. The cloth seals of the 'bulla type' became popular during the 18th century. This method is relative.

Dating by type of fount

Another dating method of cloth seals has been described by Mette Andersson in 'Blystuckan funna I Sydskandinavien' (1982) and is mentioned in an article from the pen of Niels-Knud Liebgott, 'Da klæde var en mærkevare' (1975). According to this method it is possible to relatively date cloth seals by looking at the fount used to describe information on the seals. This theory is based on the work of Ahasver von Brandt[39]. A fount known as uncial script (majuscule script, written entirely in capital letters) was used on seals in general form the end of the 12th to the end of the 14th century. In the centuries after this changed and the Latin fount and started to use minuscule letters. Most seals studied in this research date from the 15th century onward and are all imprinted with the Latin fount, but this method cannot be used to further distinguish the 15th, 16th and 17th century text from another. Two notably seals found in Lund are an exception to the material dating predominantly from the 15th and later centuries. One seal originates from Tournai (KM 19470, cat. nr. 17) and is dated in the late 14th century. The letters used are all majuscules, which is in agreement with the theory described above. A seal of

[39] Andersson refers the work of this author in this book *Werkzeug des Historikers.* Urban Bücker, Stuttgard, 1969. p. 176.

unknown origin (KM 20530, cat. nr. 18) is written in a fount that is similar to the majuscule Gothic type, but some letters do not correspond with this. The seal is dated to the 13th century.



Conclusion

When looking at different studies dealing with the dating of lead cloth seals it becomes clear that this part is most struggled with. This is mainly due to the fact that the technique used for fabricating cloth seals did not change much over the centuries. The oldest cloth seal known, dating from 1275 is technically the same to a cloth seal dating from the 17th century. In spite of the difficulty of dating, a total of forty-two seals from this study could be dated, even though not all with certainty. The graphic above shows the total amount of cloth seals found in Scania that can be dated, with certainty or not. To make a clearer overview of the spread of the seals in time the seals with an absolute date are dated within a century as well, so a seal dating from 1565 is dated within the 16th century. It becomes clearly visible that the largest amount of seals date from the 16th century (11 seals) followed by the 18th century (9 seals), the 17th century (8) seals and in the 15th century 6 seals can be dated.

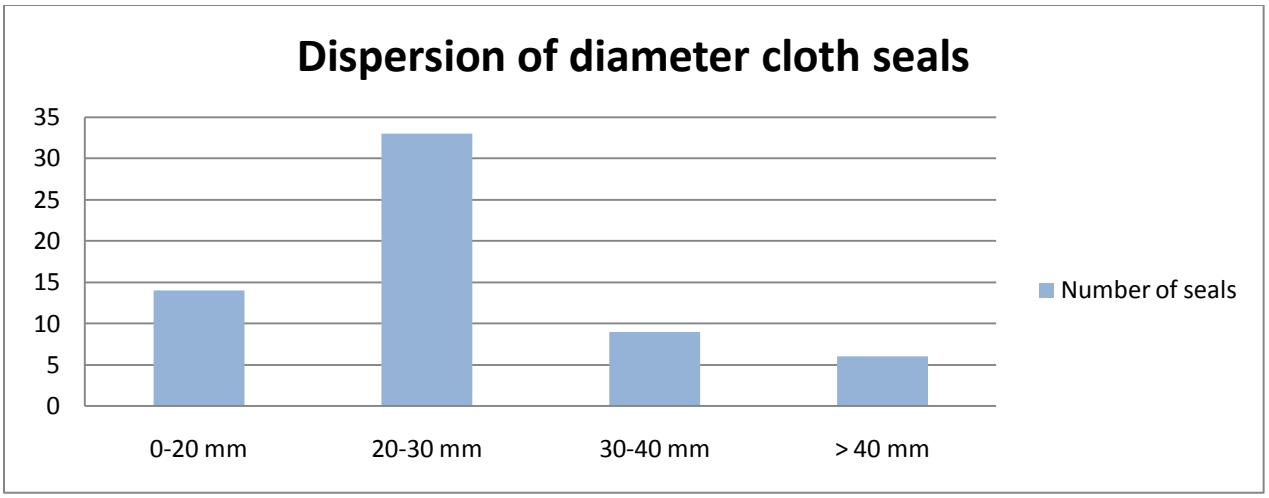
4.2.4. – Size

The size of the seals can be interesting to investigated, since it can withhold information about two important characteristics of a piece of cloth; the type of cloth to which the seals was attached and the quality of the cloth. At the beginning of this chapter it has been mentioned that with the

changing fashion in the 17th century and especially with the large amount of the production of thinner and finer textiles, like silk in the 18th century the type of cloth seal had to change along with it. The heavy lead cloth seals, which were designed for the think and sturdy woollen textiles from the 15th and 16th century, did not suffice for the thinner fabrics since their weight would tear up the fabric. In chapter the different types of cloth seals that were attached to the cloth in relation to the control on quality have been mentioned. Large seals were only given to cloth of the highest quality and smaller seals to cloth of lesser quality. This does not mean that smaller cloth seals are immediate indications of lesser quality, since they were also used to indicate other characteristics of the cloth, e.g. the length, width, colour, fulling quality, etc.

The diameters of all seals and fragments have been measured. In most cases the seals were enough preserved to reconstruct and measure the 'original' diameter of the seal, the only two exceptions to this are one seal from Kulturen Lund (KM 38395:2, cat. nr. 31) and a seal from Örja (1495, cat. nr. 53). In the table below the different diameters are grouped together under different diameter ranges; between 0 and 20 mm, 20 and 30 mm, 30 and 40 mm and seals larger than 40 mm. These ranges have been selected by the author, based on the idea to separate small, medium, large and extra large seals.

From the table below it becomes visible that the majority of the cloth seals are of medium size, i.e. with discs between 20 and 30 mm in diameter. Fourteen small (0-22 mm) seals have been found of which the smallest is found in Malmö (MHM 7777:259). The seals larger than 40 mm reach a total number of six, of which the most extreme measures a diameter of 63 mm.



4.2.5. – Technical types of seals

From fifty-nine seals the technical type of seal could be seen. Not of all seals the type of seal could be determined, since some seals from the collection of Lund Kulturen could only be looked at from drawing on which the technical shape of the cloth seal could not be seen. Fourty-four seals are op type 1: 'Riveted seal'. Two seals are of type 2: 'Lip seal' and thirteen of type 4: 'bulla'.

4.2.6. – Other indications on the seals

Manufacture names

Besides the place-names, coat of arms, dates there can be found other indication on the seals, which hold certain information about the seals. A very good example of this is the names of persons or companies, which are associated with the manufacture of the cloth. In the collection of the seals found in Scania personal name or names can be seen on four seals and in all cases these name are German. Two almost identical seals are found in Malmö and Lund (MHM 4547:28, cat. nr. 11 & KM 16836, cat. nr. 15) and have the names 'Lehte und Bürling' imprinted on them. These combination of names associated with the textile industry could not retraced to a certain company, drapery or dyeing room. On two other seals found in Lund (KM 19331, cat. nr. 16 & KM 34977:1, cat. nr. 23) the name 'Gvilhelmus Almandete' is imprinted, but could also not be traced back to a person or company.

Indication of dyed cloth

Although the names mentioned above could be brought in association with dye companies, the only seal that certainly indicates to have been attached to a dyed piece of cloth is found in Lund and originates from Leiden (KM 38383:3, cat. nr. 30). The first four letters on this cloth seal are 'VERV', which is Old Dutch for dye.

Privy marks

On seven seals privy marks are visible. Two of the seals (MHM 4547:28, cat. nr. 11 & KM 16836, cat. nr. 15) (already discussed above) come from Germany and hold next to the name 'Lehte und Bürling' a privy sign in the middle that looks like a number four with the initials LH below it. The third seal (MHM 470, cat. nr. 2) also has a privy sign in the shape of the letter 4 with the initials HK below it. This 'number-4-looking' sign can be interpreted as the sign of making a cross and is often a part in privy marks associated with dyers.

Other unidentifiable privy marks can be seen on four other seals in the collection (KM 24423, cat nr. 21, KM 58219:2, cat. nr. 39, 1495, cat. nr. 53, 1141, cat. nr.58).

Patron saint

Sometimes patron saints can be identified on cloth seals and often stand as a symbol for a city or a guild, associated with the production of cloth. In the material discussed in this paper on one seal (KM 22792, cat. nr. 19) an image of a patron saint can be seen, although the saint depicted could not be identified.

Dimensions of cloth

On one seal a certain indication of the length of the piece of cloth to which the seal was attached to can be seen. The cloth seal comes from the Dutch city Haarlem (18180 (LUHM) cat. nr. 57) and on it the number 20 is clearly visible. This corresponds with a length of 20 el, which is equal to 13.80 cm. On another seal (1676 cat. nr. 54) the number 20 is also imprinted and this seal, at first hand, seems also to originate from Leiden, but if most likely an imitation.

5. Discussion

In order to answer the main question of this research: To see to which extent the lead cloth seals, found in different archaeological context in Scania can be used to reconstruct the Late Medieval and Early Modern Time cloth trade between the Netherlands and Scania, two aims of this research needed to be fulfilled. First, insight needed to be gained in the material culture of study, the lead cloth seals from different archaeological contexts in Scania. The material needed to be catalogued. A total of sixty-two seals have been described and published and with this one aim of this research has been realized. Their size, their characteristics and their appearance have been recorded as complete as possible. Besides these 'easy' recognizable features, the origin and date of the seals has been investigated and retraced as best one can. With the required data on the cloth seals; the size, the technical shape, the origin, the date, where they are found is Scania, etc. can be made many different connections and interpretations, depending on which questions are asked. The second aim that needed to be reached in order to answer the main question, i.e. to gain insight in the existing trading networks in north-western Europe during the Late Medieval and Early Modern Times and cloth as a commodity of trade within these networks. This second part of the question brings us back to the importance of context to give meaning to the material culture.

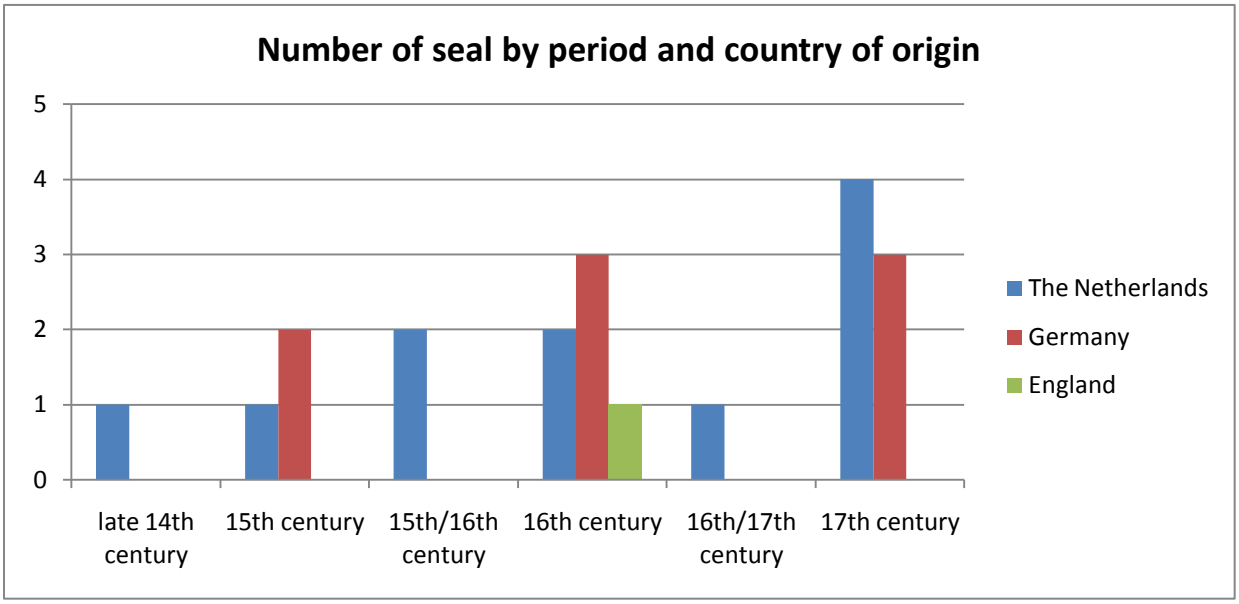
The theoretical approach of 'contextual archaeology' has been chosen as a framework to seek answers to the asked questions. Ian Hodder has pointed out the importance of looking at the context of artifacts. He advocates contextual archaeology involving "the study of contextual data, using contextual methods of analysis, in order to arrive at contextual meaning. If we translate this to the research at hand the written sources, i.e. the Late Medieval and Early Modern Time regulations concerning the cloth production and trade and the works of Posthumus based on these (contextual data) needed to be studied and by comparing the information found in the written sources with the data acquired from the study cloth seals (contextual methods of analysis), meaning can be given to the cloth seals, as a archaeological artifact in an historical context (contextual meaning). Now will follows a discussion which focuses on to which extent the main question of this research has been answered, first will be looked at relevant data from the study of the cloth seals (chapter 4) and then these results will be places in the context of the organization of the textile industry (chapter 2) and the cloth trade (chapter 3) during the 15th, 16th

and 17th century. The horizontally spread on the cloth seals on the Scanian landscape and the processes that have led to this distribution can be connected to the vertically spread of the seals in time. This will show a pattern, which will be interpreted or explained in different ways, with reference to a number of different possible processes. The same pattern or trace in the archaeological record, for example a cloth seal distribution, could be produced by a range of different simulated processes. Hodder felt that there was no way to test absolutely between these alternatives.

To answer to the main question two outcomes of the material study are of greatest importance. These are the data concerning origin and dating of the cloth seals. By looking at these two it becomes 'visible' from where cloth was traded during different periods. From the total of sixty-two cloth seals looked at in this study, the origin of twenty-six seals could be traced back with certainty. Of five seals the origin is uncertain and are therefore excluded in this discussion.

Six out of the twenty-six seals originate from Sweden or Denmark and could be dated within the 18th and 19th century. This period lies outside the main interest of this research, but is important in the discussion about the upcoming local and national cloth industry in the 18th century and with that the need to import cloth disappeared. This will be discussed more in detail below.
This leaves us with a total of twenty seal of which the origin is known and relevant for this specific research, a number equal to almost one-third of the total amount of seals. Important to state is that almost all of these twenty seals can be dated with certainty, four dates remain uncertain (3 originating from Germany and one for the Netherland), but will be included. When the towns of origin are classified under the countries in which they are situated the following distribution of the number of seals over time is seen (see graphic below).

With this clear overview on how many seals date from the different periods of interest, i.e. the 15th, 16th and 17th century, these results will be put in their corresponding historical contexts with focus on cloth production and the organization of trade in north-western Europe in order to give meaning to the archaeological material.



Distribution pattern, cloth production & cloth trade

Most seals originated from the Netherlands (11), after that from Germany (8) and only one seal could be traced back to England. The oldest cloth seal, found in Lund originates from Tournai (nowadays Belgium) and dates from the late 14th century. In chapter two it has been mentioned that before the textile industry became large in Leiden in the 15th century, it 'travelled' over the Dutch landscape, coming from medieval centres situated in the Southern Netherlands. The seal from Tournai was most probably traded within the Hanseatic network and shipped from Bruges immediately to the fits in Skanör and Falsterbo, since these were important outpost for the Hanseats during the 14th century. A local 'wantsnijder' from Lund could have easily gone to these market places to buy the cloth and sell it to different tailors in Lund, who finally made the woolen cloth into clothes.

When looking at the distribution of seals in the 15th century one might have expected a higher number of cloth seals originating from the Netherlands, but this number is surprisingly low. It could be that the Dutch seal dating from the 15th century should in fact be dated at the beginning of this century, when the process of both the declining cloth production had just started and the German Hanseatic merchants were still controlling most of the trade in North-Western Europe. But the Hanseatic merchants did not necessarily choose the Dutch cloth above cloth produced in their own country. More Dutch cloth seemed to have been imported into Scania in the late 15th century and 16th century a pattern in accordance with the process of the

loss of influence of the Hansa during the course of the 15th century and the gradual dissolution of the Hansa in the 16th century. Dangerous competition from England, but especially from the Netherlands was threatening the Hanseatic merchants.

The distribution of the cloth seals in the 15th/16th and 16th century gives rise to some interesting theories. Most seals from this period originate from the Netherlands, while this image is contradictory with the amount of cloth produced in the Netherlands during the 16th century. England had taken over the market, but only one seal origination with certainty from England has been found in Scania. This could be explained by the fact that the Dutch become the biggest traders through The Sound in the 16th century and gained trading supremacy in the North and Baltic Seas in the mid 16th century. This trading supremacy was often challenged by the other nautical superpower; England and this resulted in skirmishes and even wars between the two. So the higher numbers of imported cloth from the Netherlands in comparison with England in the 16th century cannot be explained by looking at the production numbers, but at the trading tendencies. Since most ships entering the Sound were Dutch, they decided what was traded in the area. With constant disputes with the English it is well possible that the Dutch called a trading embargo on the English cloth to protect their own, already declining national cloth industry. The high number of German cloth in the 16th century can also be explained from this viewpoint. Since the Dutch did not produce cloth in a high number anymore, but controlled the Baltic trade in which cloth was still a wanted community, the cloth needed to come from somewhere else and England was apparently not an option. The Dutch might have turned to Germany to fill in this gap.

The Dutch supremacy of the control of the trade through the Sound continued into the 17th century. And with the rise of the Dutch textile industry the import of Dutch cloth was bigger than ever before. From the Sound Toll Registers it has been reconstructed that between 1562 and 1657, 35.000 pieces of cloth were transported through The Sound on board of Dutch ships per decade and from 1661 to 1680 this increased to over 502.000 (Christensen, 1941). The distribution of seals on the Scanian landscape also shows a high number of cloth seals origination from the Netherlands, especially considering that two of the seals are assigned to be of German origin in the 17th century with uncertainty.

A total of 9 seals can (not with complete certainty) be dated around the 18th century and one seal in this collection can be dated from the early 19th century. Even though these seals are

not of immediate interest to this research, they have been included to illustrate the tendency of rising national and local cloth production centres on the Danish and Swedish landscape. From the Sound Toll Registers it is known that England and the Netherlands took the leading part in the carriage of fabrics right through the 17th century and early 18th centuries they were the principal suppliers; only in abnormal years did other nations have any part. But it seems that this cloth was not traded to Scania any more by this time, since local industries had risen. With this rise the need to import cloth from the Netherlands, Germany or England disappeared and this is shown in the material, not only by the presence of Danish and Swedish seals but also by the complete absence of Dutch, German and English seals in this period. This can be put in connection with the conclusion drawn by Christensen: "In the 18th century the picture changes completely, almost no woollen fabrics and the Baltic countries start to produce and transport their own cloth, especially Sweden in the first decade of the 18th century and in the second decade St. Petersburg" (Christensen, 1941:359).

Leiden in the picture of distribution, production and trade

Since strong emphasis has been put on the Production centre of Leiden is it interesting to see if Leiden holds a special place in the picture of distribution, production and trade as described above. The most seals known, four in total, of the same origin come from Leiden. These date from the 15th, late 15th and 17th century and this distribution shows resemblance to the cloth production numbers and it can be carefully be concluded that not much (or none) '*Leidsch laken'* was traded to Scania in the 16th century. The use of the same coat of arms through all centuries of the cloth production of Leiden, shows the importance of it as a known symbol that guarantees the quality of the product. The fact that this symbol on seals in general seldom changed makes it easier to recognize the origin, but makes the dating of the seal all the much more difficult. One seal in the collection of Örja (1676, cat. nr. 54) seems to be an imitation of a Leiden cloth seal, something that apparently, according to the written sources of the cloth industry in Leiden occurred on a regular basis.

Size, quality, different kinds of fabrics seen on the Scanian landscape

By far the most cloth seals have been found in urban centres, i.e. Lund and Malmö. Big cloth seal represent a high cloth quality, but the small seal could also have been attached to the high

quality of cloth in order to contain information on the different finishing processes. The number of lead seals that were remelted after they were detached from the cloth should not be well taken into consideration, especially the bigger ones. There must have been a much larger number of cloths traded to Scania, than there are lead seals found in the archaeological record. Especially the thick woollen cloth from the 15th and 16th century, must have been popular in the cold climate of Scania.

The fact that most seals are found in or nearby towns situated along the coast of The Sound is notable. The exception to this is the Hovdala, where two seals were found. Since the character of Hovdala as an castle, one would expected that only cloth of the highest was traded to here, but the lead seals show no indication of this.

The smaller lead seals with a diameter between 0 and 20 mm are mostly dated within the 18th century, when the use of these small bulla type seals became more in to use and seem to come from local Swedish and Danish production centres. It cannot with absolute certainty be said that these seals are cloth seals, since they are found to be attached to a wider range of goods, including the bags, bales and sacks in which they were distributed and was also widely used outside the textile industry (Egan, 1995:6).

Dyer seals

One seal in the collection (KM 38383:3, cat. nr. 30) was certainly attached to dyed cloth. But other seals in the collection, imprinted with privy marks are also presumed to hold relation to the cloth dying industry. Two of these seals KM 19331, cat. nr. 16 & KM 34977:1, cat. nr. 23) in particular raise discussion about the organisation and trade of un-dyed cloth over the European landscape. On the one hand a strong indication of 16th century England origin is visible in the form of a Tudor Rose, but on the other hand the name 'Gvilhelmus Almandete', which is strongly associated with Germany is imprinted. This could mean that a German draper moved to England to take part in the textile production there or it could be that cloth was bought by an German merchant who traded it further into the networks of Europe. But the fact that the both elements are so explicitly visible could mean that un-dyed English cloth was traded first to Germany to the dyed by Herr Gvilhelmus Almandete, who then sold the cloth on the Scanian market.

Future research

It would be interesting to combine the results of this study with other studies concerning cloth seals found in archaeological contexts in north-west Europe and especially with the study of Jette R. Orduna, who conducted a similar study on the medieval cloth seals found in Denmark. But also a comparison with the rest of Sweden would provide new insights, as would with information of the cloth production and trade of German and England.

A very interesting source of information concerning the cloth trade and import through the Sound to the Baltic Sea is coming from the Sound Toll Records. The Sound Toll Registers provide detailed information about every single ship and cargo that entered and departed the Baltic through the Danish straits. The oldest Sound Toll Register that has been kept till today is from 1497, while the series is complete from 1557 to 1857, when the Sound Toll was abolished. The Sound Toll Registers contain a wealth of information also about how much cloth was onboard of which ship

Due to the time and size limitation of this study one source of information, concerning the lead seals and their archaeological context has not been included in this research; the excavation reports By doing this more insight can be gained in the archaeological contexts and a more specific geographical spread in the different Scanian towns in which the seals have been found.
Another study could be conducted concerning the importance of cloth for the various castles in Scania. Since some of the cloth seals looked at in this study have been found in the immediate context of a castle, Malmö, Skanör and Hovdala. But there have also been found cloth seals in the towns which have castles, for example Helsingborg.

Much focus in this research has been on the cloth production in the Netherlands and the trade of the cloth from the Netherlands, through Germany to Scania. There has not been looked at how the trade was further conducted, when it was taken from the ships at, for example Skanör and Falsterbo and how the pieces of cloth were from there traded on into the Scanian landscape. This could also be brought in relation with the spread of the cloth seals in the towns, for example Lund, where there are a lot of cloth seals found in the city centre. How important was Lund as a market centre for cloth? Did people from the surrounding areas came to Lund to buy smaller

pieces of cloth that were cut from the large pieces of cloth imported from the Netherlands, Germany and England? Questions like these could be answered when looking at the local trade of Scania.

6. Conclusion

By combing two types of information, the archaeological material on one side and the (historical) written sources, concerning the textile industry and trade networks in the Late Middle Ages and Early Modern Times on the other, the lead cloth seals coming from different locations in the landscape of Scania could be placed in a broader historical-economical context. And by this meaning could be given to the material.

Clear insights have been gained in the organization of the textile industry in the Netherlands during the 15th, 16th and 17th century. Although a strong focus has been put on one centre of textile in particular; Leiden it must be accepted that the type of organization and control on the cloth production can be used as an example for all cloth centres in North-West Europe during these centuries. By putting a special focus on the control of quality, which eventually resulted in the final sealing of a piece of cloth before it was put into the trading networks of Europe, the use and purpose of the lead cloth seals in historical times could be understood and with that their potential in the present.

Although it has been proved that the organization of trade is harder to investigate through the written historical sources, the trade of cloth, from the raw material to the town of production and eventually to the province of Scania, could be reconstructed. A clear division between the trading organization of the 15th century; controlled by the Hanseatic League and the later 16th and 17th century; controlled by the Dutch has pointed out.

By placing the data retrieved from the material study of the seals, cloth as a commodity of trade within these different networks could be better understood and these results have lead to new insights. The discussion of the material has brought up new questions concerning the role of the three main players; the Dutch, the Germans and the English and their actions and influence relate to each other during the 15th, 16th and 17th century, within the cloth trade to Scania.

With the use of a different material and the right choice of methods the main question and with that the purpose of this research could be answered. The archaeological material placed in its

historical context, with the use of written sources has shown that the 15th century trade of cloth was carried out by the Hanseats and that the 'Leidsche laken' was available in Scania by this time, but did not dominate the cloth market, cloth made in German production centres was available as well. Judging from the written sources the role of the English in the 16th century cloth production and trade to the Baltic area was considered high, but the archaeological material suggests otherwise. This difference has been explained by the nautical supremacy, in the North Sea, The Sounds and the Baltic Sea, of the Dutch. The cloth trade in the 17th century was still dominated by the Dutch and together with the 'resurrection' of the cloth industry in the Netherlands by that time more Dutch cloth (seals) appear on the Scanian landscape. It must be said that not only 'Leidsch laken' found its way to Scania during the 17th century, but other textile production centres in the Netherlands also produced more than ever for the international market.

A cultural system cannot be dug up directly – you will never see a 'trade' subsystem in the archaeological record. But we can develop archaeological indexes of trade through statistical studies of artefacts. And this study has proven that this is well possible for the Late Medieval and Early Modern Time cloth trade between the Netherlands and Scania.

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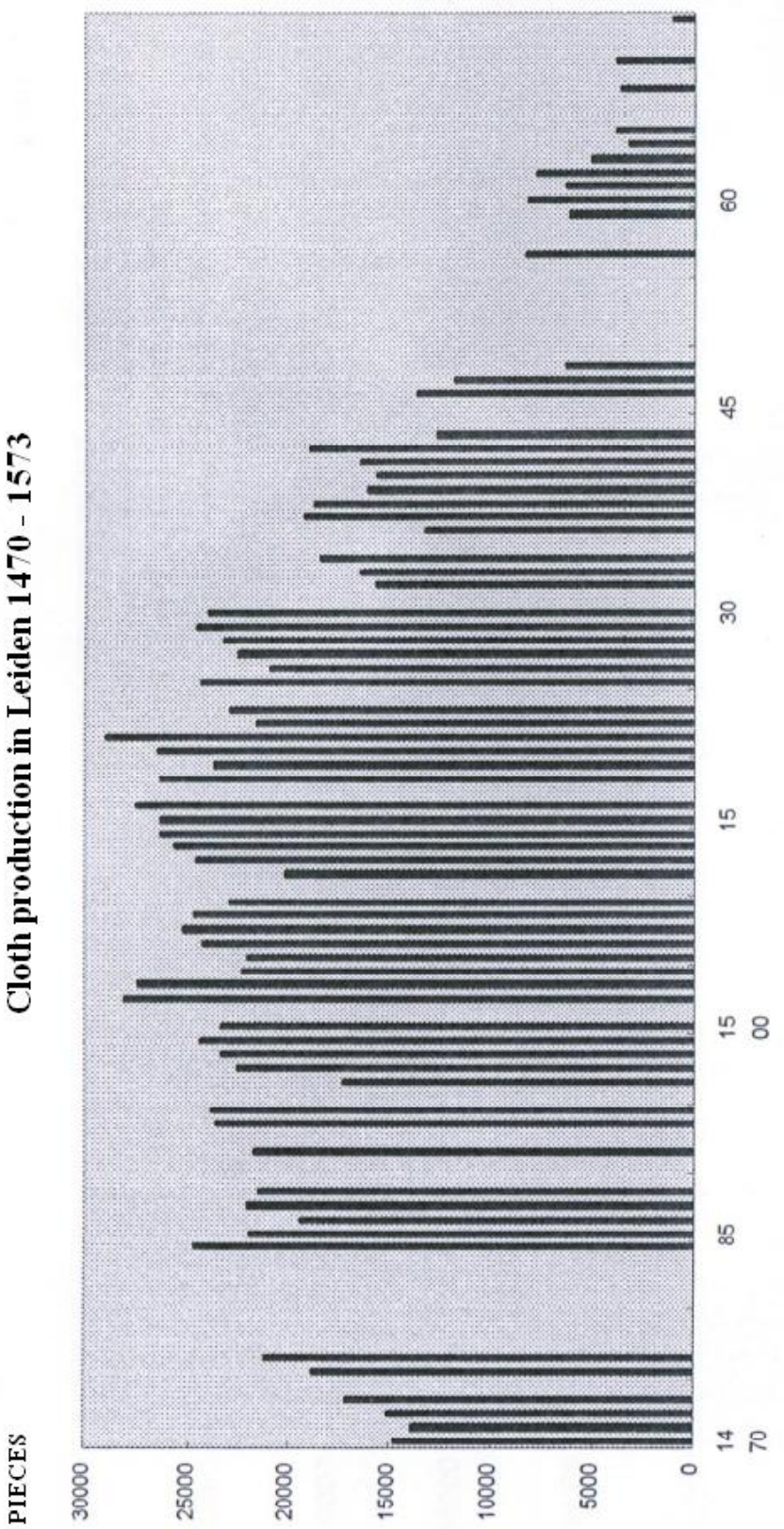
List of Illustrations

Appendix I


Cloth production in Leiden 1470 - 1573
PIECES
30000
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