The Gotlandic rural militia

A study of the invasion of Gotland 1361
in response to a modern narrative

Author: Thomas Neijman
Supervisor: Kurt Villads Jensen
Seminar leaders: Elisabeth Elgán and Karin Dirke
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Abstrakt

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1. Introduction

Anno Domini MCCCLXI feria III post JACOBI ANTE PORTAS WISBY IN MANIBUS DANORUM CECIDERUNT GUTENSES HIC SEPULTI. ORATE PRO EIS.¹

In the year of our lord 1361 on the 27th of July in front of the gates of Visby, the Gotlanders who are buried here fell at the hands of the Danes. Pray for them.²

This text is carved into a stone memorial cross, erected at the site of the mass graves from the battle. Scholarly as well as more popular descriptions of the events that took place in 1361 all have in common a certain narrative in which the Gotlandic and Danish armies are described as opposites. The Danish army is said to have consisted of professionals, who were well trained and well equipped. The Gotlandic force, by contrast, is described as more of a peasant mob, poorly trained and equipped with outdated weapons and armour. As this description of the events seems to be almost universally used I will henceforth refer to it simply as “the narrative”.³ This kind of narrative tends to emerge by (over-) simplifying the often complex historical situation.

I will now give a brief introduction. In 1361 Gotland was invaded by a Danish army, under the leadership of the Danish king Valdemar. The Danish army landed in the southwestern part of the island and then pushed towards the city of Visby. The Gotlandic rural militia fought the Danish army in the countryside, but failed to stop the advance. On the 27th of July there was a battle outside the southern gate of Visby, which ended in a costly defeat for the rural militia.

² Author’s translation.
³ Some examples that uses this narrative:
  Liljegren, Bengt, Slaget vid Visby 1361, Populär historia, Historiska media, Lund, 8/2008.
  Pennan och svärdet, Svenskt militärhistoriskt bibliotek, Hallstavik, 8/2008.
In the early 20th century, the mass graves from the battle were excavated, yielding an enormous number of findings. What makes these findings so unique is that much of the personal equipment found can be tied to the human remains of the user. The finds were made famous internationally through the book by Bengt Thordeman, *Armour from the Battle of Visby 1361*, published in 1939. This has since become the main academic work about the invasion in 1361 and still maintains a high academic level. There are also some academic articles with subjects related to the events of 1361. The invasion of 1361 also occurs on a regular basis in various contexts within popular science. The most recent example of this kind of literature written on the subject is Gun Westholm’s book *Visby 1361: Invasion* published in 2007. In 2014 the Swedish History Museum in Stockholm opened the exhibition *Medieval Massacre: the Battle for Gotland*, focusing on the mass grave findings. However, the use of the above-mentioned narrative about the armies is widespread, despite actual research on the composition of the armies of Gotland 1361 being very limited. The literature is clearly influenced by early 20th century historiography, especially when it comes to the view on rural militia. Even Thordeman used this narrative in his popular work from 1944 about the myths surrounding the battle.

This present study aims to combine analyses of the written sources and archaeological material. By this interdisciplinary approach new information about the rural militia on Gotland has been obtained, which changes the predominant narrative and historiography of the battle of Visby 1361. The analyses are done in corporation with Cultural Heritage and Archaeometric Research Team at the University of Southern Denmark, with Kaare Lund Rasmussen as a main cooperation partner. Permission to perform analyses on the archaeological material was granted by The Swedish History Museum.

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4For example, in: Från Gotlands Dansktid, Gotländskt arkiv: meddelanden från Föreningen Gotlands fornvänner, Gotlands fornsal, Visby, 1961. In this volume, several articles have subjects related to 1361.
1.1. Gotland 1361 in a wider context

In 1361 a power struggle was taking place between the Danish king Valdemar, the Swedish king Magnus and a number of power fractions from Germany, such as the Hanseatic league, Mecklenburg and Holstein. To this, there was division in Sweden, who had a civil war a few years before. The conflict was very complex and alliances changed rapidly. Agreements between different fractions were regularly signed and broken.

In 1332 the Swedish king Magnus bought the Scanian provinces, at that time a part of eastern Denmark. The purchase was costly, however, and large sums of money had to be borrowed from the clergy, Swedish nobles, German princes and even the Pope himself. Swedish provinces were pledged to German investors to pay the loans. When King Valdemar ascended the Danish throne in 1340 he inherited a country that was more or less completely pawned and held as security for a huge dept to German noblemen. Step by step he struggled to regain control of the Danish realm. In 1360 he seized the province of Scania. In the summer of 1361 the Swedish island of Öland was attacked and the island's militia defeated. Then he turned his interest to Gotland.

Gotland at the time is considered to have been a largely autonomous province of Sweden, de facto if not de jure forming an independent farmer republic. Gotlanders had the right to trade freely in the whole of Sweden, without customs duties and charges. From the coast of Gotland trade ships sailed to cities around the Baltic sea. Merchants from Gotland even went as far as England and Flanders to trade their goods. From the 12th century onwards the port of Visby grew in importance, to the disadvantage of the other ports on Gotland. Visby attracted foreign merchants and evolved into a significant trade city, affiliated with the Hanseatic League. The competition between Visby, with a population consisting of both Gotlandic and foreign merchants, and the rural farmer merchants caused increased tension. In 1288 a war broke out between the city of Visby and the rural Gotland, after that the city built a city wall and started to use tollgates. The parties were reconciled by mediation of the Swedish king and the city

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8 Westholm (2007), pp. 74-75.
had to pay a fine for building the city wall without permission. The city and rural Gotland were divided in separate jurisdictions. The city and rural Gotland were divided in separate jurisdictions. The countryside was still prosperous, but this meant that its trade incomes declined.

In May 1361, a warning letter arrived in Gotland from the king of Sweden, informing the Gotlanders of an impending invasion of the island. On July 22nd of the Danish army landed in the southwest of Gotland. They then proceeded to advance towards Visby. On the way to Visby lay Ajmund bridge in Mästerby parish, defended by part of the Gotland rural militia, which probably also had demolished the bridge. Instead of crossing the defended stream, king Valdemar decided to go east across Fjäle marsh. The militia tried to stop the crossing and battle ensued. The Danish army succeeded in crossing the marsh and defeated the militia forces. The Danes then continued to advance towards Visby. On the 27th of July, the Danish army clashed with the Gotlandic rural militia in a battle outside the southern gates of Visby, which ended in a devastating defeat for the rural militia with a loss of about 1800 killed. Two days later, on the 29th of July king Valdemar issued a charter of privileges for the city and the city opened its gates to Valdemar. The fallen from the battle were buried inside the precinct of Solberga abbey. King Valdemar then forced a hefty tribute from Gotland and left the island on the 22nd August.

It doesn't seem like the Danes remained in control of Gotland for very long, if at all, after king Valdemar went home to Denmark. The following year the Hanseatic league declared war on king Valdemar and it seems as Visby was on their side. In a treaty 1366 king Valdemar were promised supremacy of Gotland and in 1376 there is a charter of submission from Gotland to king Valdemar’s successor, Olof.

Sometime about 1370 to 1380 a memorial cross was raised on the site of the mass graves. Around the year 1400 the nuns moved from Solberga abbey to inside the city walls and the abbey fell into disrepair. Solberga completely disappeared and the place is named Korsbetningen (the pasture by the cross) in the 18th century, in reference to the memorial cross that stood there and still stands there today.

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10 Thordeman (1939), pp. 19-27.
1.2. Literature related to the rural militia and the events on Gotland 1361

1.2.1. The narrative of the peasant army

The fighting on Gotland in 1361 has received a lot of attention lately, both in popular literature and in museum exhibitions. To illustrate how the narrative, about the well-equipped and professional Danish army versus the peasant mob, poorly trained and equipped with outdated weapons and armour, is linked to the literature. This study is going to start by reviewing several publications related to the events of 1361 to show how this narrative developed and later became widespread.

The first person to research the invasion of 1361 was the parish priest Hans Nielsön Strelow, where it’s mentioned in his recounts of 1633. In his work Strelow relates both several written sources as well as local legends. Strelows account of the battle of Fjäle marsh is especially interesting since it used to be the only source for the battle until actual the battlefield was found by and archaeological project in 2006. In Strelow’s description of the Visby battle, the burghers made a sally from the city and fought the Danish army. This differs from more contemporary sources, where the rural militia fought.

In 1871 is a work published by Alfred Theodor Snöbohm. In the description of the battle of Visby a hypothesis is presented where the rural militia fought the Danes without the support of the burghers, motivated by a division between city and countryside caused by the civil war on Gotland in 1288.

With the discovery and excavations of the mass graves between 1905 and 1930 the narrative evolved even further. After the clear and visual display of brutality and the cruelty of war illustrated by the mass graves there is more focus on the slaughter and the victims, namely the farmers militia. Thordeman describes how “.../the defeated crowds of peasants,” had retreated from the battle by Fjäle marsh a couple of days before, with “a hastily organized

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13 Hans Nielsön Strelow’s book are Chronica Guthilandorum. The part relevant to the invasion of 1361 are reproduced in Thordeman (1939), pp. 38-41.
16 Snöbohm, Alfred Theodor, Gotlands land och folk: hufvudragen till en teckning af Gotland och dess öden från äldre till nuvarande tider, Örebro, 1871, pp. 151-152.
17 Thordeman (1939), p. 22.
general levy of the population, rallied a last desperate stand.” Thordeman writes that only Gotlandic farmers participated in the battle, that the battle was outside the city gates and almost give the impression that it was not a regular battle but “... a butchery of the people, who fell helplessly into the power of the superior and stronger enemy.” In 1944 Thordeman published a book about the invasion written in Swedish. This book combines different sources from archaeology, history and myths with a fictional depiction of the invasion. This book uses the narrative extensively in the book. Valdemars troops are described as battle hardened, whereas the Gotlandic militia is described as inexperienced and badly equipped, consisted to a high degree of “young boys, old men and other from a physical point human material of lower quality.”

The narrative in Thordeman’s book from 1944 is then reproduced in later works describing the events on Gotland, such as Westholm in 2007 and Liljegren in 2008. There are also some works that only use parts of the narrative, as Hammarjelm, where the Gotlandic force is described as potent but outdated and therefore ultimately losing. There are two notable exceptions where the usual narrative about the Visby forces isn't used, and that is in the texts

18 Ibid.
20 Thordeman (1944).
22 Thordeman (1944), p. 128. Swe: “bilden av en här, till stora delar sammansatt av unga pojkar, gubbar och annat ur fysisk synpunkt mindervärdigt människomaterial.”
24 Liljegren had an article published in popular historic magazine Populär historia about the battle of Visby. In the article Valdemars troops are described as battle hardened, whereas the Gotlandic force is described as unexperienced and badly equipped. Their organisation is described as a ”bondehop”, which could be translated as a horde of farmers. The Gotlanders are described as not standing a chance. The story is partly fictionalized with parts incorporated from Hammarhjelm (1998), Nordberg (1995) and Westholm (2007). Liljegren (2008).
25 Hammarhjelm’s book have Strelow (1633), Christian Torzten (1961) and Thordeman (1944) as references. In his book Hammarhjelm puts forward the hypothesis thatburghers from Visby cooperated with the Gotlandic peasants against the Danes, but that Valdemar arrived before the Gotlandic force and thereby prevented the burghers from Visby from intervening. Hammarhjelm is a military historian but also has extensive experience from being in the military and uses his own logic as a modern military officer to make assumptions about the development of the invasion and calculating the strength of the opposing forces. This calculation forms an interesting hypothesis, but to use data from later periods coupled with assumptions will inevitably make the estimates unreliable. Hammarhjelm (1998).
written by Gunnar Åselius\textsuperscript{26} and Michael Nordberg.\textsuperscript{27} Norberg also rightly challenge Thordeman’s description of the farmers’ army to a higher degree consisted of persons unfit for military service.\textsuperscript{28} All these later works have Thordeman’s books from 1939 and 1944 in their references.

When searching for “Battle of Wisby” in a database for international articles,\textsuperscript{29} the result was a large number of articles relating to medieval warfare. From the titles, it seems that the Battle of Visby findings are mainly used to provide examples of trauma violence in the medieval battlefield. My conclusion is that the narrative is so commonly used in Sweden, and not as commonly used abroad, because of the description of events, our narrative, being present in literature only available in Swedish, like Thordeman's book \textit{Invasion på Gotland 1361: dikt och verklighet}. The internationally available literature about Gotland in 1361 is limited to Thordeman's book about the mass graves from 1939, \textit{Armour from the battle of Wisby 1361}, which uses the overly simplified narrative much more discreetly.

The conclusion that can be drawn from this is that the modern narrative about the event derive chiefly from Thordeman’s book published in 1944; which again is influenced by early 20\textsuperscript{th} century historiography in its fictional format.

\textbf{1.2.2. Views on farmer soldiers versus nobility}

I argue that the narrative is linked to a general view of feudal society, which dates back to the 19th century. Research on farmer armies in the 14\textsuperscript{th} century Sweden has been found to be lacking, but some related information can be found about the so called \textit{ledung} and the introduction of the cavalry of the nobility. The Swedish system of rural militia is connected to the \textit{ledung} system. The \textit{ledung} was an organisation with the purpose of supplying and manning war ships, and existed in the three Scandinavian countries.\textsuperscript{30} Examples of the view of farmer infantry versus knightly cavalry are found both in the Swedish archaeologist and

\textsuperscript{26} He describes the historiography and discusses the different sources and literature relating to the event in 1361 and instead of describing the forces with the narrative he describes the event neutrally. Åselius states two books as references, Thordeman (1939) and (1944). Åselius (2003).

\textsuperscript{27} Nordberg uses Thordeman 1939 and 1944 as sources. The description of the battle and the rural militia is balanced, and the depiction of the farmers’ army largely consisted of “human material of lower quality” in Thordeman (1944) is rightly challenged. This by using the statistics from Thordeman (1939). Nordberg (1995), p. 273.

\textsuperscript{28} Ibid.

\textsuperscript{29} On Google scholar. 22 August 2017. https://scholar.google-se.ezp.sub.su.se

cultural historian Hans Hildebrand’s grand work about medieval Sweden published between 1879-1903 and in William Christensen’s book about defence organisation in Denmark during the 15th century, published in 1903. They both hold the view that the ledung was dismantled because infantry could not withstand a charge by heavy cavalry. Another description is that from the end of the 12th century the ledung infantry lost its military significance in favour of armoured cavalry. It is stated that it was possible for infantry to win against cavalry, as in the battle of Courtrai in 1302 and the battle of Morgarten in 1315, but that cavalry dominated the medieval battlefield. It is also stated that in the hundred years following 1361 the armoured cavalry loses its significance as a consequence of the rise of professional infantry.

Another approach is given by Kelly DeVries, who has studied the use of infantry in nineteen battles in present day United Kingdom, the Netherlands, Belgium, France, Switzerland and Greece, beginning with the Battle of Courtrai in 1302 and ending with the battle of La Roche-Derrien in 1347. The study’s conclusion is that infantry armies consisted of soldiers with different social background and experience could win battles against heavy cavalry. A defensive infantry unit could achieve victory against larger armies, which were better equipped, held a better position in society and were more experienced. DeVries also states that cavalry victories were often won using a combined force of cavalry and infantry. DeVries emphasises the importance of defensive preparations and choosing a good battleground to achieve victory.

Farmer and burgher armies could be effective against more professionally trained and equipped armies, if used in a defensive and disciplined manner with tight infantry formations. The conclusion is that rural militia could still be effective in the defence against invading armies after the introduction of armoured privileged classes, in Sweden formalised by the charter of Alsnö in 1280.

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1.2.3. The closed gates and the corresponding battle of Vottem 1346

Closely linked to the narrative is the story of how the city of Visby closed its gates and let the farmers’ army be slaughtered, that several authors use. To this there is a history about the hostilities between urban and rural Gotland, exemplified by the civil war between the city and countryside in 1288, which erupted due to controversies about the construction of the city wall. Hugo Yrwing on the other hand, states that perhaps the burghers did not want to risk their city, but instead wanted to await the outcome of the battle. He does not conclude with certainty that the burghers did close the gates to the farmers’ army, but he doesn’t give any alternative explanations in the article. Peter Lundbye claims that the burghers of Visby were actually present in the battle outside the city walls.

It seems that the thesis of the how the city closed the gates is an attempt to explain why the Gotlandic farmers’ army took the fight outside the gates, with the city walls behind them. To better understand why the Gotlandic forces chose to take their last stand here we need to compare the Battle of Visby to other military conflicts elsewhere in Europe at this time. One especially interesting battle that closely mirrors to the hostilities at Visby is the battle of Vottem in 1346. It is of particular interest because of the similarities between the two battles. Between 1345 to 1347 the town of Liege led several neighbouring towns in a revolt against the prince-bishop of Liege, Englebert de la Marck. During this rebellion two battles were fought: the battle of Stavaren in 1345 and the battle of Vottem in 1346. In the battle of Vottem, the rebellious force positioned itself outside the walls of Liège, in front of the gate of Vottem, which would be the shortest way for the bishop’s troops if they wanted to enter the city.

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40 Lundbye’s description of the invasion 1361 follows the parish priest Strelow’s recounted legends from 1633. Lundbye claims that the burghers of Visby were actually present in the battle outside the city walls. In support of his theory Lundbye states that the armours from the mass graves were of too high quality to possibly could have belonged to Gotlandic farmers. His conclusion is that they have to have belonged to well equipped warriors from Visby. One clear error in Lundbye’s book is that he writes that the fallen were buried in three mass graves. It ought to be five mass graves. This error could perhaps derive from the excavations of three mass graves by Thordeman. Lundbye’s book was published in 1939 and only later that year did Thordeman publish his work about the archaeological excavations of the mass graves, which contained more information. Lundbye, Peter: Valdemar Atterdag. Danmarks riges genopretter. Skildret i ny historisk belysning efter de samtidige kilders beretning. Munkgaard 1939, pp. 121-125.
42 Ibid.
city. This is strikingly similar to the battle of Visby, which is said to be fought outside the south city gate of Visby, which would be the likeliest route if the Danish approached from the south. The Flemish rebels outnumbered their opponents. This is also highly likely in the case of Visby in 1361. The Flemish rebel force consisted of infantry troops from the rebellious cities and the surrounding countryside and had very few knights in their ranks, as was the case in Gotland. The bishop’s troops on the other hand included ”/…/Adolph II, count of La Marck and brother to the archbishop; Adolph VIII, count of Berg; Wilhelm I, count of Namur; John the Blind, king of Bohemia, count of Luxenbourg, and father to the emperor; Dietrich of Heinsberg, count of Looz; Wilhelm V, marquis of Jülich;” and several other prominent persons./…” King Valdemar brought several prominent persons with him to Gotland as well, such as the Duke Eric of Saxony. What happened in the battle of Vottem is, in short, that the bishop’s cavalry charged the defending rebellious force, and suffered heavy casualties in the process.

There are however some notable differences between the battle of Vottem and the battle of Visby. One of the differences from Visby is that in Vottem the bishop’s force consisted to a larger degree of cavalry. The Danish force in 1361 did probably not consist of that much cavalry because of the sea transport involved in the invasion of Gotland. Another difference is that the rebels at Vottem had several days to prepare their defence; but the Gotlanders probably didn’t have time for much preparation, after the loss at Fjäle marsh just a couple days before the battle of Visby. But despite these differences the battle of Vottem clearly demonstrates that a force with many professional soldiers, as knights, could be beaten by a force mustered from urban and rural areas. Judging from the example of Vottem and the other battles previously mentioned, this study would like to argue that the battle didn’t necessarily take place outside the gates of Visby as a result of a treacherous closing of the city gates, but that this could just as well have been a tactical deployment of the Gotlandic farmers’ army, a strategy that in the case of Visby 1361 proved to be fatal.

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Although we will never know for certain, the example with the battle outside the gate of Visby shows that assumptions and seemingly firm conclusions of earlier research can be challenged and modified. This is also true in the case of the Gotlandic rural militia, as will be demonstrated below.

1.3. The rural militia on Gotland in 1361

As previously stated, in the modern works describing the events on Gotland 1361, I have identified a narrative about the unorganized Gotlandic “peasant” army; depicted as poorly armed soldiers with outdated armour. There has been almost no research done on the military organisation during the 1300s in Sweden. The existing research is focused on the aristocracy as a social class. I believe that this gap in research allows for an exaggerated anachronistic narrative that serves to oversimplify a much more complex contemporary military situation. The conclusion is that this gap, where these narratives have previously been allowed to flourish, needs to be properly researched to put the events on Gotland 1361 in a new perspective with the military organisation in focus.

The research question is:

How did the Gotlandic rural militia function around the time of the invasion in 1361?

Finding an answer to this question will be done by answering three sub questions:

- How is the invasion described in contemporary sources?
- How was the military organisation of the rural population regulated in the mid 14th century Sweden?
- How is the Gotlandic rural militia represented in the mass grave findings from the Battle of Visby in 1361?

The focus of this study is the Gotlandic rural militia and their actions in 1361. Therefore, a study of the privileged classes or the city laws will not be included in the scope of the second question. The reason for this is, quite simply, because there didn’t exist a privileged class of heavy cavalry regulated by the contemporary laws in Gotland, and furthermore the city laws are not that relevant when focusing on rural militia. The third question aims to study the representation of folkvapen in the graves and the demographics of the fallen, focusing on if they were fit for service. The question of the Gotlandic militias fighting ability will also be addressed.
1.4. How to study a phenomenon from fragmentary sources

1.4.1 Janken Myrdal’s method for multiple sources

The medieval source material is often fragmentary and the source material regarding the conditions on Gotland in 1361 is no exception. The scarcity of sources makes the subject difficult to study, and where there is less research, there is even more room for modern speculation and myths. To study the 1361 events with its fragmentary source material, a method has been selected that includes different types of source material, both written and archaeological sources.

All medieval historians have problems with the fragmentary material that is preserved. Janken Myrdal have demonstrated a method for the use of multiple sources in the article *Källpluralismen och dess inkluderande metodpaket*.\(^51\) In this debate article, Myrdal elaborates on his view of using multiple sources and the methodology that is included within that concept. The following section is a summary of the method which will be used in this study.

Myrdal describes the benefits of having an inclusive approach to social studies. The *method of multiple sources* means that a researcher uses multiple types of sources to answer a specific question. The pluralist approach is not about using many sources to investigate a number of different specific issues, however, the pluralistic approach often leads to the researcher examining several related issues. One component in the use of this method, is that scans of large materials are required, which are expected to provide relevant data for the research questions. The method also includes accepting different degrees of uncertainty in the conclusions.

The limits on how far the inclusion of source material can be taken are set by source-critical criterias. Myrdal describes how indirect evidence is common in practical work with the sources and that historians rarely use source material that accurately give complete information in the extent that the historian desires. This leads to use of indirect evidence, indications, the usage of which is described as the *method of indication*. When the *method of indication* is combined with *multiple sources*, this leads to the use of increasingly remote indicia. The *method of indication* is described as finding historical conditions that could be

explored and put in context. When the periphery of the source material moves to the centre of the investigation, they could be seen as clues instead of indications. Myrdal specifies that he conceived this method of using clues by studying the Italian cultural historian Carlo Ginzburg and the method is described to have its roots in the medical diagnosis, that have a tradition in interpretation of symptoms. It is stated that the marginal and seemingly irrelevant detail becomes the significant. The method of multiple sources and the method of indication has its dangers, in that too much importance is interpreted from the unimportant. This could be countered through control and comparison, with the use of the classic source-critical criteria’s in combination with method of multiple sources. The researcher must be aware of each source material’s peculiarities and have the insight into the different specialities needed to study them. In addition, it’s recommended to ask specialists in the disciplines and the individual’s approach to multiple sources should be combined with interdisciplinary science, where several researchers are asked.

It is stated that there is a consequence for how the research results are presented, due to the combination of the method of multiple sources and the method of indication. The sub studies of different source materials are recommended to present separately, so that each source material’s specific problems and contributions to the question are clear to the reader. The reason for this is that the conclusions presented later in an overall presentation can be evaluated against each other. The method also includes reviews of large materials to find the few sources. The use of these few sources also require that all evidence be presented, to create transparency and enable an assessment of representativeness for the reader. In order to avoid incorrect conclusions, simple compilations of the data should be made. This means that there are both qualitative and quantitative elements in the method.

The use of the method of multiple method and the method of indication must be combined with source criticism, with its demands on spatial and chronological proximity and discussion of the source material’s tendencies. By examining a number of different and related sources, where several of the individual parts are uncertain, an overall image can be created around a theme where they occur in a wider context.

Characteristic of the above-described method is the uncertainty of the conclusions. This means that any conclusions will be centred around what is likely and not what is true. Conclusions must therefore be carefully presented and the words used in the conclusions must
reflect how well supported the conclusions are by the sources. Then, one may ask, what is the usefulness of this method if the conclusions are not solid? To quote Janken Myrdal in the article:

For expository texts, there is always uncertainty about where to draw the limit for valid conclusions. Historians concerned with the modern period, who are not involved with things that are difficult to explore, usually mean that research should refrain from these issues. Unfortunately, the result of such reasoning is that large parts of the medieval cultural history is then disqualified from serious research. It is more constructive to try to find a way whereby uncertainty can be accepted. (Author’s translation)\(^5^2\)

1.4.2 How to study the Gotlandic militia in 1361

In this study, the previously described method package will be used as follows: Myrdal’s principles for use of multiple sources will be followed and the study will be divided into three parts with different source materials and research questions. The methods and sources will be presented shortly in this section. A more thorough presentation will be included in each part of the study.

Part I explore the question: How is the invasion described in contemporary sources? As a consequence, this study will have a military perspective; descriptions of the warfare are the focus. The sources used are letters and chronicles from 1361 to about 1420. The wide timeframe is due to the scarcity of sources. At least the sources from about 1420 have a geographical closeness, as they are written in Visby. In this part of the study my research focus on finding sources that describe the rural militia, their arming and training. Because of the scarcity of sources this part is smaller when compared to the other parts of the study. There are only 24 known written sources describing the invasion that are reasonably contemporary\(^5^3\) and only a part of those are relevant to the research questions for this study.

\(^{52}\)"För resonerande text finns en tveksamhet om var den nedre gränsen för tillåtna slutsatser går. Modernhistoriker, som inte sysslar med det svårutforskade, brukar mena att forskningen skall avstå från dessa frågor. Det olyckliga blir då att stora delar av den medeltida kulturhistorien faller bort från seriös forskning. Det är mera konstruktivt att försöka finna en väg där osäkerhet kan accepteras."
Myrdal, Källpluralismen och dess inkluderande metodpaket, p. 503.

\(^{53}\)Tortzen, Gotland 1361: forudsætningerne: overleveringen, p 62.
Part II studies the question: How was the military organisation of the rural population regulated in the mid 14th century Sweden? The sources are the King Magnus country law from about 1350 and the following provincial laws: Gutalagen, Östgötalagen. Upplandslagen, Dalalagen, Västmannalagen, Södermannalagen, Hälsingelagen, Äldre Västgötalagen, Yngre Västgötalagen, Smålandslagens kyrkobalk and Bjärköarätten. These sources are studied to find information about regulations for defence duties, such as who had obligation to take up arms in case of attack, what those duties consisted of and what kind of equipment was to be used.

To aid in the study of part I and II and to speed up the process of finding relevant passages in the sources, translations of the laws into modern Swedish have been used. When anything relevant to the research question is found, the text is checked against a transliterated text of the original source, to check that relevant information hasn’t been lost in translation to modern Swedish.

Part III studies the question: How is the Gotlandic rural militia represented in the mass grave findings from the Battle of Visby in 1361? The source material is the archaeological findings from the mass graves consisting of objects, mainly armour, and human remains from about 1185 individuals. To study this huge material, excavation documentation and research reports on the material are used. The part III study is a continuation of the two earlier studies. The objects that are researched are equipment that could be found in the regulations of the folkvapen, such as coats of plates, mail shirts and mailed coifs. The mass grave statistics are also used to study the composition of the Gotlandic militia and to study if the rural militia only were recipients of violence or if they also caused losses to their opponents. To get new information about the archaeological material, isotope analyses on human remains been used as a case study. The examination has been carried out with 72 strontium isotope samples on human remains from 61 individuals. The purpose of these isotope analyses is to indicate if the individuals lived on the island of Gotland or not. The choices of individuals are based on the type of armour that can be tied to them respectively, such as coats of plates, mail shirts and mail coifs. This with the ambition to study whether older equipment generally belonged to the Gotlanders, and whether more modern equipment can be tied to the soldiers of non-Gotlandic origin, supposedly belonging to the Danish army. The specific method used for isotope analyses have not previously been used on archaeological human remains in Sweden. The result presented in this essay is therefore a preliminary result. The final result will be
presented later in an article written in corporation with Kaare Lund Rasmussen at the University of Southern Denmark.

By using different questions, methods and source material, a larger material for analyses will be obtained. In this study quality and quantitative methods will be used on written and archaeological sources. Isotope analyses will be carried out to obtain new source material about the event. By using an interdisciplinary approach, new information about the Gotlandic rural militia is obtained.

1.5. Main military organisation

Before reading the study an understanding of a couple of key concepts and their context are needed. These are ledung, landvärn and folkvapen, all belonging to the Swedish system of militia. The militia system consisted of two parts, the landvärn and ledung. The landvärn was the duty for all men to defend the local community. The ledung was the duty for a part of the residents to take part in offensive operations. 54 The folkvapen were the armaments of the militia. The territorial organisation of Gotland is also explained, because of its importance to the militia system.

1.5.1. Ledung – The naval organisation

The ledung is very complicated and this is only a presentation of some basics of the system. The ledung was a systematic division of the landed farmers into ship crews and existed in the three Scandinavian countries. These were formalised in an agreement between the farmers and the king. 55 In the system of ledung the land was organised in a system to supply and man ships. The hundare and härad were areas that supported one or several ships. 56 The Danish härad was built upon 1-4 skipen (ships). 57 Each ship’s area was further divided in rowing seats, hamna. 58 The distribution church parishes were based on the ledung system of hamnelag, an area answering for one hamna. Each hamnelag became one socken, or parish. 59 The socken also had similar functions as the English civil parish. The system was based on taking turns to fulfil the obligation to go on ledung, so that ledung soldiers did not need to go on ledung several years in a row.

54 Hildebrand (1879–1903), vol. 4 pp. 628-629.
57 Ekbom (1979), p. 4.
As previously mentioned the system of *ledung* was related to the system of härad. The function of the härad was to create political, judicial, administrative and military divisions, within the country, the term itself meaning a certain district. The implication of this is that the ledung organisation was not only used for military purpose, but also to govern the society. In the system of ledung there also existed a regulated system of compensation for neglecting the duty of ledung, ledungslama. The ledungslama eventually evolved to be a tax, and we know that such a tax succeeded the ledung system in Denmark already in the 12th century.

Something that needs to be taken into consideration when discussing the ledung is the aspect of transportation in medieval Sweden. With the Swedish medieval road system, to move troops by ship was the fastest way in big parts of Sweden. The ability to move troops could have made the system favourable to keep for a pretty long time.

### 1.5.2. Landvärn - the defensive militia organisation

*Landvärn* simply means land defence and was regulated for the defence of the home province, landskap. The duties of resident men that formed part of the landvärn was to guard and to keep the ordained arms, folkvapen. During the 15th century the use of landvärn evolved to limited call-up of a part of population, where third, fourth, fifth and eighth of combat able men were mustered’ defence. It seems that in the 15th century the ledung converted with the landvärn into a system where a portion of the population was enrolled for land defence.

### 1.5.3. The territorial organisation of Gotland

The militia organisation of ledung and landvärn were linked to the territorial organisation. To understand the later studies references to *thing* at different level of the Gotlandic organisation, this brief presentation of the territorial organisation of Gotland is needed.

Gotland was divided into 20 *thing* handling local affairs. The next lever above the local thing were the three *treding*, literally meaning “divisions of three”, with the English word *riding* having the same meaning. *Gutnaltinget* internally governed the whole island of Gotland.

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64 *Thing* were a meeting where all free men dealt with common affairs and disputes could be resolved through conciliation or after judgment.
which was gathered in Roma thingstead. Six settingar, were formed by dividing each treding in two, setting literally meaning “divisions of six”. The settingar were a part of the military system of ledung. The six settingar plus Visby equipped and manned in a total of seven ships when ledung was declared. Each setting had an appointed judge, while a national judge, led Gutnaltinget. The treding were handled by the two setting judges. These judges were called landsdomare. The judges were complemented by aldermen.

1.5.4. Folkvapen- armament of the militia

The folkvapen is the personal armament of the militia soldiers, both weapons and armour. The folkvapen were sometimes regulated in the provincial laws and from time to time it seems as the meaning of folkvapen was so obvious that they didn’t need to be mentioned in the laws. Similar laws about folkvapen with local variations also existed in Norway and Denmark. The latest source that mentions folkvapen is from 1623.

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67 The word folkvapen is compound of folk and weapon. The meaning of folk is a group of people. Could be people belonging to a larger community, as for a province or a country. Fornsvensk Lexikalisk Databas. Entry: folk. The term weapon holds both the meaning of an offensive weapon and a weapon for protection – armour.
68 In the article, its stated that from the sharing of inheritance the folkvapen were omitted: Thordeman, Bengt: Medeltidens folkvapen, Svenska vapenhistoriska sällskapets årsskrift 1941, pp. 55-56.
2. Part I. Study of the invasion of Gotland in 1361

2.1. How to study the invasion

Part I examines the question: How is the invasion described? This study has a military perspective. By this, what is sought are descriptions of various aspects of the warfare, such as battles, troop movements, organisation, who of participated, casualties and equipment. The focus is on the Gotland and the rural militia. To clarify how the study been conducted, the source material and methods of the study needs to be presented.

2.1.1. The fragmentary sources about the events on Gotland in 1361

There are 24 known sources related to the political situation and the military operations of 1361. These date from 1361 to about 1420. The wide timeframe is due to the scarcity of sources. 13 of the sources were found to be relevant to the questions of this study. The other 11 sources contain no information about the invasion of Gotland itself, although they concern the political actions around 1361. The 13 relevant sources consist of: five letters, five notes in chronicles, two texts on memorial crosses and one inscription in a church.

The letters are from 1361 and 1362 give information about actions taken and events. From 1st May 1361 is a letter warning about invasion, to Visby from the Swedish king. Two other letters are written by the Swedish king Magnus in summer of 1361, one mentioning ledung and the other the invasion of Gotland. On 29th July 1361 king Valdemar issued a charter of privileges to the city. From 1362 there are a letter from Visby to the Hanseatic league about paying tribute in 1361.

Some of the notes can be found in the Zealand chronicle, written about 1365. Some can be found in the political writings of the Swedish saint Bridget, called Libellus de Magno Erici Rege which dates from about 1370. The Lübeck chronicle, written by the Franciscan Detmar

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69 23 letters and chronicle texts related to the activities of 1361 are listed in Tortzen (1961) pp. 62-63. Besides this is the memorialstone of Grens which have a text discovered as late as 2011.
71 Tortzen (1961), pp. 63, no. 1
72 Swedish National Archives, SDHK no: 7993. Tortzen (1961), p. 64, no. 3.
77 Tortzen (1961), pp. 69-71, no.15. Annales Danici mediæ ævi, ed. E. Jørgensen, Copenhagen 1920, 32; CCD 5, XVI & XXVIII.
between 1385 to about 1395 also contains some info\textsuperscript{78}, as does Annales Scanici,\textsuperscript{79} from about 1385. Lastly we have the Visby Franciscans chronicle written sometime between 1361 and 1412, where there are two mentions of the invasion.\textsuperscript{80}

Two of the sources are inscriptions on memorial crosses. The text on the battle of Visby memorial cross is presented in the introduction of this essay, on page five. This cross is believed to have been raised about 1380. The memorial cross in Grens is connected to the battle of Fjäle marsh in Mästerby parish,\textsuperscript{81} that was fought a couple of days before the battle of Visby. There is also an inscription in Fide church, in the south of Gotland.\textsuperscript{82}

\textbf{2.1.2. How the sources are used}

All of the sources mentioned above have been studied for information relating to the Gotlandic militia during the invasion of 1361. The objective has been to find information concerning several subjects relevant to the study, such as the chronology of the invasion; the location of battles, who fought the invaders, casualty numbers, organisation, training and equipment. For a first survey of the material, texts translated to one of the modern languages Swedish, Danish or English were used for efficiency. When something relevant to the research questions was found, the wording was checked against a transliterated copy of the original source. The different sources are then presented thematically.

\begin{footnotesize}
\begin{enumerate}
\item Tortzen (1961), pp. 71-72. Thordeman (1939), pp. 36.
\item Tortzen (1961), p. 72, no. 17.
\item The earliest note in the chronicle is about the Christianisation of the Danes in 815 and the last note is about the death of the Swedish king Albrecht in 1412. In the chronicle, there are two texts about the invasion of 1361. Exactly when, between 1361 and 1412, the accounts are written is unclear. The notes in: Melefors, Evert & Odelman, Eva (red.), Visbyfranciskanernas bok: handskriften B 99 i Kungliga biblioteket, Landsarkivet, Visby, 2008, pp. 52, 53, 60, 61.
\item Thordeman (1939), pp. 21-22. The text is described in: http://www.masterby1361.se/docs/resultat.htm
\end{enumerate}
\end{footnotesize}
2.2. Study
In this part of the study the descriptions of the invasion been has studied, by analysing the sources that relates to the invasion, from 1361 to about 1420. This will be presented in the following themes: who fought the invaders; places of battles; casualty numbers; the chronology of the invasion; organisation, training and equipment.

2.2.1. Prelude to the invasion
The earliest source is from just before the invasion, in the form of a warning letter from the Swedish king to the city of Visby. This warning letter is dated to the 1st of May 1361. The letter says that it has come to the king’s attention that his enemies are preparing to attack Gotland with “armed force and a strong army”. The Visby burghers should prepare themselves, and the letter emphasise the importance of guarding of harbour and walls, with night guards and other guard duties. In a letter from 3rd of July 1361, king Magnus exempt all subordinates to the St. Klara monastery in Stockholm, from ledung. The word used for ledung is ”expedicione”. This indicates that the king had announced ledung earlier. Perhaps the letter to Visby from the 1st of May was a part of a general alert in Sweden. With a declaration of ledung and a warning letter sent to Visby it’s likely that also the countryside of Gotland knew about the threat of invasion. It’s also likely that ledung were not declared for Gotland in 1361, because the warning letter shows that the threat for an invasion of Gotland were known. The obligation of ledung were suspended in case the Gotlanders had to defend themselves against attackers.

There has been controversy in modern times about when the system of ledung was dismantled. According to Hildebrand the last time ledung is recorded is 1299, and in that record the wording used for the ledung was skeppshär. Skeppshär could be translated to ship-borne army. The above-mentioned letter of ledung in 1361 indicates that the system ledung was still active. An objection to this conclusion is that the word used for ledung, ”expedicione”, has a very imprecise meaning. The word expedicione could be used for any kind of military expedition, and does not necessarily have to mean the ledung. There are

84 Swedish National Archives, SDHK no: 7993.
85 Ibid.
86 In 1285 King Magnus Birgersson forces Gotland to accept obligation of ledung and yearly payment of compensation, ledungsleme, when there were no ledung. In Harrison (2009), pp. 436.
87 Hildebrand (1879–1903), vol. 4, p. 628.
88 Ibid.
other, later, sources indicating that the *ledung* was still active in 1361. The last appearance of the *ledung* in Denmark is in 1360.\(^8^9\) In 1387 the Swedish king Albrecht of Mecklenburg granted Norbro hundare easement by royal decree not to outfit more than a single ship for *ledung*.\(^9^0\) Queen Margareta is said to have announced full *ledung* in Norway in 1393.\(^9^1\) On the 6th of May 1450 Karl Knutsson, king of Sweden, regulated what kind of ships each *härad* ought to have in Finland.\(^9^2\) By this it would seem that the *ledung* was still relevant and operational in 1361 and Gotland should have had a readiness to go on *ledung*. It follows, therefore, that the *ledung* is still a meaningful subject to study when searching for information about the rural militia organisation on in Gotland 1361.

### 2.2.2. Chronology of the invasion

In the *Lübeck chronicle*, it’s described how Valdemar went to Gotland with a big army, and that “There he killed tremendously many. He went to the city of Visby, but they met him outside the city and surrendered to the king’s grace when they knew that resistance was impossible.” It’s described that this was the way Valdemar gained power of the island.\(^9^3\) The general description that Valdemar went to Gotland with his army, fought battles and thereafter took Visby is also shared with the *Zealand chronicle*\(^9^4\), *Annales Scanici*\(^9^5\) and *Libellus de Magno Erici Rege*.\(^9^6\)

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\(^9^2\) Andersson & Granlund (red.) (1956–1978). Entry Ledung, p. 459. The charters ID nr is REA 55and is transliterated as follows: "Item om idher snække lagh j Norfinna oc Sudherfinna wilia wy tillota at hwart hærede haffue j snækkia aff XVI lesther oc en skøttabaath aff VI lester eller VII ferdoghe tiill rikinsins tænst jnnan pingx daga nest komandhe."

\(^9^3\) Tortzen (1961), pp. 71-72. Thordeman (1939), pp. 36. Old Ger: “unde floch alto vele volkes dar neder, wente de bünner weren ungewapent unde strides unbewonen. He toch vort vor de stad to Visbü; se togen em enjeghen ute der stad, unde gheven sik an des koninghes hułde, wente se seghen wol, dat dar nyn wederkivent was.”


There are three sources that mention dates related to the invasion. One of the texts is from the Visby Franciscans’ chronicle. The entry is reproduced in its entirety below:

In the year of our Lord 1361, came the same Valdemar to Gotland with a large army and brought many dukes from Germany at the feast of Saint Mary Magdalene, and the day after the holy St Jacob's feast he fought against the farmers of the countryside outside the southern gate of the city, of which he killed one thousand eight hundred in the battle and immediately entered Visby city after negotiations. On the holy saint Augustine's day, he finally left with a great treasure of gold and silver, which he had taken from the town and countryside.97

The Danish landing on Gotland is stated to have taken place at the day of Saint Mary Magdalene, the 22nd of July. The commonly used date for the battle of Visby is the date on the memorial cross, the 27th July,98 although both the 24th99 and the 26th July100 are mentioned in the Visby chronicle as dates for the battle.

There is one source indicating the date for the battle of Fjäle marsh in Mästerby parish. This is the text on the memorial cross in Grens. The memorial cross in Grens is connected to the battle of Fjäle marsh in Mästerby parish,101 that was fought a couple of days before the battle of Visby. In 2011 an examination was performed on the memorial cross. The text on the cross is very damaged and fragmentary. What was discovered was that the word Iacobi might have been positioned in the place where the day of the event ought to be mentioned.102 If that is correct then the Grens cross is to commemorate events on the 25th of July.

97 The author’s translations are made with the support of the Swedish translation in the book. Melefors & Odelman (red.) (2008), pp. 60, 61. Latin: “Anno Domini m°cccclx” primo Waldemarus veniens in Gotlandiam cum magno exercitu ducens secum quam plures duces de Alemannia in festo sancte Marie Magdalene, et in crastino sancti Iacobi cum bondonibus terre ante australem portam civitatis pugnavit et ex illis mille octingentos in bello occidit et immediate civitatem Wisbycensem cum placitacione optinuit. Demum in die sancti Augustini recessit ducens secum maximum thezaurum auri et argenti, quem de civitate ac terra accepit.”
100 Melefors & Odelman (red.) (2008), p. 60. Lat: “in crastino sancti Iacobi”.
101 Thordeman (1939), pp. 21-22.
102 http://www.masterby1361.se/docs/resultat.htm
The date of Valdemar's departure from the island is specified in the Visby Franciscans’ chronicle to have been the 28th of August.\textsuperscript{103}

As the different dates for the battle of Visby indicates, any precise dates should be taken with a grain of salt. They do however give likely approximations of when different events occurred. The exact dates are not vital to this study, as the aim is not to try to reconstruct the whole military operation in detail.

\textbf{2.2.3. Places of battles}

The Zealand chronicle and Libellus de Magno Erici Rege states that three battles were fought.\textsuperscript{104} The chronicles do not mention if the battles took place in any specific part of Gotland.

At the memorial cross in Visby its stated that a battle was fought in front of the gates of Visby.\textsuperscript{105} According to Visby Franciscans’ chronicle a battle should have been outside the south gate.\textsuperscript{106} That there was a battle outside Visby is proved by the mass graves that were found there.

In 1633 the Gotlandic priest Hans Nielsön Strelow writes that three battles were fought; at the Danish debarkation at "Chronevold\textsuperscript{107}, on Fjäle marsh in Mästerby and outside Visby. The only sources that pinpoint the actual battlegrounds before Strelow, are the Visby memorial cross and the Visby Franciscans’ chronicle that mentions the battle of Visby. The battle of Fjäle marsh mentioned in Strelow was found through battlefield archaeology in 2006\textsuperscript{108}; a still on-going research project led by archaeologist Maria Lingström. The archaeological surveys have established the area where the battle was fought.\textsuperscript{109} It’s interesting that Strelow accounted for myths about the events in 1361 in his writings from 1633, and the part about Fjäle marsh has been proven to be correct.

\textsuperscript{103}The departure is specified to the day of of Saint Augustinus. Melefors & Odelman (red.) (2008), pp. 60, 61. Latin: "Demum in die sancti Augustini recessit ducens secum maximum thezaurum auri et argenti, quem de civitate ac terra acceptit."


\textsuperscript{105}Thordeman, Bengt, Armour from the battle of Wisby 1361. 1, Text, Kungl. Vitterhets historie och antikvitets akademien, Stockholm, 1939, p. 1. Latin: "ANTE PORTAS WISBY”.

\textsuperscript{106}Melefors & Odelman (red.), Visbyfranciskanernas bok: handskriften B 99 i Kungliga biblioteket, pp. 60, 61.

\textsuperscript{107}Thordeman (1939), p. 40.

\textsuperscript{108}Lingström, Maria, (2009).

\textsuperscript{109}Reports from the battlefield archaeology in Mästerby: http://www.masterby1361.se/docs/rapporter.htm
Two battles have been confirmed by archaeological findings. The battle by Fjäle marsh in Mästerby parish and the battle of Visby. Based on the Gotlandic sources on the memorial cross in Visby and Visby Franciscans’ chronicle it seems likely that the battle of Visby was outside the south gate.

2.2.4. Who fought the invaders

On the memorial cross “Gutenses” is used, meaning Gotlanders. According to the city law of Visby there was a division between Gotlandic and the German citizens. By this definition, Gutenses should not at least have been the German citizens of Visby. Annales Scanici specified that it was the rural population that fought in the battles. The Gotlanders that fell in the battles are defined as farmers in the Lübeck chronicle and the Visby Franciscans’ chronicle. It’s worth noting, that in one of the texts in the Visby Franciscans' chronicle they are defined as “bondonibus”, which closely resembles the Swedish word for farmer, bonde, with suffix in Latin form.

If parts of the Gotlandic population of Visby participated is not indicated in these sources. It is interesting to compare this to later literature about the invasion. In 1633 Strelow writes that the burghers made a sally from the town during the hostilities outside of Visby and lost the battle. The conclusion that can be drawn from the sources of 1361 to about 1420 is that the rural population fought the invaders and that it still remains unclear if the city participated in any way.

2.2.5. Descriptions of the casualties

The impact on Gotland are described in an almost unanimous way in the sources. In the Zealand chronicle about Valdemar’s operations in 1361 it’s stated that the victory was

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113 Thordeman (1939), pp. 36. Old Ger: “unde floch alto vele volkes dar neder, wente de bünner weren ungewapent unde strides unbewonen.”
114 Melefors & Odelman (red.) (2008), pp. 52, 53, 60, 61.
achieved almost without loss, while countless of the island's men were killed. 118 *Annales Scanici* describes how that many of the rural population were killed in the fighting. 119 *The Lübeck chronicle* describe the casualties: “There he killed tremendously many, because the farmers were unarmed and unfamiliar with battle.”120 In a letter from king Magnus the 15th of August 1361, it’s describes how king Valdemar attacked Gotland and Öland with “murder and fire”.121 The killing and use of fire are also mentioned in the inscription from 1361 in Fide church. The text gives a grim description of the invasion.

The houses are set on fire, a suffering people cut down; the ravaging with swords go forward, look, a dog's likeness, Gotland is conquered by the Danes.122

The inscription forms a chronogram indicating the year of 1361. In a chronogram each letter has a numerical meaning that, when put together, indicates a specific date, in this case 1361. The text was probably made at the latest during the first decade of the 15th century and the comment about dogs or a dog's likeness is believed to have a connection with the fact that Valdemar was called ”The Wolf” in satirical texts.123 These texts provide a graphic description of the invasion, emphasising that many Gotlanders were killed in the fighting, but it’s hard to tell to what degree the description matches that of the actual course of events or if it's just a dramatic presentation.

The memorial cross of the battle of Visby mentions the “Gutenses”124 that fell in battle. With a literal interpretation, it would mean that only the fallen from Gotland were buried by the cross. A figure of how many were killed is mentioned in in *Libellus de Magno Erici Rege*. There it’s stated that 2.000 Gotlanders were killed in three battles and in the Visby Franciscans chronicle it is stated that 1.800 Gotlanders were killed in the battle of Visby. The excavated mass graves makes it indisputable that a considerable part of the Gotlandic male

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120 Tortzen (1961). 71-72. Thordeman (1939), pp. 36. Old Ger: “unde floch alto vele volkes dar neder, wente de bünnen weren ungewapent unde strides unbewonen. He toch vort vor de stad to Visbü; se togen em enjeghen ute der stad, unde gheven sik an des koninghes hulde, wente se seghen wol, dat dar nyn wederkivent was.”
121 Swedish National Archives, SDHK no: 6518. Swe: ”mord och brand”.
122 Siltberg (2002). Swe: ”Husen är stuckna i brand, ett lidande folk nedhugget; härjande med svärd går fram,” ”se, en en hunds like, Gotland erövras av danskar”.
123 Siltberg (2002).
population really was killed during these events. The casualties of the battle of Visby will be discussed further in the third part of this study, along with the archaeological material from the mass graves.

The casualties of civilians from the battles and hostilities are unclear, but the sources describe that a heavy tribute was taken from Gotland. *The Visby Franciscans’ chronicle* describe how king Valdemar took a great treasure of gold and silver from the town and countryside. In *Libellus de Magno Erici Rege* from about 1370 it’s described how the country was subjected to a heavy tax. *The Lübeck chronicle* likewise describes how king Valdemar took a heavy tax of silver and gold from the city burghers and left the island. The city had, at the very least, to pay tribute to the invaders, as indicated by a letter sent from Visby to the Hanseatic cities, dated to the 15th of December 1362; the letter speaks about how the Visby burghers had to pay to save goods stored in the city.

2.2.6. Organisation, training and equipment

In the Lübeck chronicle it’s stated about king Valdemar’s invasion of Gotland: “the farmers were unarmed and unfamiliar with battle.” This text is the only one that mentions that the farmers were unarmed and lacked experience. With the consideration of that king Valdemar had waged war for several years and Gotland had been spared from war for many years it seems a reasonable statement.

The charter of privileges to the city from 29th of July 1361 mentions nothing about the invasion. However, some of king Valdemar’s followers are mentioned. His son Kristoffer is mentioned, as well as Duke Erik of Sachsen, the knights Klaus Limbeck, Henning Podebusk and Valdemar Sappi. These are the only people known by name to have participated in the invasion.

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125 The author’s translations are made with the support of the Swedish translation in the book. Melefors & Odelman (red.) (2008), pp. 60, 61. Latin: "Demum in die sancti Augustini recessit ducens secum maximum thezaurum auri et argenti, quem de civitate ac terra acceptit."
127 Tortzen (1961), pp. 71-72. Thordeman (1939), pp. 36. Old Ger: “He toch vort vor de stad to Visbü; se togen em enjeghen ute der stad, unde gheven sik an des koninghes hulde, wente se seghen wol, dat dar nyn wederkivent was.”
128 Thordeman (1939), pp. 26, 33-34.
129 Tortzen, (1961), pp. 71-72. Thordeman (1939), pp. 36. Old Ger: “unde floch alto vele volkes dar neder, wente de buiten were ungewapent unde strides unbewenen.”
130 Thordeman (1939), p. 33.
2.3. Summary

In this part of the study the descriptions of the invasion been has studied, by studying the sources relating to the invasion, from 1361 to about 1420. The descriptions of the invasion from the sources all follow the same narrative, with individual variations, when it comes to the general description of the events. This increases the chances that the descriptions of the events are accurate and would seem to indicate that the sources really are reliable when it comes to that description. The study is summarized in the following themes: chronology of the invasion; places of battles; who fought the invaders; casualty numbers; organisation, training and equipment.

The dates mentioned in the sources about the events of 1361 forms a chronology. On the 1st of May there was warning letter from the king about the need to prepare for invasion. This could be a part of a general alert with mobilisation of the ledung. For the Danish landing the 22nd of July is mentioned. If the inscription on the memorial cross close to the farmstead of Grens is Iacobi, then it’s likely that the battle of Fjäle marsh took place on the on the 25th of July. The commonly used date for the battle of Visby is the date on the memorial cross, the 27th July, although both the 24th and the 26th of July are mentioned in the Visby chronicle. If that is correct the date for when Valdemar left the island is stated to have been on the 28th of August. As the different dates for the battle of Visby indicates, the precise dates should be used with caution, but they give likely approximations of when the different events occurred.

Two sources describe how there were three battles fought, of which two have been confirmed by archaeological findings: the battle by Fjäle marsh in Mästerby parish and the battle of Visby. The battle of Visby is described as having been outside the south gate, by a Gotlandic source, which makes it more reliable. All the sources from 1361 to 1420 describes how the Danish army fought against the rural population or Gotlanders. Only the later source from 1633 by Strelow describes how the burghers fought in the battle of Visby. The conclusion that can be drawn from the sources from 1361 to about 1420 is that the rural population fought the invaders and that it remains unclear if the city participated in any way.
The sources are unanimous that many Gotlanders were killed in the fighting. The Fide church inscription gives a haunting description with “a suffering people cut down”\(^{131}\). Estimates of how many people were killed in the battle of Visby range from 1,800 to 2,000 Gotlanders in the sources studied. The casualties of the battle of Visby will be discussed further in the third part of this study, along with the archaeological material from the mass graves. The casualties of militia and civilians from the other battles and hostilities are unclear. The sources also describe how a heavy tribute were taken from Gotland.

The only indication in the sources of organisation are the people named in the charter of privileges to the city from the 29\(^{th}\) of July 1361 and that only points out prominent persons in king Valdemar’s entourage. Only the Lübeck chronicle has any mention of the Gotlandic militia and there the militiamen are described as untrained and badly equipped. That’s not enough information to draw any firm conclusions from. To get more information about the rural Gotlandic militia other sources needs to be used. This takes us to the next part of the study, where the regulation of the militia organisation is researched.

\(^{131}\) Siltberg (2002). Swe: ”ett lidande folk nedhugget”.
3. Part II. Study of the regulations of rural militia

3.1 How to study the regulations

This chapter answers the question: How was the rural militia organisation regulated in mid 14th century Sweden, with special focus on Gotland. To explain how the study been conducted, the following needs to be presented: previous research about the ledung and landvärn, relations between the different laws, Gotland's relation to Sweden and how the laws are used in the study.

3.1.1. Previous research about the ledung and landvärn.

Previous research of the defence system appears to have been focusing either entirely on details, or certain parts, but there doesn't seem to be much research aimed at describing the defence system in its entirety. I have not found any study that describes the connections between ledung, landvärn and folkvapen in 14th century Sweden. The ambition of this study is to erase that gap.

The previous research related to the question of military organisation in Sweden in the 14th century is mainly focused on the ledung. Niels Lund’s focus is on the system of ledung and the landvärn is only addressed briefly. The landvärn and ledung are also addressed by Tor Einar Fagerland. To a limited extent the importance of the farmers to landvärn and ledung are addressed, but Fagerland’s focus is on a combination of warfare and politics that does not include a study of the rural militia organisation. Other studies focus on the administration, as Carl Axel Ekbom's work. A coming work that will address the use of landvärn in 15th century onwards is Martin Neuding Skoog’s dissertation, that will be presented in 2018.

Thordeman has written an article that provides a good basic knowledge about the folkvapen. One problem is that Thordeman does not state the extent of his source material. This uncertainty about what sources might have been omitted, clearly justifies a new study of the folkvapen in the provincial laws. Kulturhistoriskt lexikon för nordisk medeltid från vikingatid

136It exists at least one error in his article. He states that the right for bastard sons to inherit folkvapen only exists in the provincial law of Hälsingland Thordeman (1941), p. 56. But this is also true for Gotland. Gutelagen 20:14. Holmbäck & Wessén (red.) (1979), Vol. 4, pp. 221-222.
till reformationstid,\textsuperscript{137} include articles about the ledung, landvärn and folkvapen but the articles are written by different authors and sometimes have old works as references and some articles outright contradict each other.

3.1.3. The laws

To begin with, the context of Swedish medieval country law and provincial laws will be explained. Historically the kingdom of Sweden consisted of several different land (provinces), which together made up the land (country) of Sweden. Since there is no difference in the forms for country (land) and province (land) the word land could both mean province or country when used in the sources. A province could also be referred to as landskap in Swedish. Each landskap had its own law, landskapslag. From the mid 14\textsuperscript{th} century onwards there is a law for the whole country, landslag. The landskap laws were originally written down in the late 13th century to the early 14th century.\textsuperscript{138} All Gotlandic law manuscripts were written down after 1260\textsuperscript{139} and are believed to originate from an older version from about 1220.\textsuperscript{140}

The landskap laws were developed by combining local tradition with royal and ecclesiastical decrees.\textsuperscript{141} These provincial laws represent a local autonomy, while King Magnus’ landslag (from about 1347-1352)\textsuperscript{142} represents an ambition to consolidate the country as one unit with one law. The landslag was the foundation for Swedish law, and was used, with several alterations, for a staggeringly long time, until 1762 when a new national law was introduced.\textsuperscript{143} The first reference to king Magnus country law being used, is from 1352.\textsuperscript{144} The provincial laws however did not cease to be used instantly, as indicated by a charter from Hälsingland referring to Upplandslagen in 1363.\textsuperscript{145} In the case of Gotland, the provincial law were used for much longer. The Swedish king Magnus Eriksson’s country law from the 1350s was never implemented before the invasion of 1361. With various rulers of Gotland after

\begin{itemize}
\item \textsuperscript{137} Andersson & Granlund, (red.) (1956-1978).
\item \textsuperscript{138} Holmbäck & Wessén (red.) (1979), vol. I, p. XII.
\item \textsuperscript{139} The provincial law from Gotland, Gutalagen, is preserved in four manuscripts. As a main source, the transliteration of manuscript B 64 in the database Fornsvenska textbanken has been used. The original is preserved as a parchment manuscript at the National Library of Sweden. It’s dated to mid 14\textsuperscript{th} century. Description of the laws origin: Holmbäck & Wessén (red.) (1979), vol. 4, p. LXX.
\item \textsuperscript{140} Holmbäck & Wessén (red.) (1979), vol. 4, p. LXXII
\item \textsuperscript{141} Holmbäck & Wessén (red) (1962), vol. I, pp. XI-XV.
\item \textsuperscript{142} Holmbäck & Wessén (red) (1979), vol. I, p. XI.
\item \textsuperscript{143} Holmbäck & Wessén (red.) (1962), p.XIII.
\item \textsuperscript{144} Holmbäck & Wessén (red.) (1962), p. XXXI.
\item \textsuperscript{145} Holmbäck & Wessén (red.) (1962), p.XV.
\end{itemize}
1361, the law of Gotland continued to be in use. In 1401 a copy in German was made for the Teutonic order’s Hauptman (commander) on Gotland. This is during the time of the Teutonic order’s occupation of Gotland between 1398-1408. In 1492 king Hans of Denmark declares that the Gotlandic law valid, with some additions. A Danish translation of the law was made in the middle of the 16th century.  

The law of Gotland was divided into chapters, as was the Danish laws. The Swedish laws were divided into codes of topics. Some of the chapters in the Gotlandic law are written as a code, while other topics are spread in several chapters. The order of the chapters in the Gotlandic law have similarities to that of the Swedish laws and chapters are in the same order as the those of other Swedish laws. So that a topic that is in one code in the Swedish laws could be written in several chapters in the Gotlandic law.

Does the fairly close temporal and at times overlapping use, it appropriate to use the different laws in order to create an entirety about the regulations for defence in Sweden? The Gotlandic law have booth similarities and differences to the Swedish laws. To support the claim that it is appropriate to use the laws to study the militia in Sweden including Gotland, Gotland’s relation to Sweden in 1361 needs to be clarified. This will be addressed next.

3.1.2 Gotland's relation to Sweden

Gotland has been considered to have had a high degree of autonomy towards Sweden, practically an independent peasant republic. Gotlanders had the right to trade freely in the whole of Sweden, without customs duties and charges. The ledung obligation consisted of only seven ships and the law was designed so that the Gotlands could abstain if they did not want to participate. The tax was collected annually by a royal representative, but the king did not have any bailiffs or officers residing on the island. Gotland had a low tax rate compared to mainland Sweden with its yearly tax of 60 Mark silver. In all matters ecclesiastical Gotland belonged to the diocese of Linköping on mainland Sweden.

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146 In Holmbäck’s & Wessén’s Svenska landskapslagar (1979), all the variations of all preserved versions of the law are included. The relation between the Gotlandic law and the other laws are described in: Holmbäck & Wessén (red.) (1979), vol. 4, pp. LXIV-LXVII, LXXXVII.
147 Holmbäck & Wessén (red.) (1979), vol. 4, pp. LXXIV-LXXV.
148 Ibid.
151 The mark was a currency based on a unit of weight.
152 Holmbäck & Wessén (red.) (1979), vol. 4, p. LXXIX.
From the end of the late 13th century there are indications of that the Swedish king strengthened his position on Gotland. 1285 king Magnus Birgersson forces Gotland to accept obligation of ledung, without the previous exceptions and also a yearly payment of compensation, ledungslame, when there was no ledung. The obligation of ledung was only suspended if the Gotlanders had to defend themselves against attackers.153 The war of 1288 between the city of Visby and the rural Gotland was settled by mediation by the Swedish king. After 1288, Gotland was an integral part of Sweden.154 In 1313 the Gotlanders tried to oppose a tax increase. This led to confrontation between the king’s troops and the Gotlandic militia, which ended with the Gotlandic countryside and Visby together having to pay 110 marks silver in tax and 90 mark of silver in ledungslame annually. This tax increase was abolished again in 1320.155

3.1.4 The laws as sources

The source material consists of the country law, landslag, and the provincial laws, landskapslagar. The provincial laws used in this study are: Gultalagen, Östgötalagen. Upplandslagen, Dalalagen, Västmannalagen, Södermannalagen, Halsingelagen, Äldre Västgötalagen, Yngre Västgötalagen, Smålandslagens kyrkobalk and Bjärköarätten.156 For the country law Magnus Erikssons landslag157 has been used.

These laws are so interconnected that they could be considered to belong to the same field of laws. By field I mean that the laws have developed with such a great amount of interference that they can be seen as interrelated in their content. This also includes the notion that the different provinces' societies are so similar, because of their close contacts and relations, that a province can provide information relevant to another province. There are differences in the law from Gotland and the laws from mainland Sweden, but also similarities. As shown, Gotland were an integrated part of Sweden in 1361, under the control of the king. With this fairly close temporal and at times overlapping use together with their common context, is it considered appropriate to use the different laws in order to create an entirety concerning the

156 These are published in, Holmbäck’s and Wessén’s five volume work Svenska landskapslagar: tolkade och förklarade för nutidens svenskar(1979).
157 Holmbäck & Wessén (red.) (1962).
regulations of defence in Sweden. When the laws are being studied, differences between the laws need to be discussed based on the possibility of local deviations.

The study begins by examining what’s stated in the provincial law of Gotland, Gutalagen, then goes on to study the other provincial laws and the country law. The survey has been performed by studying the laws in search of concepts related to the research question; by looking for paragraphs that relate to the concepts of landvärn, ledung, folkvapen and guard. These other laws will be used to make a reasonable deduction about what could have been the likely equipment for the Gotland militia. Corresponding reasoning will be made for organisation and the duties associated with the militia service.

To make an efficient study of a big text material, the laws translated to normalized modern Swedish, was used for a first survey of the provincial law.\textsuperscript{158} This means that there is a risk that words have been interpreted in a way that may be questioned. To check what wording has been used in the original sources, the database \textit{Fornsvenska textbanken} has been used.\textsuperscript{159} \textit{Fornsvenska textbanken} holds transliterated text of many medieval manuscripts, including all the laws which is based on Hans Samuel Collin’s and Carl Johan Schlyter’s meticulous work \textit{Samling af Sveriges gamla Lager}.\textsuperscript{160} This check is to make sure that the author’s interpretation and translation is true to the original word or concept.\textsuperscript{161} The author’s translations have footnotes with the original wording in it, to give transparency to the work performed. It has also been checked that both the database Fornsvenska textbanken and Holmbäck’s and Wessén’s \textit{Svenska landskapslagar: tolkade och förklarade för nutidens svenskar}, refers to the same manuscripts.

\textsuperscript{158} To make an efficient study of a big text material, Holmbäck’s and Wessén’s five volume work \textit{Svenska landskapslagar: tolkade och förklarade för nutidens svenskar}(1979), was used for a first survey of the provincial law.

\textsuperscript{159} Fornsvenska textbanken. http://project2.sol.lu.se/fornsvenska/


\textsuperscript{161} In Holmbäck and Wessn the meaning of some medieval words is debated today. They have been changed to a more modern translation to words that could be inaccurate. Here is one example: When describing the folkvapen, the term “harnesk” (breast plate) is used in Holmbäck & Wessén (red.) (1979), \textit{vol. 3}, p. 398. The term is used instead of the medieval “musu” which occurs in Fornsvenska textbanken, Hälingselagen acc. Ups B 49, Rättegångsbalken, XIV§2. According to Thordeman ”musu” probably means mail coif, acc. Thordeman (1941), pp. 59-62.
3.3. Study

The key issues found in the sources are presented thematically. The themes are: the overall regulation of *landvärn* and *ledung*, which sets the foundation for the military system; the duty of defence and guard, that sets the practical duties that are stated in the laws in the form of guard; equipment of *folkvapen*, which are the regulations of armament.

3.3.1. The regulation of landvärn and ledung

Clues about the organisation of the Gotlandic *ledung* could be found in *Gutasagan*.162 *Gutasagan* was written in 1220 or thereabouts, which is before the provincial laws of Gotland were composed. *Gutasagan* exists as an attachment to two of the preserved provincial Gotlandic laws. *Gutasagan* is written as a story but includes a selection of rules, such as instructions for the bishops’ visits and *ledung*. In the chapter about going on *ledung*, it is stated that Gotland should “follow the Swedish king on *herferþ* with seven ships, against heathen lands and not to Christian.”163 The word *herferþ*, could be translated as “military expedition”, and is another word for *ledung*. This is continued by rules for the proclamation of *ledung* and reasons for Gotland not to participate in the *ledung* and the fines for not going. It’s specifically stated that after the king’s legal declaration of *ledung*, the Gotlanders had the choice to participate or not,164 and with the christening of the Baltics, with only Lithuania as remaining pagan country up to 1387, *ledung* against pagans was unlikely in the 14th century. By using this phrasing the ability for the Swedish king to use Gotland for *ledung* was very limited. The regulations in *Gutasagan* were written before the king proclaimed the same duty to go on *ledung* for Gotland as the rest of Sweden in 1285.165 But it is questionable to what degree Gotland upheld the system of *ledung* still in the mid 14th century.

The territorial division of land as linked to the *ledung* system is evident in the law book. The seven ships that should be used in *ledung* should most likely be equipped and manned by the six *settingar* and Visby.166 In the law of Gotland the word *setting* occur several times, for

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162 The Gutasaga is described and reproduced in Holmbäck & Wessén (red.) (1979), vol. 4, pp LXIV-LXXXIX, 291-295.
163 Collin & Schlyter, 1852, vol. 7, Gutasagan, chapter 1. Old Swe: ”at fylgia suia kunungi i herferþ miþ siau sneckium. vfan a haiþin land oc ai vfan cristin.”
164 Collin & Schlyter, 1852, vol. 7. Codex iuris Gotlandici = Gotlands-lagen, Gutasagan, chapter 1. Old Swe: ”þa hafa gutar wal vm at fara en þair wilia miþ sinum sneckium”.
example when a wounded man ought to bear witness to two aldermen from the “same hundare and a land judge from the same setting.” It’s interesting that the judge in the setting is defined as “land judge”, which is the same title as for the judge for the whole province (land) of Gotland. The seven judges in total, the six setting judges and the judge for gutnaltinget, were the ones that up to the 16th century signed all treaties concerning rural Gotland. Martin Neuding Skoog emphasizes that during the 15th century, the judges were expected to lead the militia in war. From this it would seem likely that the judges were also expected to lead the militia in the 14th century.

In another chapter of the law it is stated that the alderman shall be from the same hundare or setting. The concept of hundare is related to the ledung system. What’s interesting is that this source shows that the hundare and the setting are not synonymous. In a paragraph about selling land, the law states that land should be sold to people in the same hundare. In another place it says that the aldermen shall judge on hundare thing and decide fees. Thing and treding took care of smaller matters such as how to handle stray cattle. The Gutnalting handled serious questions, for example outlawing people and serious offences like murder. The juridical division is mentioned with reference to different thing fees being payed depending on the level; at the setting, treding or Gutnaltinget. Cases brought up at setting was at three marks, at treding six marks and at the Gutnaltinget twelve marks. This shows how the more serious cases came with higher fees. The question is how the hundare relates to the thing level. Could hundare thing perhaps be the thing level underneath the setting? In 17th century Gotland there were several aldermen in each fourth of haurad.

By this a reasonable structure would be a couple of aldermen handling issues at the thing, or

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167 Fornsvenska textbanken, Gotlandslagen acc. Holm B 64, 19§1. Old Swe: ”raþ mannum .j. sama hunderi oc ains lanz domera af sama siettungi”.
170 Holmbäck & Wessén (red.) (1979), vol. 4, p. 235, § 3.
171 Fornsvenska textbanken, Gotlandslagen, Chap 28 § 4. Old Swe: ”hunderis menn” and ”sama hunderi sum”. Also in Holmbäck & Wessén (red.) (1979), vol. 4, p. 229.
172 Fornsvenska textbanken, Gotlandslagen, Chap 31. Old Swe: ”Raþmenn sculu retta a hunderis þingum”.
173 Fornsvenska textbanken, Gotlandslagen, Chap 32. Old Swe: “hunderis raþmenn”
174 Holmbäck & Wessén (red.) (1979), vol. 4, pp. 235-236.
175 Fornsvenska textbanken, Gotlandslagen, Chap 8 § 1-2.
176 The mark was a currency based on a unit of weight.
177 Fornsvenska textbanken, Gotlandslagen, Chap 31. Old Swe: ”Sacar engar ma siettungr sykia hoyrin þan til III marca. En þriþiungr til siex marca. oc land alt til tolf marca”.
hundare thing. Then three to four hundare were put together to a setting, led by a land judge. Some issues were handled at the treding level and for the whole of Gotland at the Gutnutling. It’s also stated in Gutasagan that Gotland was divided in three tredingar, a northern, a middle and a southern.\(^{179}\)

It is, as previously stated, still unclear if Gotland upheld the readiness for going on ledung in 1361, but the division of land with influences from the ledung is evident and continued to be a a division used even beyond the middle ages. Now on to what the other laws say about ledung and landvärn.

The work on establishing solid laws for the countries’ defence can be found in The Additamenta 1, additions to the law for Södermanland, which are based upon King Magnus’ charter from 1332 or 1335.\(^{180}\)

The king will live on the crown’s goods in Uppsala and annually take his demands from his country. And not to put new burdens or impositions on his country, unless the people of the province with its king are unable to protect the country’s borders with their own power; then provinces and residents will help both with their money and themselves to protect the country from foreigners […]\(^{181}\)

In the Magnus Eriksson’s country law from about 1350 there is a further development of the law. Besides invasion several other reasons to mobilize resources are listed:

First if a foreign, Christian or pagan, army would ravage his country; or if someone in the country opposes the crown and the king cannot handle that in any other way; or if the king is to be crowned or should ride his eriksgata\(^{182}\), or

\(^{179}\) Collin & Schlyter, 1852, vol. 7, Codex iuris Gotlandici = Gotlands-lagen, Gutasagan, chapter 1. Old Swe: “So at graipr þann elzti laut norþasta þrìþiuŋ oc guti miþal þrìþiuŋ En gunfiaun þann yngsti laut sunnarsta”.

\(^{180}\) Holmbäck & Wessén (red.) (1979), vol. 3, p. XXIII.

\(^{181}\) Fornsvenska textbanken, Södermannalagen: Additamenta acc. NKS 2237, Chap I, §3:5 Fo Swe: ”at konunger agher liua uið upsala óða ok lagha arlica utskyldir aff landum sinum. ok ængin man thunga eller alaghu a land sin lægia. utan æi ymnungis inlanzsker almoghe með konunge sinum land i landamære at uæria með makt sialura thera. tha sculu land ok almoghe sua með pænningum sinum hialpa sum sialuum sik land at uæria fore utlænningum ok allum ovinum.” And in Holmbäck & Wessén (red.) (1979), vol. 3, pp. 237-238.

\(^{182}\) Newly elected medieval Swedish kings made a journey through the important provinces. The purpose for the journey was to get their appointment confirmed by the provincial assemblies. This journey was called Eriksgata.
whether his son or daughter should marry; or if the king must build on his castles or on his land in Uppsala.\textsuperscript{183}

This evolution of the law shows that the \textit{ledung} at first concerned only foreign invasion, but that it evolved to be a more general system to generate resources in different situations. It went from being very specific to more general. The duty to defend the country concerns “all those who build and live in his kingdom”\textsuperscript{184} to the borders and not on expeditions further out, without their consent. It’s also stated in the section about allegiance from the representatives and the men of the land (provinces) to the king that the people must be faithful and supportive of the king, “especially with \textit{härfärd} to the country borders, to defend the kingdom and country with him.”\textsuperscript{186}

In the law of Hälsingland it’s stated: "If anyone is called for muster to row out or \textit{landvärn} and makes trouble, without any reason for doing so” he should pay fine.\textsuperscript{187} In this case to “row out” was used instead of using the term \textit{ledung}. But in the chapter before, which concerns tax paying for neglecting \textit{ledung} or \textit{ledungslame}, the term "\textit{leþunger}"\textsuperscript{188} and "\textit{leþungx lama}"\textsuperscript{189} are used. So, in the same text both \textit{ledung} and to “row out” are used. It’s also evident that \textit{ledung} and \textit{landvärn} were two different things but seen as interconnected in the militia system and if anyone neglected them, they deserved to be fined. The provincial law from Uppland has a thorough exposition concerning the \textit{ledung} regulation, mostly about the

\textsuperscript{183} Fornsvenska textbanken, Magnus Erikssons Landslag acc. AM 51, Konungabalken V§6. Old Swe: “Siætte æt kununger agher liua viþ vpsala öþa, kronunna goz ok ællæ alægn a land sit læggia vtan meþ sua forskælum: først æt vt lænzsker hær kristin ællæ hæþin vilia land hans hÆria, ællæ nakar in lændis sæter sik amot kronunne, ok kununger giter sik ei annor lundum vart, ællæ ok kununger skal kronas ællæ erix gatu sina riba, ælla barn sit son ællæ dotor gifta, ællæ ok kununger þorþ vijper huus siín ællæ vpsala öþa byggia; i þolikum fällum skal biskoper i laghsaghu huarre ok siæx af hofmannum ok siæx af almodghanum þet mællan siín væghe, huat hiaelp almoghin skal ællæ ma göra kununge sinum.”

\textsuperscript{184} Fornsvenska textbanken, Magnus Erikssons Landslag acc. AM 51, Konungabalken III§1. Old Swe: “Alle ok þe i hans rike byggia ok boa”.

\textsuperscript{185} Fornsvenska textbanken, Magnus Erikssons Landslag acc. AM 51, Konungabalken III§1. Old Swe: “særlikæ {i} [a] landemære land at væria ok ei ytermere meþ hærferþ vtan goþulía þera til faghnun”.\textsuperscript{186} Fornsvenska textbanken, Magnus Erikssons Landslag acc. AM 51, Konungabalken VII§3. Old Swe: "særlikæ {i} [meþ] hærferþ til landamæris, rike ok land meþ honum æt væria.”

\textsuperscript{187} Fornsvenska textbanken, Hälsingelagen, acc. Ups B 49, Konungabalken, VIII. Old Swe: ”Hwar sum hær {bort} [buþ] far .i. vtroþir. æller i landwarn. bryzkær han wiþer. ok hawr æy forfal. böta þre bot marker. halft konungi. ok halft skipnöti. hæriræ þer æller brænnæÆ. gar skaþa a land böta XL. marker. ok skiflis som för ær sakt”.

\textsuperscript{188} Fornsvenska textbanken, Hälsingelagen, acc. Ups B 49, Konungabalken, VII. Old Swe: “Ganger leþunger ifwr haff”.

\textsuperscript{189} Fornsvenska textbanken, Hälsingelagen, acc. Ups B 49, Konungabalken, VII.
An interesting connection to the provincial law of Gotland is that the age of majority is specified to twenty years of age in both laws.

In the Södermannland Law, the system is explained in greater detail. It is apparent that when ledung is announced, those who had spent the longest time in the hamna since last going on ledung should heed the call. This shows that it was not just one person in the hamna that could go on ledung. By this system a readiness to participate in military operation was spread in the society. The concept of hundare is also used in additions to the laws it is also stated that: "Thus the king’s ledung shall be proclaimed, that ships shall be prepared for the Pentecost with what belongs to them." Thereafter it is stated what weapons and food supplies that each hamna ought to have in store. Next, the law informs us that “This should be announced on the first Sunday of the fasting, in Strängnäs.”

The ledung or landvärn are mentioned in several of the above presented laws. But all laws don not mention the obligation to defend the country by ledung and landvärn. The next section of the law discusses performing guard duty.

### 3.3.2. The duty of defence and guard

The responsibility to perform guard duty is stated in two places in the Gotlandic law manuscripts. The well preserved B 64 states in chapter "About guard" that the guard duty must be performed by everyone who is at least 20 years old and he ought to keep folkvapen and answer for all taxes and pay guard money in the Easter week. A Danish copy of the Gotlandic law from the mid 16th century (but which is believed to be a copy of a late 15th century manuscript) has an addition about guard duty: “Everyone who is eighteen years old

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190 Fornsvenska textbanken, Upplandslagen, acc. Ups B 12, Konungabalken, X.
191 Fornsvenska textbanken, Upplandslagen, acc. Ups B 12, Konungabalken, X. Old Swe: “þæn kallæs mohhande man sum tiughu ara ær.”
192 Fornsvenska textbanken, Södermannalagen, Holm B 53, Konungabalken, Chap. X. Old Swe: ”þen scal fara þær ælztæ ær a ferð” and a reference to ”hamnamæn”.
194 Fornsvenska textbanken, Södermannalagen, acc. NKS 2237, Additamenta, 2. Old Swe: Thessa lund scal konungs leðung ut biuða. at snækkiur ok scutur sculu til reðo uera um pingizdagha tiðh með them reðom þær til höre.” For ships two different types are used in the text: ”snækkiur” and ”scutur”.
195 Fornsvenska textbanken, Södermannalagen, acc. NKS 2237, Additamenta, 2. Old Swe: ”Thæfta scal lyusas huarn huitta sunnudagh i strengenæs.”
196 Fornsvenska textbanken, Gotlandslagen, Chap 54. Old Swe: ”54. af warþi Uarþ al [setia] [sitia] huer sum ier tiughu ara oc haldi warþnum uppi oc allum scyldum oc gieldi warþ pennjnga j. pascha wicu.”
197 Holmbäck & Wessén (red.) (1979), vol. 4, p. LXVII.
shall keep watch, and when he is twenty years old he shall have full weapons, and when he is twenty-two years old he shall answer for all things.”¹⁹⁸ These two texts tell us that the guard duty is regulated. It states that a guard must have weapons and that he had certain responsibilities. But what was included in the concept of guard duty? This will be studied next.

In the law from Uppland it’s stated: ”Now an enemy army is expected to his land. Then they want to put out guard to protect their land: village guard, shore guard and böte guard.”¹⁹⁹ According to Holmbäck & Wessén, the term böte appears in a number of place names along the Swedish east coast, in Åland and in Finland; for that reason it is very likely that böte refers to a guard duty in the archipelago.²⁰⁰ Guard duty is discussed in a separate chapter in the law of Södermanland. There is a paragraph concerning guard duty on ships and one paragraph about guard duty if you defend your country against an enemy army. The guard duty is divided in four types: in guard, out guard, village guard and listening guard.²⁰¹ The law mostly speaks about penalty for neglecting the guard duties. Only farmers and residents could perform duty — not rabble or women.²⁰² Hälsingelagen states that “farmers and residents should be used as guards, not rogue men.”²⁰³ It also states fines for neglect of mountain-, næsiæ- and ship guard.²⁰⁴ Næsiæ could be translated to headland or isthmus and most likely refers to guard by the coastline.²⁰⁵

These regulations show that the guard duty seems to be focusing on watching the coastlines and the villages when there was a risk of an enemy attack. This is also indicated by what king Magnus states in his warning letter from 1 May 1361; that the Visby inhabitants should

¹⁹⁸ Holmbäck & Wessén (red.) (1979), vol. 4, p. p. 242, Swe: 4. ”Om vakt. Vakt skall envar hålla, som är arton år gammal, och tjugo år gammal skall han ha fulla vapen, och tjugotvå år gammal svara för allt till fullo.”
¹⁹⁹ Fornsvenska textbanken, Upplandslagen, acc. Ups B 12, Konungabalken, XII. Old Swe: ”Nu wæntir man hærr a land sitt. þa willæ þe warþ ut settæ. til þe landgiomö [landgiömo] sinnæ. byæ warþ. strandæ warþ. ok böte warþ.”
²⁰⁰ Holmbäck & Wessén (red.) (1979), vol. 1, p. 62, no 60.
²⁰¹ Fornsvenska textbanken, Södermannalagen, Holm B 53, Konungabalken, Chap. XII. The different guard definitions Old Swe: ”in warð”, ”vt warþ . oc byæwarþ”, ”lyznu warð”.
²⁰² Fornsvenska textbanken, Södermannalagen, acc. Holm B 53, Konungabalken, Chap. XII. Old Swe: ”Bönder oc bolfaste mæn skulu i warð sættæs. ok æy löskæ mæn.”
²⁰³ Fornsvenska textbanken, Hälsingelagen, acc. Ups B 49, Konungabalken, IX. Old Swe: “Böndir ok bolfastæ mæn skulu i warþ sættæs. ok æy löskæ mæn.”
²⁰⁴ Fornsvenska textbanken, Hälsingelagen, acc. Ups B 49, Konungabalken, IX. Old Swe: “fæller man bærg warþ. böte sum foræ herbuþ. swa ok foræ næsia warþ.” and ”taker styæ man warþ foræ bryggie sina.”
²⁰⁵ Holmbäck & Wessén (red.) (1979), vol. 1, p. 62, no 60.
prepare themselves and put out guards in harbours and upon walls, including night guard and other guard duties.\textsuperscript{206} The importance of guard duty for the defence of Gotland is indicated by that the king expressly highlighting the subject in his letter. Guard duty was also regulated as a responsibility that should be done by residents. It’s also stated that they were obliged to have weapons, which leads us into the subject of \textit{folkvapen}, which is examined in the next part of this study.

\subsection*{3.3.3. Equipment of folkvapen}

In the provincial law of Gotland it is stated in the section about guard duty that a man should own weapons from the age of twenty. The section about guard duty exists in two versions, but the two contain the same information when it comes to from what age a person should have weapons.\textsuperscript{207} Weapons are mentioned in one other place in the laws of Gotland. In the chapter about rights of bastard sons it’s stated that a father should provide for bastard sons until they became adults. If the adult bastard son no longer wished to live with their father, they should receive money, bedclothes, cloth and \textit{folkvapen}.\textsuperscript{208} In other words, \textit{folkvapen} was a right and an obligation even for bastard sons. This is very interesting because it indicates that even a person without a farm have the right to \textit{folkvapen}. Otherwise it could be argued that the \textit{folkvapen} should be connected to the ownership of a farm and by this one person for each farm should be armed with \textit{folkvapen}, but this right for bastard sons to get \textit{folkvapen} contradicts this. However, nowhere in the Gotlandic law it’s stated what was included in \textit{folkvapen}. To make an assumption about what was likely to have been included, the other provincial laws has been used as sources.

In the law of Östergötaland we are informed that when a person guilty of manslaughter should pay his fine, “then he must not have more than three \textit{folkvapen}: shield, sword and kettle hat, and not more unless the recipient of the fine wants it.”\textsuperscript{209} In the chapter about how a wife shares the inheritance with her children, the law tells us: “and then the heirs of the farmer shall in return have all the clothes that were cut for him, and three \textit{folkvapen}.”\textsuperscript{210} The law of

\begin{footnotes}
\item\textsuperscript{206} Tortzen (1961), p.63.
\item\textsuperscript{207} Holmbäck & Wessén (red.) (1979), \textit{vol. 4}, p. 242.
\item\textsuperscript{208} Fornsvenska textbanken, Gotlandslagen, Chap 20 § 14. Old Gotl: fulc vapn. Also in Holmbäck & Wessén (red.) (1979), \textit{vol. 4}, p. 222.
\item\textsuperscript{209} Fornsvenska textbanken, Östgötalagen A, acc. Holm B 50, Vådamålsbalken, VI:1. Old Swe: “þa skal han egh flere folk uakn i botinne haua æn þry: skiold. suærþ ok kætilhöd. ok ækki flere utan hin uili sum uiþ botinne takær”.
\item\textsuperscript{210} Fornsvenska textbanken, Östgötalagen A, acc. Holm B 50, Giftemålsbalken, XV. Old Swe: “siþan aghu arua bondans þær gen all þön klæþe hanum uaru baþe skapaþ ok skurin. ok þry folkuakn.”
\end{footnotes}
Hälsingland states: “Now shall all men that are fit for combat and eighteen years old have five folkvapen, sword or axe, iron hat, shield, bryniu or musu and bow with three dozen arrows”. Bryniu is a shirt of mail (interlinked iron rings). Muza is probably a mail coif – a hood made from iron rings, including a collar made from the same material. The code of inheritance describes what bastard children should inherit: “besides a son will receive weapons after his father, cutting weapon and liif-weapon and three dozen arrows, string and bow.” Liif-weapon is very likely protective armour. This because liif means life, body or torso, which makes it plausible that it pertains a weapon that protects liif.

In the additions of the law of Södermanland about ledung, the arms for each hamna is stated as “shield and sword, spear and iron hat. Each hamna needed to have muzo or panzara or/plato. Each hamna should also have a hand bow and three dozen arrows.” If this is the folkvapen or just complement equipment for ledung is unclear.

In the laws of Uppland its stated that it was double fines for manslaughter of someone that underage for the obligation of folkvapen: “is someone so young or so old that he cannot handle full folkvapen, then he is exempt from taxes and fees, and if slain, the one who did it owes a double fine “. There are several laws that treat the folkvapen in the context of inheritance. In the law of Uppland its stated: “If a farmer lives on after his housewife, then the farmer owns his horse and saddle and his weapons (and bed) which are excepted from the share of inheritance.” This paragraph is repeated once more with the same items plus his church clothes. The laws of Västmanland include a similar passage. In the law of

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212 Thordeman (1941), pp. 60-65.
213 Fornsvenska textbanken, Södermannalagen acc. NKS 2237, Additamenta, 2. Old Swe: “Thætta svulu hamnu uapn uæra Skiolder ok suerð. spyt ok iærnhatter. Huar hamna scal haau muzo eller penzara eller ok plato. huar hamna scal ok hanbugha ok threa tylpte skôte haau.”
214 Entry ”Lif” in Fornsvensk lexikalisk databas
Västmanland there is the phrase, if there are any *folkvapen*, which indicates that these were not always to be held in this region. In the law of Södermanland about inheritance the *folkvapen* are specified to four *folkvapen*.220 And if the farmer dies the items should be shared, with the *folkvapen* included, according to the law of Uppland.221 The latest source that mentions *folkvapen* in the context of inheritance is from 1623 in Värend, Småland, from the court proceedings diving the heirloom between the heirs of a local farmer. In the sharing Nils Håkansson’s bed, horse, saddle weapons and a tablecloth (that were taken as legal booty in a war to Denmark) were omitted from the division as per the law.222

So in the laws of Uppland, Västmanland and Södermanland, as in the laws from Gotland, *folkvapen* are mentioned, but without specifying what’s included in the *folkvapen*. It seems as what weapons that belonged to *folkvapen* were a concept, which in other words meant that there was no need to be specific in the laws.

Hälsingelagen also contains a chapter about *wigh* heritage.223 *Wigh* is translated as a person fit for combat,224 hence some kind of inheritance of something related to the duty of *landvärm*. The chapter only lists the order of heritage. This is interpreted by Holmbäck and Wessén as inheritance of a dead person’s weapons. It’s also indicated that the inheritance of weapons could also be connected to a sort of inheritance of the duty to avenge the murder of a relative.225

In Thordeman’s article Medeltidens folkvapen he claims that in the fragmentary remains of the city law from Söderköping, five *folkvapen* are mentioned. These are *muza, plata, kettle*

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221 Fornsvenska textbanken, Upplandslagen, acc. Ups B 12, Årdbalken, X. Old Swe: “Dör bonde ok liwær husfrun. þa gangi hæstær ok sapul ok wapn hans til skiptis.”
222 In the article its stated that from the sharing of inheritance the following were omitted: "undantages sin säng, som honom efter lagen borde, häst, sadel och vapen, såsom ock en skiveduk, som han i Danmarksfejden fick i fribyte". Thordeman (1941), pp. 55-56.
223 Fornsvenska textbanken, Hälsingelagen acc. Ups B 49, Årdbalken, XIV§2. Old Swe: “Um wigherfþ. Sun ær (wigharfwi) faþurs. ok faþer sunar. broþer broþurs.” etc.
224 Entry *vigher* in Fornsvensk Lexikalisk Databas. https://spraakbanken.gu.se/fsvldb/
225 Holmbäck & Wessén (red.) (1979), vol. 3, p. 322, note 111.
hat, sword and shield.\textsuperscript{226} Plata could be called coat of plates. A coat of plates protects the upper part of the body and is constructed by several iron plates that are riveted to an outer layer of leather or fabric.\textsuperscript{227}

By this, sword or axe, shield and iron hat seems a minimum of the folkvapen that a resident adult man was compelled to own. In some landskap the folkvapen were reinforced with other weapons such as spear and bow or with armour as muza, brynia, panzer or plata. Panzar is probably protection for the upper part of the body made of textile, leather or mail.\textsuperscript{228} The standard number of arrows when bows are called for seems to be three dozen. To own folkvapen was both an obligation and a right.

Before this part of the study ends, a find from the search for clues will be presented. This is a note in the Visby chronicle from 1358. This note is about how the mayor Hans Kosvelt donated a horse to the convent. It is stated that it can only be used for the needs of the brothers and church and “that this horse should not at all be loaned to anyone for tournaments or other games”.\textsuperscript{229} Why is tournament mentioned in a Gotlandic context; which lacked privileged landowning nobility? Was it because Hans Kosvelt used common phrases based on his German heritage, which included a prohibition of jousting? Or is it an indication that there had been jousting on Gotland, which closely relates to exercising heavy cavalry training as well as engaging in activities that are feudal status symbols. This question will be addressed further in the summary and discussion.

3.4. Summary

In this chapter regulations of the rural militia organisation, with a focus on Gotlandic circumstances in 1361, are studied.

\textsuperscript{226} In the note sits a reference to the original writing: ”Ens mans vakn muzo ok plato ok kiätilodh svärd och skiold”. Thordeman (1941), p. 57.
\textsuperscript{227} Thordeman (1941), p. 59.
\textsuperscript{228} According to Söderwall and Schlyter does panzar mean a protective shirt made of leather or plain weave in linen (Swe: lärft). Panzar are also described as mail. Entry: panzar, panzer or panzari in Fornsvensk Lexikalisk Databas. According to Thordeman panzer is a shirt of mail. Thordeman (1941), p. 64. It seems likely that the meaning of panzar changes from a protection of the upper body of different materials in the 14th Century, to a meaning of iron mail in the 15th Century.
\textsuperscript{229} Melefors & Odelman (red.) (2008), pp. 42-43. Latin: ”ut equus ille nec pro hastiludiiis vel aliis lusibus”.

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The readiness for ledung in Gotland in 1361 is unclear and could be debated. The relevance of the landvärn seems clear from the regulation of guard duty. Guard duty was incorporated in the Gotlandic system of detecting intrusion of aggressors. That this was a system that was in use 1361 was shown in the first part of this study, where king Magnus emphasised guard duty in Visby and had declared ledung to defend the country.

A societal structure also existed in Gotland based on the thing. At the lowest level was the thing, that was led by alderman. In the Setting up to Gutnaltinget for the province of Gotland, legal, domestic, foreign and military policy issues were handled. Land judges, with the support of aldermen, led these. The title “land judge” indicates the importance of the Setting, Treding and Gutnaltinget. It seems likely that it were these land judges that were commanders during the invasion.

The obligation and right to hold folkvapen are also emphasised in the laws. The details in the laws about folkvapen varies, as in the Gotlandic law that just uses the term folkvapen, to Hälsingelagen that in detail specify what is included in the concept of folkvapen. The laws sometimes emphasise the obligation to own folkvapen and sometimes the right to own folkvapen.

The laws regulate the ledung, landvärn and the duties of guard and folkvapen. That these regulations have similarities are indications that the provincial laws regulated an interconnected system in Sweden, of the landvärn and ledung. There exists local variations but the main structure is the same. The laws state who had obligations of different sorts, but the organisation is only implied by the thing system. The information about how the militia functioned, besides the obligations, are almost non-existent in the 14th century.

3.5. Discussion in the context of Gotlandic wealth and culture

But how well equipped was the Gotlandic rural militia? Did they have the equipment that was stated in the laws? In the narrative, a persistent view of a poorly equipped rural militia is upheld. Hugo Yrwing makes the assumption that the levy did not always have the statutory folkvapen.230 No reference to where Yrwing got this information can be found. In the first part

of this study one source describes the Gotlandic rural militia as unarmed, but the entire narrative of the unarmed “peasant mob” cannot be deemed valid by the use of one single source. To get another perspective on the farmers, “bondonibus”, on Gotland; with implications to its rural militia system, an interesting view is presented in Anders Andrén's *Det medeltida Gotland: en arkeologisk guidebok*. Andrén's book is based on the latest archaeological research. Andrén describes how Gotland lacked nobility and goes on to discuss the ongoing dispute whether or not Gotland should be described as a farmers republic of free farmers or as a society of dominating magnates. The Gotlandic society was ruled in economic, legal and political affairs by the judges or aldermen via the thing. The political power was held by a small group of families, that were all connected through marriage. These families are described as living on large farms and leading an urban and European lifestyle. Andrén describes the rural Gotland as an urban countryside, economically connected to other European trade cities and Visby. The countryside had much agrarian production, but many worked with other trades; such as crafts and trading. The profitable trading meant that the Gotlandic farmers could build more and bigger luxurious stone houses on the Gotlandic farms than could even be afforded by the nobles on the Swedish mainland. There are also eight treasure hoards found related to the invasion. These contain coins mainly from around the Baltic sea and luxury objects demonstrating the wealth and wide connections of rural Gotland.

It’s in this context that the previously mentioned horse that was not to be used for tournament becomes interesting. Is it an example of phrasing or an indication that jousting existed on Gotland despite the lack of a privileged landowning nobility? In that case, it’s an indication that heavy cavalry training was exercised in Gotland. It was a German mayor of Visby that presented the horse to the monastery and we know that the mighty farmer families didn’t use heraldic signs of recognition; instead they used house marks. To get a more certain context of the letter and its tournament on Gotland, more research is needed on the subject in other cities and on the phrasing of letters.

234 Ibid.
The important point regarding the Gotlandic wealth, culture and connections is that when the Danes faced the Gotlandic farmers, they were not met by a mob of poor peasants, but by a diverse society, which ranged from poor farmers to wealthy farmers, who were engaged in trade and manufacturing. At the same time, they lived in big stone houses and owned valuable imported objects. It makes it likely that the influential families on Gotland owned more arms than regulated in the laws about *folkvapen* because of their value as symbols of power and status. This study argues that arms and armour, in addition of being tools of violence, also works as symbols of power and status, not least because of their monetary value. Therefore, it could be argued, to counter the narrative’s description of badly armed militia, that the militia or parts of the militia could very well have had more arms than regulated by the laws.
4. Part III. Study of the fallen in the Battle of Visby

How the mass grave findings are studied

Part III studies the question: How is the Gotlandic rural militia represented in the mass grave findings from the Battle of Visby in 1361? The question of the Gotlandic militia’s fighting ability will also be addressed. The part III study is related to the two earlier studies, but focusing on the representation of *folkvapen* in the graves and the composition of participants, focusing on if they were fit for military service.

The objects that will be used for my research will correspond to equipment found in the regulations of the *folkvapen*, such as coats of plates, mail shirts and mail coifs. Statistics based on analysis of the remains of the individuals in the mass graves, such as age and health status, will be used to study the demographics of the Gotlandic force. The statistics resulting from the isotope analysis will also be used to find out if the rural militia only were the victims of violence or if they also caused losses to their opponents. These are subjects which are important elements of the narrative. There will be no study of injury statistics of the human remains; it is very difficult to draw any new conclusions, at least without more data about which side the individuals probably fought on.

4.1. The findings from the mass graves

To give a good grasp of the entire source material, the study will begin with an overview of the excavations. Then the different source materials used in the research will be presented. This presentation of the mass graves is based on Thordeman’s *Armour from the battle of Visby 1361*, which also presents Bo E. Ingelmark’s research on the human remains.

The mass graves from the Battle of Visby 1361 were excavated in 1905, 1912, 1924 and 1928-1930. In the excavations of 1905 to 1924 individual objects were not documented, which makes it impossible to link objects to human remains. The excavations of 1928 to 1930 were much more precisely documented, with individual objects being tied to specific human remains. This documentation consists of notes, journals, sketches and photographs now in the archives of the Swedish National Heritage Board.

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238 Thordeman (1939), p. 22.
The excavations revealed human remains from about 1185 individuals in three mass graves. There were 268 individuals from grave one, 798 individuals from grave two and 119 individuals from grave three.\textsuperscript{239} The figures are not completely reliable, as the bodies in the mass graves were not laid down in order, like they would at a normal funeral, but thrown down on top of each other. This made it difficult to identify and separate bones from the specific individuals during the excavation. It was not possible to excavate the remains of one individual at a time as they were thrown in the graves, thus forming an intertwined mass of bones about one meter thick. Moreover graves two and three were not completely emptied. In total five mass graves are known. One grave was removed without documentation when the foundation for a gun powder and rifle storehouse was built in 1811. Another grave, grave number four, was found in 1930 and is still left untouched.\textsuperscript{240} The amount of fallen Gotlanders, according to the Visby Franciscans chronicle, is said to have been 1800.\textsuperscript{241} If the size of the two unexamined graves was close to that of grave one and three, the total number of individuals in all five graves would indeed be close to the number given in the chronicle.

Comparing the three graves shows that the individuals in them have different kinds of injuries. They also show that the age statistics of the buried varies between the graves. Here are some examples using Ingelmark’s statistics:

Grave one: 53\% in an age fit for military service; 42,4\% have cuts on the cranium.\textsuperscript{242}
Grave two: 80\% in an age fit for military service; 52,3\% have cuts on the cranium.\textsuperscript{243}
Grave three: 45\% in an age fit for military service; 5,4\% have cuts on the cranium.\textsuperscript{244}

Ingelmark defined the ages fit for service to be between 20 and 55 years of age and the sum of individuals fit for service in the entire material is 64\%.\textsuperscript{245} The differences in the graves are explained by Thordeman that it is likely that grave three were filled with Gotlandic militia and that Gotlanders and Danes were mixed in grave one and two.\textsuperscript{246}

The excavated mass graves from Visby are unique. Not only is there a huge amount of human remains, as would be expected from any mass grave, but what sets the Visby material apart is

\textsuperscript{239} Thordeman (1939), p. 152.
\textsuperscript{240} Thordeman (1939), pp. 46-73.
\textsuperscript{241} Melefors & Odelman (red.) (2008), pp. 52, 53, 60, 61.
\textsuperscript{242} Thordeman (1939), pp. 159, 180.
\textsuperscript{243} Ibid.
\textsuperscript{244} Ibid.
\textsuperscript{245} Ibid.
\textsuperscript{246} Thordeman (1939), pp. 83-86.
of course the finds of armour. The finds consist of approximate 185 mail coifs, 12 whole or partial shirts of mail, 25 coats of plates, parts of 20 gauntlets, a pair of armoured shoes, elbow or knee cups, 38 arrow- and spearheads, 3 whole spurs, 590 buckles and miscellaneous other objects. The reason why so many items were buried along with the slain could be explained by a combination of factors, such as a huge number of fallen and that it probably took some time, perhaps even a couple of days, before burial could take place. The summer heat probably accelerated the decay of the bodies and as a consequence the hurry to bury them might have been great. There are also differences between the graves when it comes to the number of finds. Grave two has a higher percentage of finds compared to graves one and three. This could indicate that the dead were buried with greater haste and without being looted. An estimation from the amount of mail coifs and belt buckles is that about every sixth person in grave one, every fourth person in grave two and every eight person in grave three were buried fully dressed.

The excavated human remains and the main parts of the findings from the mass graves belong to the Swedish History Museum. A few armour objects were given as a gift to the National Museum of Denmark in 1936, as a thanks for their support with the excavations.

4.2. Previous research on the mass graves
Thordeman's book *Armour from the battle of Wisby 1361* focuses on the excavations, the skeletons and, as the title indicates, the armours. Thordeman makes the assumption that only Gotlanders were buried in grave three, because of the amount of young, old or with different disabilities. In grave one and two he assumed that both Gotlanders and Danes were buried together, because of the amount of individuals that were healthy and in their prime. The mail coif construction is seen as indication of a certain backwardness in the Nordic countries. The fashionable alternative in the mid 1300s would be a bascinet, a close fitting helmet that often had a mail collar attached to the bottom edge. Thordeman makes a balanced argumentation about if the coat of plates belonged to the Gotlanders or to the Danes. Its stated that evidence is lacking to determine which side used the different coat of plates. The only one defined as Gotlandic by Thordeman is the lamellar armour number 25 that is described as

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248 Thordeman (1939), pp. 93-95.
249 Thordeman (1939), p. 119.
251 Thordeman (1939), pp. 104-105.
not being “modern and efficient”, but he also states that this conclusion lacks sufficient evidence.

Only one study of the armours has been carried out after Thordeman wrote about them, and that is a study by Tommy Hellman about the mail coifs. Hellman studied ten coifs, looking at construction and traces of lining. Otherwise the only research carried out are a couple of studies on the human remains. Marie Flemström, Jessica Larsson and Petter Åkeson studied the entire human remains from grave three. This is very useful because Ingelmark’s research notes are gone, which means that the only information from his work on the mass graves is what’s published in Armour from the battle of Wisby 1361. Petter Åkeson has written an article with the title De begravda vid Korsbetningen: Individperspektiv på skelett från 1361, that is going to be published in late 2017. The human remains have also been used to research the plague. The fallen of the battle of Visby are valuable to plague researchers since they had all survived the Black Death, which ravaged Gotland in 1350.

Mass graves from other battles are also important. These can be used for comparative studies about the medieval soldiers and warfare. From the battle of Towton 1461 a mass grave with, 37 or 38 fallen soldiers, have been excavated. From the battle of Aljubarrota in 1385 the bodies of at least 400 individuals have been found. The remains of these bodies were not buried until seven years after the battle, resulting in the bones being mixed. The human remains provide information about the individuals, such as injuries, maladies, cause of death and health status. The data from Aljubarrota and Towton could provide data comparable to that from the battle of Visby.

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253 Ibid.
4.3. Methodology for study of the mass graves

An important part of the study is to connect the objects of armour to the bones of the fallen individuals. This is, rather unsurprisingly, done by studying the excavation report. The documentation is checked for instances where pieces of armour could be linked to individual human remains. In case there is a match the individual’s registration number will then be checked to see if it matches the markings on the bones. If there is indeed a match the individual is chosen for isotope analysis sampling. The purpose of these isotope analyses is to determine if the individuals lived on Gotland or not. Part of the study is also about interpreting the statistics from the isotope analyses together with the data from Armour from the battle of Visby 1361.

Isotope analysis is used for measuring trace element concentrations of stable isotopes, to identify an isotopic signature, in this case the concentration of isotopes in compact bone, which occurs through the accumulation of isotopes from food and drink. The bone is continually remodelled, with new concentrations accumulating in the new bone. The remodelling cycle for compact bone is about five to ten years and about two to three years for spongious bone material. The result from the analysis shows an isotopic signature for that period of time. As a consequence of this individuals travelling a lot or eating and drinking provisions that are not from the area will get an isotopic signature affected by the isotopes in the regions where the provisions are from. Also worth noting is that the method cannot determine with absolute certainty if a person is from a certain geographical area, because the isotope signature may be the same in several other areas as well. However, it can be said with certainty if someone is not from a specific area, if the isotope signature differs from that area’s signature.

An isotope that proved promising to identify geographical provenance, is the method of using the strontium isotopes $^{87}\text{Sr}/^{86}\text{Sr}$. Strontium has been used for several studies in Sweden and around the Baltic Sea. One disadvantage is that the signature of the strontium isotope on Gotland is partially overlapping with the Scania area in southernmost Sweden and eastern Denmark. Therefore, an analysis of only strontium ($^{87}\text{Sr}/^{86}\text{Sr}$) would not be useful, since the

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purpose of the analysis is to identify which individuals were Gotlanders and which individuals who might have been their opponents. One way to deal with this is to use multiple isotopes, which makes it possible to plot the samples on a chart with multiple axes, to determine geographical provinces. Analyses performed by using inductively coupled plasma mass spectrometry (ICPMS), enable this. ICPMS is a type of mass spectrometry that measures the concentrations of metal and several non-metals within a sample. The results of the analyses on the human remains performed by ICPMS are ratios of isotopes for a number of elements (Na, Mg, Al, Ca, Mn, Sr, Ag, Sn, Sb, Ba, Au, Pb, U, Fe, Zn, Cr, Co, Ni, Cu, Ga, As). There are several studies that demonstrate that the combination of trace element concentrations from strontium and barium to calcium, could be used to study geographical provenience. The concentrations of calcium are used as a criterion for rejecting samples due to contamination. In this study with its focus on geographical provenance to study the rural militia in 1361, the elements of strontium, barium and calcium will be used. Some of the indications of the other elements will be presented in a later article.

The isotope concentrations need to be compared to the baseline of Gotland. The baseline is the variation limits of the isotope concentrations that a person living on Gotland would have. If the isotope concentrations of the analysis are within the baseline of Gotland, the individual could have been a resident on Gotland five to ten years before death, and conversely if the analysis result is outside the baseline of Gotland, the individual could not to have been a

Peschel, Emily Maria Hellzen, Foreigners in Fröjel?: a study of mobility on a Viking Age port of trade in Gotland, Sweden, Boston University, 2014. https://open.bu.edu/handle/2144/15321

260 Studies of using strontium and barium for geographical provenance:
Lund Rasmussen, Kaare, Skytte, Lilian, Pilekær, Christian, Lauritsen, Anne, Lier Boldsen, Jesper, Peter, Mygind Leth, Thomsen, Per Orla, The distribution of mercury and other trace elements in the bones of two human individuals from medieval Denmark – the chemical life history hypothesis. Heritage Science, 2013, Volume 1, Number 1, Page 1. http://www.heritagesciencejournal.com/content/1/1/10
resident on Gotland five to ten years before death. The levels are affected by the isotopes in dietary intake and the strontium levels could to a degree be affected by a change of diet.\textsuperscript{261} One problem is that the chosen method has not been used for geographical provenance in Sweden before. Because of this there are no reference data on the combination of strontium and barium levels for Gotland. Therefore, in order to obtain a preliminary result, a chart with all samples plotted are analysed. The chart is studied to identify if the plots gather in a cluster formation. This is based on the premise that the Gotlandic population are spread within the isotope baseline for Gotland and will therefore gather in a plot cluster. This method is based on two assumptions: The majority of those killed are Gotlanders; those who are not Gotlanders fought on the Danish side. If a majority of the sample results are in a cluster formation in the chart this is interpreted as the proper spread of the Gotlandic baseline. This leads to an uncertain conclusion about who are Gotlanders and who are not in this preliminary study. To confirm the baseline for Gotland, a further 10 samples will be taken on medieval human remains from Gotland to confirm a Gotlandic baseline, before an article with the final result can be published. One should be aware that there are still uncertainties about how to interpret the data, but when more knowledge is gained, the data can be interpreted with a higher degree of certainty in further studies.

The choice of individuals for sampling was divided into two categories, one containing individuals connected to equipment and one containing individuals without equipment. The choice of individuals with equipment is based on which items could provide information about armour found in the regulations of armour in the Swedish provincial laws, such as coats of plates, mail shirts, mail coifs and other items of armour that exceeds the regulations, such as armoured shoes, spurs and arm- and leg protection. A second group consists of individuals who are not found with equipment. These are used as a reference group to compare isotope results to the individuals with equipment. These isotopic studies are expected to provide an indication whether the older equipment generally belonged to the Gotlanders, and whether more modern equipment can be tied to the soldiers of non-Gotlandic origin, supposedly belonging to the Danish army. The statistical representations of Gotlandic respectively non-Gotlandic soldiers are used to calculate casualty figures for the different forces. The casualty figures will give an idea of how superior the Danish force was. The casualty figures are interesting when it comes to finding out if the rural militia were simply cut down or if they

\textsuperscript{261} Lund Rasmussen, Skytte, D'imporzano, Thomsen, Søvsø, Lier Boldsen (2017), page 97-98.
also did some damage to the opposing forces. The modern narrative is based on the assumption that the Gotlanders were slaughtered. Therefore, it is interesting to try to answer the question: How big were the Danish losses?

4.3. Study

As stated earlier this study was conducted in cooperation with the University of Southern Denmark and Swedish History Museum. What they and I did in this study will be explained. I went through the documentation from the excavations and identified specific individuals that could be linked specific parts of armour. From the beginning about 200 individuals showed potential for sampling. In the end bones of 61 individuals were identified with certainty, i.e. with secured links between the documentation, the armour object and the bones. Osteologist Leena Drenzel helped with locating the specific bones in the collections of Swedish History Museum. Kaare Lund Rasmussen and Lillian Skytte from Cultural Heritage and Archaeometric Research Team, department of Physics, Chemistry and Pharmacy at the University of Southern Denmark conducted the sampling and analysis with ICPMS. The result of the isotope analysis has then been interpreted in cooperation with Lund Rasmussen and myself. As explained earlier the results of the isotope analyses presented in this study are preliminary. The final result, with a focus on the technical aspects of the analysis and all data, will be presented later in an article, written in corporation with Kaare Lund Rasmussen at the University of Southern Denmark. Therefore, only technical aspects and the data needed to describe the preliminary result are presented in this study.

The study is presented with the following order: First the isotope analyses are presented, followed by what is known about the different kinds of armour objects. Lastly the soldiers of the rural militia are studied by analysing the statistics from the remains in the mass graves.

4.3.1. Isotope analysis

The analysis has been carried out by 72 isotope samples on human remains from 61 individuals. The samples and the individuals are presented in the Appendix: Table of isotope samples and Chart of isotope samples. The isotope data will be presented in its entirety in the final article.

It has been possible to identify human remains related to 44 armour objects. Six individuals were chosen with coat of plates (one is a lamellar armour but sorted into the category coat of plates) and six individuals with mail shirts. Thirty-two individuals were chosen because of
their mail coifs. There are four additional mail coifs that are associated with the chosen coat of plates or mail shirts. The identification of human remains related to armour is performed by checking the documentation from the excavations and later records.\textsuperscript{262} Seventeen individuals without equipment were chosen. These were chosen primarily by how many bones were found belonging to the individual; this to facilitate future physical anthropological research. Fifty-seven of the sampled individuals are from grave two and four are from grave three. One reason for this distribution is that the greater part of the armours were found in grave two.\textsuperscript{263} Another reason is that grave one lacks good documentation from the excavations and there material coming from that grave was therefore excluded.

It turned out that it was not possible to reliably identify bones for individuals who carried other types of equipment related to armour, such as spurs and armour shoes. This is due to shortcomings in the documentation and marking of bones as well as the sorting of bones after the excavations. This has sometimes made it very difficult to identify specific bones in the collections, and the sheer size of the material hasn't made that task any easier.

The reason that several samples have been taken from the same individuals is to check the differences isotope concentrations between different bones and between compact or trabecular bone tissue. This is because it has not been possible to use the same test point on all individuals, since most of the individuals do not have complete skeletons and there could be differences in the isotope concentrations in the different bones.\textsuperscript{264} The bones sampled are femur (thigh bone), humerus (bone in the upper arm), tibia (shinbone), ulna (long bone in the forearm), mandible (jawbone) and cranium. The preferred samples are taken from compact tissue, this because compact tissue is more resistant to diagenesis (changes after deposition).\textsuperscript{265} For this reason compact bone is preferred. Therefore, the seven samples\textsuperscript{266} taken on trabecular tissue (the spongy bone found inside of the ends of long bones, near joints) inside the femur’s caput femoris were not used for the geographical provenance in this study. The samples taken from individual number 31, showed big differences between the


\textsuperscript{263} Thordeman (1939), pp. 81, 95.

\textsuperscript{264} Skytte, Lund Rasmussen (2013), p1591.

\textsuperscript{265} Skytte, Lund Rasmussen (2013), p1598.

\textsuperscript{266} Sample on individual no. 14b, 16b, 35b, 52b, 47b, 48b and 49b.
sample from the cranium and from the femur; the femur consists of more compact tissue which is why this was used for individuals number 31's isotopic analysis. On the cranium the compact bone is thin, but the analyses resulted in a reliable results from the other cranial samples, 23 in total. One sample\textsuperscript{267} (from the mandible, or jaw bone) was rejected due to the low concentrations of calcium indicating contamination. In the end samples taken from 60 individuals were deemed usable.

![Diagram of samples concentrations of barium and strontium.](image)

Fig. 1. The estimated Gotlandic cluster circled by blue line. Limit for lower values of Sr ppm for Denmark marked with red vertical bar. Individuals with unknown descent marked with dotted black line.

Shown above is a diagram of the samples concentrations of barium and strontium. A main cluster was identified (see Diagram 1, p. 61). This cluster is in two parts, one with higher barium concentrations (higher than about 35 ppm) and one with lower concentrations (less than about 35 ppm). The cluster consists of about two thirds of the samples. Danish samples normally have strontium concentrations of above 160 ppm.\textsuperscript{268} The samples with a higher strontium concentration than 160 ppm have a much sparser spread than samples in the cluster. From this the cluster is interpreted as probably being the Gotlanders. The samples with

\textsuperscript{267} Sample individual no. 28.

\textsuperscript{268} According to Kaare Lund Rasmussen, University of Southern Denmark.
strontium ppm of higher than 160 are interpreted as not from Gotland and thus probably belonging to the Danish force. There is also a group of three samples with lower concentration of both strontium and barium. So far, there is no theory where these individuals might originate from. The distribution of the samples into groups of Gotlanders, probably Danish and unknown forms a hypothesis, that will be used in the further discussion about the armour objects, but it needs to be verified or falsified by further isotope analysis of samples from more individuals before any certain conclusions can be drawn. It can still not be established with certainty precisely where the isotope concentration boundary for Gotlanders versus non Gotlanders should be drawn. There is also a possibility that different areas partly overlap, for example for Gotland and Denmark. The preliminary hypothesis of the sample distribution demonstrates the results that could be obtained with this method with properly verified results. There are however some general conclusions with higher reliability coming from this preliminary analysis. It is very likely that some of the individuals are not from Gotland, because the barium and strontium concentrations are spread over most of the scale. This is the case for some of the individuals tied to the coat of plates, mail shirts and the ones without objects, but especially, the individuals with mail coifs. This will be discussed further later in the study.
4.3.2. The armours

4.3.2.1. Coat of plates

The coat of plates is the same piece of armour being referred to as *plata* in part II of this thesis. In this category of coat of plates, lamellar equipment is also included. To begin with, the differences between coat of plates and lamellar armour needs to be explained. By Thordeman’s definition a coat of plates consists of iron plates riveted to a cover, which holds the armour to the body. Lamellar armour consists of metal lamellae that are held together by thongs. The thongs are woven through holes in the lamellae.²⁶⁹

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The lamellar armours are of an older type and are seen as out of date by 1361. From the graves, 24 reasonably well-preserved coat of plates and one lamellar armour modified with a covering were excavated. In addition, parts from about 15 coats of plates were found. Parts from two additional lamellar armours that seem to have been modified with a covering were also found. Furthermore, lamellae that seems to not have had a covering were excavated, but these were found in a condition that didn’t allow for the armour to be reconstructed. It seems that these lamellar armours were damaged and thrown into the graves. But why were these armours not taken care of instead of being thrown away? The documentation indicates that by the positions in which they were found in the grave it can be argued that many coats of plates would appear to have been damaged prior to being thrown in. If they would have been intact it wouldn’t have been possible for them to get in the positions they were found. Furthermore some parts are missing. It seems that it was not worth the effort to remove the left behind armours.

Thordeman has numbered the 24 coats of plates and one lamellar armour from 1 to 25. This numbering will be used in this paragraph and the individual’s number that are used in the isotope sampling will be stated in the footnote. In six cases, it was possible to connect the human remains to armour; coat of plates number 1, 3, 21, 22 and 24 as well as lamellar armour 25. These can be categorized with Thordeman’s typology for armours, consisting of six types. As a short general summary: type I is a coat of plates with larger horizontal and vertical plates, then the progress, the complexity and development, is gradual and ending with type VI, which are lamellar armour. By this typology, coat of plates number one and three are classified as type I; coat of plates number 21 and 22 are type IV; coat of plates number 24 is type V and lamellar armour 25 is type VI.

One interesting aspect with armour number 25 is that it been “modernized”. The older lamellar construction with lamellae laced together at some point got a cover riveted to it and shoulder protection attached. The resulting with armour would have looked very much like the coat of plates of type I, specifically suit number one in this group which was a modern

271 Thordeman (1939), pp. 210-211, 405-413.
273 Sample individual number one to six.
274 Thordeman (1939), pp. 210-225, pl. 1.
275 Thordeman (1939), pp. 225, 404.
mid 14th century coat of plates. As stated before, two more lamellar armours seem to have had the same type of update, with a riveted cover.276 This goes to show that it was important enough to have modern looking equipment that energy was put into make old equipment appear newer. This update would also result in strengthening the armour, which would then hold up better when subjected to violence. The resemblance between coat of plates 24 and lamellar armour 25 should also be noted (type VI and V). There are also some parallels between lamellar armour 25 and coat of plates 19 and 20.277 Thordeman also recognised also the similarities between type IV, V and VI and defines them as one group.278 The point of this is that the lamellar amour 25 and the other updated lamellar armour have been updated to look like the other armours, ending up with a type VI armour that holds qualities comparable to the others.

The isotope analyses indicate that coat of plates number 1, 3 and 21, as well lamellar armour 25, belonged to Gotlandic individuals. Coat of plates 22 and 24, however, were probable not worn by Gotlanders. From this, it would appear like the Gotlanders have used armours across the spectra of types, I, IV and VI.

Now to the literature’s view on the armours. When describing the armours Thordeman claimed that it is mostly impossible to determine if the coat of plates were Gotlandic or not. He claimed that there were two exceptions, namely coat of plates number 7 and the lamellar armour. Coat of plates number 7 is of type I and is decorated with heraldic mounts and is therefore seen as probably belonging to a nobleman in the Danish army. The lamellar armour on the other hand probably to one of the Gotlanders, according to Thordemann.279 Thordemann makes an argument about how the old lamellar armours “used in the days of the Vikings were hastily patched up […]”280 when the Danes invaded. Westholm has taken the narrative one step further and defines all coats of plates and lamellar armours to be lamellar armours. Westholm also goes on to speculate that all of them, except one, perhaps, are Gotlandic.281

277 Thordeman (1939), p. 221.
278 Thordeman (1939), pp.221, 224.
279 Thordeman (1939), pp. 159-160, 228-229.
There are enough parts of lamellar armour to show that this “older” kind of armour was used in the battlefield. Nevertheless it still seems that wearing suits of lamellar that had not been updated to look like coat of plates appears have been rare. Most of the lamellar armours have been updated. This update makes their qualities equivalent to coat of plates 22 and 24 that are indicated to not be Gotlandic.

4.3.2.2. Mail shirts

Six individuals with mail shirts were selected for isotope analysis. Their isotope concentrations indicate that three of them (ind. 7, 10 and 12) were from Gotland and three not from Gotland (ind. 8, 9 and 11). In part II of this essay, in the study of the regulations of *folkvapen* there are several mentions of brynia, which probably is a mail shirt. These mail shirts are described as a possible addition to the *folkvapen*.

Thordeman noted that no mail shirts were found in combination with a coat of plates. He stated that this could partly be explained by the lack of equipment of the Gotlandic militia. The new results from the isotope analysis would indicate that this conclusion is not valid. The mail shirts found were probably worn by individuals on both sides in the conflict. This is not contradicted by the fact that they were all found in grave two, which is believed to contain both Danes and Gotlanders. Grave two is also the grave that contained most of the artifacts. One possible explanation for the mail shirts being in the grave at all could instead be that it could be hard to get them off the bodies and that the dead were probably buried in a hurry.

4.3.2.2.3. Mail coifs

In the mass graves about 185 mail coifs were found. Of all individuals buried, about 15 percent were buried with mail coifs. Of the mail coifs, 159 were found in grave two. The percentages of the bodies buried with a mail coif on are 14 percent in grave one, 24,9 percent in grave two and 11,1 percent in grave three. The reason for this could be that there were more individuals with mail coifs in grave two or, more likely, that the burials in grave two were made with more haste.

As stated before, the barium and strontium concentrations for the 32 sampled individuals with mail coifs are spread over most of the scale. What’s intriguing is why the distribution of mail coifs are bigger than for the other armour categories. This spread of distribution is so wide

283 Thordeman (1939), pp. 98-100.
that it is very likely that the individuals with mail coifs came not just from Denmark and Gotland. It is known from historical sources that Valdemar brought German troops with him.\footnote{As stated in p. 13 were Duke Eric of Saxony in King Valdemars army.} It is likely that some of the dead are from other places than just Denmark and Gotland.

Thordeman describes how mail coifs seem to have been used longer in the North and are interpreted as evidence for backwardness and the use of old fashioned armour. This because the steel bascinet\footnote{Open faced helmet that extends downward at the sides and the rear to protect the lower part of the head and the neck. Often with an attached mail collar.} was the preferred piece of head protection of the time.\footnote{Thordeman (1939), p. 104-105.} 20 mail coifs are found in the Gotlandic cluster; 12 are found outside the cluster and are as a result of this interpreted as not being from Gotland. One conclusion that can be drawn from the from the isotope analysis is that these mail coifs were not used by just Gotlanders. This shows that it was not just the Gotlanders that used equipment that could be seen as out of fashion, if the piece of equipment in question really was outdated at the time.

Thordeman mentions that one mail coif has a slit on the sides of the collar.\footnote{Thordeman (1939), p. 106.} Hellman shows that in contemporary Swedish church paintings and sculptures there are mail coifs with a square collar in front and back. This type of mail coif is also depicted in Denmark. Hellman found in his study that this mail coif type is represented in the mail coifs from Visby.\footnote{Hellman (1995), Chap. 5.1.} In the work in this study of identifying individuals for isotope sampling, four were found to have square collar. Three of these (individual 14, 41 and 43) are located in the Gotlandic cluster. One (individual 13) is outside the Gotlandic cluster. This indicates that it is likely that the square collar was used both on Gotland and in other places in 1361. These four mail coifs with square collar were found while going through the material in search of bones linked to the mail coifs. In a study with the focus on construction of mail coifs it is likely that more mail coifs with square collars would be found.

In the part II study of the regulation of folkvapen several mentions of muza are presented. Muza is, as stated earlier, interpreted as a mail coif. In the laws, helmets are mentioned as the primary head protection. Mail coifs are described as a possible addition to the folkvapen.

Hellman writes that depictions of mail coifs normally show a helmet on top of the mail
Judging from this it seems that it would be more likely that these mail coifs were worn together with a helmet, but it can’t be ruled out that they were used as sole protection for the head. At least we know that 15 percent of the excavated fallen wore mail coifs at the day of the battle.

4.3.3. The soldiers of the rural militia

In this paragraph of the study, the composition of participants of the Gotlandic rural militia will be studied by examining age statistics and health status. The study made by Ingelmark, which is published in Armour from the battle of Wisby, will be used as a base. The question of the Gotlandic militia’s fighting ability will also be addressed, by discussing the implication of the isotope analysis.

The age statistics presented by Ingelmark belong in three different categories: Fit for military service, too young, too old. The definition for “fit for military service” is being 20-55 years of age. The individuals in that category are distributed as follows between the graves:

Grave one: 53% in an age fit for military service; 16% too young and 21% too old.
Grave two: 80% in an age fit for military service; 8% too young and 12% too old.
Grave three: 45% in an age fit for military service; 37% too young and 18% too old.

For the entire material, the following distribution is presented: 64% deemed fit for military service; 22% too young and 14% too old. There is however an error in Ingelmark’s presentation of the statistics. In the summary, the percentage of individuals who fall in the “too young” category is said to be 13% and as consequence of this, the percentage for the entire material in the category fit for service should be 73%. Study part II, about the regulations of rural militia, pointed out that the Gotlandic law states that folkvapen should be possessed by individuals above 20 years of age.

In the Gotlandic law the responsibility to stand guard applied to every man from 18 years of age. Eighteen was also the age stated in the law of Hälsingland when folkvapen should be

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290 Ingelmark uses the term “senile”. Thordeman (1939), p. 159.
291 Thordeman (1939), p. 159.
292 Ibid.
293 Ibid.
294 The 22% too be too young is the percentage for the age <22 on the chart of age distribution on page 158. Instead it should be the <20 that are 13,43%. Thordeman (1939), p. 158.
295 Presented in 3.3.2. The duty of defence and guard.
owned. If, instead of 20 years, 18 years was used as minimum age for military service, the distribution of the entire material would be as follows: 76% in an age fit for military service; 10% too young and 14% too old. One should also take into account that the age of majority in the provincial legislation is 15 years. The number of individuals under the age of 16 is 11, which is 1% of the entire material. This demonstrates that generally individuals under 16 were not included in the rural militia. One should be aware that there are uncertainties in the above age determination, but it still gives a good indication of the age distribution. To get a perspective of the age to be seen as fit for combat, one could use the Vietnam War as a comparison: 19.56% of the American casualties were soldiers that were below twenty years of age.

There are individuals with more or less disabling pathological changes and previously contracted injuries. Many have spondylolysis deformations on the spine, which generally occur on the middle-aged and older. A few have tuberculous changes and about 20 have unspecific inflammatory changes plus about 20 other cases of different pathological changes to the bone tissue. There are also 39 cases of fractures in the bone material. Many of these pathological changes and previously contracted injuries were found in grave three. In the Flemström, Larsson and Åkeson study of grave three, it was concluded that many of the skeletal changes were due to heavy physical labour, but that many of these ailments would not have had a significant effect on everyday life. Their conclusion is that even though some individuals had disabilities that is well within the normal range for a medieval material.

Thordeman interprets the high percentage of young and old individuals, combined with healed fractures and arthritical changes as these individuals most likely belonging to the Gotlandic militia, since it is not probable that the Danish professional army would have enlisted soldiers unfit for service. Another fact that points in that direction is that seven of the 11 individuals of an age below 16 were found in grave three, the smallest grave. It seems as

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296 Presented in 3.3.3. Equipment of folkvapen.
297 Thordeman (1939), p. 158.
298 The percentage figure was calculated by sum up the casualties of 17 to 19 year of age, divided with the total casualty figure of the war. https://www.militaryfactory.com/vietnam/casualties.asp
300 Thordeman (1939), p. 80.
303 Thordeman (1939), pp. 80-83.
304 Thordeman (1939), p. 158.
if grave three consists of individuals that should not be in the front line. A hypothesis could be that grave three consists of a part of the militia which would be held behind the main lines, but with the defeat they got indent ed into the fighting and were killed. Grave one and two on the other hand are interpreted by Thordeman to probably contain the remains of both Danes and Gotlanders, because of the high percentage of individuals fit for military service.\footnote{Thordeman (1939), p. 84-86.}

The isotope analysis indicates that 2/3 of the fallen sampled individuals are from Gotland. It goes to follow that 1/3 would then not be from Gotland. One thing to consider is how the method of choosing individuals is reflected in these statistics. Of the 60 sampled individuals, 56 are from grave 2. By this it could be said that the analysis represents casualty statistics for grave two. As stated before, the isotope analysis needs to be verified before any final conclusions can be drawn.

This study is about the representation of the Gotlandic militia in the mass graves, but as previously stated it seems likely that there are also soldiers from the Danish army in the mass graves. As the isotope analysis indicates, it could be as much as 1/3 in grave two. That makes it hard to interpret the composition of the Gotlandic militia based on the the earlier presented statistics of “fit for military service”, or not. Therefore, a hypothetical calculation of the composition of the graves is presented, with an estimated proportion of slain Danish soldiers removed. This is done to get an indication of the proportions between soldiers fit for military service, too young and too old in the Gotlandic rural militia. The calculation is made based on the following preconditions: The fallen in grave three are considered to be from Gotland. In grave one and two 1/3 of those “fit for military service” are defined as belonging to the Danish army and removed. The age for “fit for military service” is defined as between 18 to 55 years, because 18 years was the age from which the Gotlandic laws obliged a man to participate in the militia system, in the form of guard duty, and it's also the age in the provincial law of Hälsingeland for obligation to have \textit{folkvapen}.\footnote{Presented in 3.3.3. Equipment of folkvapen.} The higher limit of 55 years, is the age Ingelmark uses and there are no statistics to base an alternative upper age limit on. With these preconditions, the composition of the Gotlandic force would be as follows: 68% in an age fit for military service; 13% too young and 19% too old.\footnote{In this calculation, the statistics from page 158 in Thordeman (1939). The number of individuals in each grave of the three mass graves that are used: grave one 268 ind., grave two 798 ind. and grave three 119 ind. From grave one and two 1/3 of the fit for military service were removed: grave one 60 ind.}
of Gotlandic militia are 907 individuals and the Danes 227 individuals.\textsuperscript{308} This demonstrates that even if a pretty big part of the fighters that were in an age fit for war are removed, the remaining presumed Gotlandic militia still have a clear majority which was fit for war.

If it can be verified that about 1/3 third in grave three are not Gotlanders, it gives a clear indication of the Gotlandic militia’s fighting capability. From the statistics of grave one and two it seems that these graves are filled with the soldiers from both sides that fought a hard battle. This is indicated by the statistics of injuries which demonstrates differences between grave one and two compared to grave three. In grave one and two about 50% have cuts on the cranium.\textsuperscript{309} If about 1/3 of those that fell in this part of the battle were Danes, the Gotlandic militia caused the professional Danish army significant casualties.

### 4.4. Summary and discussion

The isotope analyses have a distribution of isotope concentrations for 60 individuals. In the diagram of all the samples there is a cluster consisting of 2/3 of the samples. This cluster is interpreted as consisting of individuals from Gotland. The hypothesis is that the ones outside the cluster are not from Gotland. This result needs to be validated or falsified by continued research. The isotope results, however, clearly indicate that all the sampled individuals are not from the same area and therefore there are people not from Gotland. This means that there are armour objects in the mass graves that were worn by people who were not from Gotland. This clearly shows that there is knowledge to gain by continued research on the mass grave findings from Visby.

None of the primary \textit{folkvapen}, sword, shield and helmet, were found in the mass graves. This is likely because these items were easy to remove from the bodies, and therefore taken care of. It seems that both coat of plates, mail shirts and mail coifs were worn not by just people from Gotland. Especially in the case of the mail coifs the isotope concentrations are spread rather widely, indicating that the individuals were from several different areas, some probably from not even from Gotland or Denmark. The lamellar armour that is of the oldest

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\textsuperscript{308} Ibid. \\
\textsuperscript{309} Thordeman (1939), p. 180.
construction, seems to have been used by a Gotlander. This could be interpreted as that some of the Gotlandic militia had older equipment. It should be noted, however, that individuals from Gotland also used some of the more modern coats of plates. By the distribution of objects, it seems that soldiers belonging to the Danish army probably used some equipment, such as the mail coifs, that could be seen as out of fashion. This shows that the oldest equipment with the lamellar armours seems to be used by the Gotlandic militia, but otherwise the armour types are used by both Gotlanders and Danes.

Some individuals in the mass graves have pathological changes and previously contracted injuries. Most of these among the older individuals, that have incurred some ailments during their longer lives. Many of these would not have been disabling in everyday life, although some were, but can nonetheless be seen as well within the normal range for medieval osteological material. About 14% of the entire material consists of individuals older than 55 and about 10% are younger than 18 years old. Grave three has a higher percentage of young, old and disabled individuals, but the majority still seems to be fit for war.

One third of the samples are not part of a cluster and could be interpreted as soldiers not from Gotland. They are therefore believed to have belonged to the Danish army. These samples are mainly from grave two, and should be seen as representing the casualty statics for grave two. Grave one and two contained soldiers with a higher percentage of individuals in an age fit for military service. This could mean that it is likely that there were both Danes and Gotlanders in these graves. The injuries also differ from grave three, with a higher percentage of cuts to the heads, indicating the fierceness of the fighting. If it is confirmed that about 1/3 of the individuals in grave three are not Gotlandic, it will show that the Gotlanders caused significant casualties to their opponents. The statistics shows that the vast majority of the Gotlandic militia consisted of individuals within an age group fit for military service.
5. Summarizing discussion and conclusions

5.1. The Gotlandic rural militia

The sources describe that there were up to three battles on Gotland. There are reliable sources for two battles: the battle by Fjäle marsh in Mästerby and the battle outside Visby on the 27th of July. Several sources from Visby claim that the battle would have been fought outside the gates and one source even specifies it to have taken place outside the south gate. The sources are unanimous: the Gotlanders lost and suffered heavy losses. The sources describe the opponents to the Danish king to be Gotlanders or the rural population of Gotland or farmers. This make it evident that it was the Gotlandic rural militia that fought the Danish in the battles. The sources mention 1800 - 2000 fallen Gotlanders. About 1800 dead is a reasonable number, based on the number of individuals that excavated from the mass graves, provided that there are roughly the same amount of human remains in the two graves that have not been examined. If the number of Danes buried in the graves is larger than previously though the numbers would not match up as well with the estimated total of buried in the mass graves. The isotope analysis indicates that there are indeed also Danes in the graves, but it’s not possible from the limited samples to say to which extent.

The provincial laws show that a system for Gotlandic militia existed, which regulated organization, structure and obligations for the population. Such obligations were to keep guard and to have the folkvapen, weapons and armour mandatory for every free man above a certain age. That this system was in use is indicated both by the relatively short time that had passed between when the laws were written and the year 1361, and that there exists two sources indicating a general alert in the summer 1361, which mentions the ledung and guard duty. It is unclear if Gotland still upheld the ledung system, considering all of the exceptions that Gotland had for participating in ledung. These exceptions and conditions made it impossible for the Swedish king to use Gotlands ledung ships. The militia system for the protection of Gotland in case of attack on the other hand appears to be valid judging by the laws, since the regulations for militia are updated in the newer editions of the Gotlandic law. How well equipped or badly equipped the militia on Gotland was, is not possible to tell from the written sources. A sole source describes the militia as badly equipped.310 The results from the isotope analysis connecting the individuals to pieces of armour indicate that the Gotlandic

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310 In the Lübeck chronicle, it’s described how the farmers were unarmed and unfamiliar with battle. Tortzen (1961), pp. 71-72.
militia had both modern equipment and outdated equipment. Some of this equipment had been modernized to better correspond in look and function to the more modern armour. The isotope analysis also indicates that the armour found in the mass graves were probably used by both Gotlanders and people not from Gotland.

This study has been done on a fragmentary source material. In this, there is a risk of exaggeration by attaching great significance to unusual sources. However, based on the collective source material studied, the material still paints a picture of a coherent militia system in Sweden. There seem to exist some local variations, but it’s within a system with a fairly similar basic structure. The strength of the conclusions is based on this structure being evident through the material studied, both in the contemporary sources about a general alert in 1361 and the regulation of militia in the provincial laws. The structure is not as clear regarding the militia system in Kung Magnus national law from about 1350, but from the sources for maintaining ledung ships it seems to continue to be used. For Gotland, which became part of the Danish realm, the Gotlandic law continued to be used up to at least the late 16th century. However, it is not possible to say to what extent this system was still in use at this time and for how long the Gotlanders followed the regulations.

The statistics from the mass graves show a diversity among the individuals regarding age and health status. Some of the fallen in the mass grave were as young as about 15 years, and the rest seem to range from men in their prime, “fit for war”, to older individual with traces of a long and sometimes hard life. Some of the dead had pathological changes and previously contracted injuries. Many of these are linked to activities through life, leading to more ailments among the elderly. A few of the individuals had disabilities, but most could probably function pretty well in daily life. From the statistics, it seems that the Gotlandic militia consisted of a portion of young and elderly, but that a clear majority were in an age group making them fit for military service.

The isotope analysis is preliminary and needs be validated or falsified, by continued research, but the isotope results clearly indicate that all the sampled individuals are not from the same area and therefore some of the dead are not from Gotland. If the final result would support the hypothetical classification of 2/3 of the samples to be Gotlanders and 1/3 Danes, it would demonstrate that the Gotlandic militia fought back quite hard and causing significant losses. If that is indeed a correct assumption remains to be confirmed or disproved by future research.
5.2. The narrative

This study was partly motivated by the modern narrative about the battles on Gotland in 1361. It has been shown that there are alternative interpretations other than the modern story about the treacherous Visby burghers that closed the gates and let the rural militia get slaughtered outside. The battle of Vottem in 1346 is such an example, where the militia chose a defensive position outside the city gates and was victorious. It has been shown that there existed a structure for the militia, indicating that it was not just a peasant mob. It has not been possible to tell if the Gotlandic militia generally lacked equipment and/or had bad or old equipment. Rather it has been shown that the militia most probably had both some older and some more modern equipment. Furthermore it is indicated that the Danish army in turn seems to have used some equipment that could be defined as older. It remains to be verified how many casualties the militia inflicted on the Danish army, something that could add some nuances to the narrative about the slaughtered peasants.

It’s interesting to read Thordeman’s balanced argumentation in *Armour from the battle of Wisby*, which is then altered with the strong narrative in *Invasion på Gotland 1361: dikt och verklighet*. In this last volume from 1944, Thordeman’s use of the narrative in a dramatic presentation reinforces the simplifying storyline about the rural militia on Gotland. It is described how the unfit for war are in the majority in grave three and that the militia to a great extent consisted of “young boys, old men and inferior human material”. There is a bigger focus on old, young and disabled than is motivated by the statistics taken from remains in the mass graves. This narrative is then used in Westholm’s book from 2007, and is taken even further there. It seems that the ambition is to tell a good story, but in doing so there is a risk of distorting the facts in the process. The narrative is then repeated in the later writings about the invasion of 1361.

I would like to clarify that this research is not done to criticize previous research, such as Thordeman’s and Ingelmark’s thorough work. The result presented in this study is to be seen as a supplement to previous research. What is criticized is the popular presentation about the events with the narrative, which even a distinguished scholar as Thordeman made use of. The point is that it is important not to be carried away in the ambition to tell a good story, to the extent that the implications of the sources are forgotten.

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311 Thordeman (1944), *p. 128.*
5.3. Future research

Future research will never change the fact that the Gotlandic farmers militia suffered a large and tragic defeat in 1361, but research could influence how the events of Gotland in 1361 are viewed and how the source material is interpreted. This study is focused on the Gotlandic rural militia. Thordemans research focused, as his title *Armour from the battle of Wisby 1361* imply, on armour. Perhaps future research could be done with different perspectives and on different aspects. Here are some thoughts on the subject.

To the final article about the isotope analysis, related to this study, ten more samples will be added. This will hopefully demonstrate the spread of isotope concentrations for the population of Gotland, which would give the analysis to determine geographical provenance from human remains a higher degree of certainty. The ICPMS analysis also provided data for more isotopes than were used in this study. This could be used for other studies on the human remains, such as studies focusing on the life of the individuals.

There are more subjects to study from a military perspective. Central to our understanding of the battles that took place on Gotland in 1361 is the conclusion that the rural population fought the invaders. It is unclear if the city participated in any way in the battles. Perhaps with new analyses with other methods, such as DNA, it might be possible to get new answers. Another related subject is the use of militia. Older research focused to a great extent on the feudal heavy cavalry. An interesting subject to study is how rural and urban militia in other areas functioned. One source material that could be investigated is the Swedish military system in the 14th century city laws. There existed different regulations about militia across Europe. The studies that exist on these militias are not compared to each other, probably because they are written in their native languages. The research about the army of king Valdemar’s army is also inadequate. The problem with this is that his soldiers are just considered as being professional, which again tends to overly simplify a likely much more complex situation.

The huge number of artifacts found in the mass graves, meant that not all of them were included in the descriptions of *Armour from the battle of Wisby 1361*. A small part of the findings is still in the crates from the excavations, waiting to be studied. Therefore, there is still quite a lot of material to be studied. One example are textiles. The textiles in the findings are only mentioned briefly in *Armour from the battle of Wisby 1361*. In Hellman’s article
about mail coifs, the textile traces inside the coifs are studied. The thing is that there are a lot of traces from textiles on the iron armours. The textiles that were in close contact to the iron have often been preserved. This makes it possible to study the use of textiles in the context in question.

A material that deserves more scientific attention is the human remains from the mass graves. The about 1185 individuals provide a scholar with many possibilities to study medieval society. One aspect to study is health during the middle ages. Some of the human remains show traces of diseases; grave one and two, for example, contained twenty-two cases of malum coxae senile which lead Thordeman to assume that these individuals were Gotlanders.\(^{312}\) Other traces are marks on the teeth from starvation, infections and healed wounds – all traces of the lives of the deceased individuals. Another unique feature is that most of them are probably Gotlandic and therefore a pretty big part of the population of Gotland at the time. Perhaps future research on the human remains from the mass graves should turn away from the focus on war and instead use it to study health and life in a medieval society.

5.4. Concluding words

This study had the ambition to obtain new information about the Gotlandic militia, by the use of an interdisciplinary approach, with different kinds of source material and cooperation between disciplines. This has only partly been achieved because it is only possible to present preliminary results of the isotope analysis, but the study presents some of the gains that could be obtained with some further research. What has been demonstrated, are the possibilities of what could be attained with further research. To use multiple sources is a method that is shown to be useful, when the historical sources are scarce, as is often common in medieval material.

The study has hopefully resulted in a more balanced picture of the events on the island of Gotland in 1361, which still have many aspects waiting to be studied.

\(^{312}\) Thordeman (1939), p. 85.
6. Sammanfattning


Forskningsfrågan är:
Hur fungerade Gotlands landsbygdsmilis? Detta med fokus på invasionen av 1361.

Detta kommer att göras genom att svara på tre delfrågor:
• Hur beskrivs invasionen i samtida källor?
• Hur reglerade landsbygdsbefolkningens militärorganisation i mitten av 1300-talets Sverige?
• Hur representerar den gotländska landsbygdsmilisen i massgraven från slaget vid Visby i 1361?


är rimliga av antalet individer som grävts upp från massgravarna och att det finns totalt fem gravar kända. Om många fallna danskar begravdes i gravarna skulle dock siffrorna inte matcha lika bra, med den beräknade summan som begravdes i massgraven. Isotopanalysen indikerar att det också finns danskar i graven, men det är inte möjligt från de begränsade proverna att säga i vilken utsträckning.


Isotopanalysen är preliminär och behöver valideras eller falsifieras av den fortsatta forskningen, men isotopresultaten visar tydeligt att alla de provtagna individerna inte är från samma område och därför är några av de döda personer som inte är från Gotland. Om det slutliga resultatet skulle stödja den hypotetiska klassificeringen av 2/3 av proverna som att vara från Gotland och 1/3 som troliga danskar, skulle det visa att den gotländska milisen kämpade tillbaka ganska hårt och orsakade betydande förluster. Om det är en korrekt beskrivning återstår att behandlas av framtida forskning.

Undersökningen visar att det moderna narrativet är uppbyggt på överdrifter, som inte går att motivera utifrån källmaterialet. Undersökningen belyser risken med att genom en populärvetenskaplig ambition dramatisera en berättelse.

Denna studie har förhoppningsvis bara varit en början på ytterligare forskning med olika perspektiv, där källmaterialet från massgravarna kan ge mycket information. Inte bara om döden i striderna utan också om livet under medeltiden.
### 7. Appendix:

#### 7.1. Appendix: Table of isotope samples

|---------|---------|----------|-----------------------|----------|------------------------|-----|----------|----------|--------------|------------------------------------------------------------------------|
| 1       | 11252 a | Humerus Comp | Humerus Comp         | 214069   | Coat of Plates  
Mail coif  
Shoulder plate | 1  
Uyy 1  
Txx 3 | Uyy 1 | 19325  
1929 | 2 | On the concave side traces of two fabric layers. |
|         |         |          |                       |          |                        |     |          |          |              |                                                                         |
| 2       | 11253 a | Humerus Comp | 213211               | 3        | Uyy 9  
Vyy 10 | 2 | (Several reg. no: A 43) |
|         | b       | Humerus Comp | 214069               | 3        | Uyy 9  
Vyy 10 | 2 | (Several reg. no: A 43) |
| 3       | 11254 a | Humerus Comp | Cranium              | 168582   | Coat of Plates  
Mail coif  
Shoulder plate | 21  
Pv 12 | 19325  
1929 | 2 |                                                                 |
| 4       | 11255 a | Humerus Comp | 218013               | 22       | Os I  
Buckle | 19525  
1930 | 2 |                                                                 |
| 5       | 11256 a | Humerus Comp | 217154               | 24       | Qy 11  
Buckle | 19325  
1929 | 2 |                                                                 |
| 6       | 11257 a | Humerus Comp | 214003               | 25       | Quu5  
Quu5 | 19325  
1929 | 2 | Cuts on cranium. (Several reg. no: Quu7, Quu 3:51) |
|         |         |          |                       |          |                        |     |          |          |              |                                                                         |
| 7       | 11258 a | Femur Comp | 214500               | Vxx6  
Vxx 4 | 19325  
1929 | 2 |                                                                 |
| 8       | 11259 a | Femur Comp | 214044               | Vss13 | 19325  
1929 | 2 |                                                                 |
| 9       | 11260 a | Humerus Comp | 534256               | Qy23 | 19525  
1930 | 2 |                                                                 |
| 10      | 11261 a | Humerus Comp | 169233               | V5 | 18872  
1928 | 2 |                                                                 |
| 11      | 11262 a | Humerus Comp | 214132               | Sxx 3 | 19525  
1930 | 2 |                                                                 |
| 12      | 11263 a | Humerus Comp | 168698               | Mu3 | 19325  
1929 | 2 |                                                                 |
| 13      | 11264 a | Humerus Comp | 531817               | A11 | 17530  
1912 | 2 | Square collar. |
| 14      | 11265 a | Femur Comp  
Femur Sponge | 167541  
167541 | II:Ba 1 | 18872  
1928 | 3 | Square collar. |
| 15      | 11266 a | Humerus Comp | 168316               | II:Bc10 | 18872  
1928 | 3 |                                                                 |
| 16      | 11267 a | Femur Comp  
Femur Sponge | 168418  
168418 | II:CC3 | 18872  
1928 | 3 | Cuts on bone. |
| 17      | 11268 a | Humerus Comp | 168620               | Lâ8 | 19325  
1929 | 2 | Two holes on cranium. Iron and bronze rings. |
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7.2. Appendix: Chart of isotope samples

Diagram with all samples, both on compact and spongious tissue.
Diagram with compact samples with individual no. The estimated Gotlandic cluster circled by blue line. Limit for lower values of Sr ppm for Denmark marked with red vertical bar. Individuals with unknown descent marked with dotted black line.
8. List of references

8.1 Source material

8.1.1 Written sources

Fornsvenska textbanken

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8.1.2 Archeological sources and documentation


8.2 Literature


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