

# Monuments in the Landscape

A spatial analysis of rune stones in Västergötland during the Late Viking Age and early Medieval period



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*A voice was chanting, As the fog was lifting,  
This land was made for you and me*

Woody Guthrie, "This Land is Your Land"

Vet du, hur du rista  
skall?  
Vet du, hur du reda  
skall?  
Vet du, hur du färga  
skall?  
Vet du, hur du fresta  
skall?  
Vet du, hur du bedja  
skall?  
Vet du, hur du blota  
skall?  
Vet du, hur du sända  
skall?  
Vet du, hur du slopa  
skall?

From "Hávamál, (Rúnatal)", vers 144

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## **1. – Abstract**

There are several aspects of rune stones that can be discussed and analysed. With the help of digital tools, it is possible to look at social dimensions of archaeological objects in ways that were previously difficult to explore. In this thesis, the aim is to analyse rune stones from a spatial perspective by looking at their possible role in the landscape, what type of context they are found in and what they manifested by using both traditional and new methods/tools. The main focus is placed on the central region of Västergötland, a region that has not received much attention concerning findings and sites from the Viking Age. This is the first time such an analysis is conducted on rune stones in the region. Spatial analysis of the landscape is a fruitful way to study how people interacted with each other and how certain people choose to manifest themselves and their role in the local society. Rune stones contain a great amount of information depending on how they are analysed. This is an attempt to create new ways of analyzing rune stones and expand our knowledge about the Viking Age and early Medieval period in Västergötland.

### **Keywords:**

Rune stones, Viking Age, Early Middle Ages, Sweden, Västergötland, Christianity, Geographical Information Systems, Viewshed Analysis, Spatial Analysis, Landscapes Analysis, Historical Maps, Phenomenology.

## **2. – Introduction**

### **2.1. – Short introduction**

It is easy to see the Viking Age as a homogenous period with fixed social and religious values, but in reality it was complex and filled with diversity. “Vikings” were not a single group of people but rather a multitude of social groups and societies. In order to understand the diversity in Scandinavia during this period, it is necessary to inquire research on a local level. How can a specific site, settlement or monument fit in to a regional, national or international perspective? A site or monument could reflect values and social dimensions representative on a local level, but it could also uphold social values from a larger perspective. Social and cultural factors within the landscape, whatever its aerial size might be, are very fascinating and there is much to be investigated concerning how humans manifested themselves through structures and monuments in the past.

My aim with this thesis is to explore the social dimensions of runic inscriptions and what role they might have had in the landscape of Västergötland during late Viking Age and early Medieval period. Traditional research methods have been combined with new (digital) methods in order to understand the rune stones social and spatial functions. There are not many investigations/analyses of rune stones in the region, and very few have used digital tools in order to investigate them. This is the first attempt to look at the social and spatial aspects of these monuments located there. Västergötland is arguably one of the regions in which an expansion of Viking Age research is necessary.

The time period analysed is roughly between 900 and 1200 AD, also known as the late Viking Age to the early Middle Ages. During this period of time, a great social transition occurred in Scandinavia with the introduction of Christianity and the development of the Scandinavian states.

Two rune stones are the main subjects in this thesis. These are Vg 127 located east from the village of Larv and Vg 128 situated in the village of Österbitterna. A number of other rune stones have been analysed as well, however Vg 127 and Vg 128 are the main focal points.

### **2.2. – Aims, research questions and work structure**

#### ***2.2.1. – Aims: What can rune stones tell us?***

89,2% (or 2057) of the rune stones dated to the Viking Age are located in in Sweden (Sawyer 2000:11). 152 of the rune stones are located in Västergötland and a large number of these are situated in the area between the lakes Vänern and Vättern. I have created a database over the rune stones in Västergötland with the help from data collected from FMIS and Svärdröm & Jungner 1970. The database was made in order to create a better view over the rune stones in Västergötland.

17 of the registered stones are missing, but their previous locations are documented through literary or digital sources (in FMIS). Unfortunately almost 2/3 (102 rune stones) of the material is not in the original position, and therefore they are not suited for this type spatial analysis of the Viking Age landscape. It is difficult to determine whether a rune stone is in its original position. Based on Svärdröm & Jungners investigations of rune stones in Västergötland there are only 22 stones where there are no sources of movement or disturbance of the stones positions can be found (Svärdröm & Jungner 1970).

Within this region, the town of Skara is situated, with its origins traced back to the early Middle Ages (Carlsson 2007:14) Skara is also one of the oldest dioceses in Sweden, founded in the 11<sup>th</sup> century, which indicates a Christian influence during the previous century (Harrison 2009:120f). The historical development in Västergötland from the 12<sup>th</sup> century and onward is an interesting period in Swedish history. However, the aim is not to discuss previous archaeological and historical debates concerning what significant role the region has played in the development of what would later become Sweden. By analysing the spatial locations of rune stones, my aim is to see what social context they can be found in and what role they might have played as part of the social landscape on a local level.

It is important to analyse this material from a local perspective. General similarities can always be found in societies active during the same time period, but that does not mean that every region or site followed the exact same social formula. We need to understand the structure and development of specific sites and their role in the general history. By doing that, we can observe and analyse the diversity within a culture such as the Vikings.

My secondary aim is to expand how rune stones are used as a historical and archaeological material. There is unfortunately little archaeological research concerning the Viking Age in Västergötland. My opinion is that rune stones and their location can be a gateway to expanding our knowledge about the Viking Age and the development of Medieval Scandinavia.

Hopefully this thesis will open the door for further exploration of Viking Age and early Middle Ages in Västergötland. More excavations focused on the period would be preferable. But there is already existing material in the form of rune stones and findings from previous research that can be explored without new excavations. There are also the graves and grave material that Claes Theliander worked on (Theliander 2005). Harald Wideen (1955) pointed out early on there being a lack of findings from the period. Research in history and archaeology has often focused on people from the social elite and especially men. Less attention has been placed on the general public. We must always keep in mind what material we are studying. Who used it? For what purpose was something constructed? In what environment was it created? Where in the landscape was it found? Rune stones are definitely affiliated with the social elite. However, by using rune stones as “markers” in the social landscape, we can analyse how they were constructed to affect other people, what purpose they had or what social meaning they might reflect.

### ***2.2.2 – Research questions***

The research questions for this study are:

1. Where in the landscape are they situated?
2. Are there any connections to roads or travel routes?
3. Who was able to see the stones? Were they in a public or private location?
4. What do the texts at the rune stones/inscriptions say? Can the inscriptions tell us something about the social aspects of the local landscape and the development of society in general?

### 2.2.3. – *Work structure*

At first the research focuses on the general perspective of the time period (roughly 900 to 1200 AD). From there it will gradually hone in on the two main rune stones

- In the first step, the discussion will be focused on the political, social, religious and historical aspects during Viking Age and the early Medieval period, with focus on Västergötland. Previous research conducted by archaeologists, historians and linguists is the basis for the discussion. The main reason for this is to create a substantial background for the analysis of the rune stones
- During the second step, the main subjects are the rune stones. General research is presented as well as different aspects of the subject. The focus then shifts to nine chosen rune stones in the region with a short discussion based on previous research. These have been handpicked for their central location in the landscape, their close proximity to Skara and the variation in structure and contexts. A field analysis has been made at three of these stones in order to get a personal aspect of them, their locations and the landscape around them.
- In the third step of the investigation, a full-scale analysis of two rune stones, Vg 127 and Vg 128 is conducted. Here LiDAR-data (Light Detection and Ranging), Digital Elevation Models (DEMs) and Viewshed analysis have been used within ArcGIS in order to analyse the social dimensions of the landscape surrounding the two rune stones. Historical maps have been used in order to analyse previous structures of and in the landscape. The final part of the analysis is a Viewshed analysis of the rune stones in order to see how it is visible in the landscape. After the data from the analysis have been discussed, there is the final discussion, reflecting the material in contrast to the general aspect of the time period and runic inscriptions. What does the material have to say about the time period? What new aspects have emerged? Have I been able to answer my research questions?

During the process following sources and tools in order to conduct the research:

- Literature and previously made databases concerning the subject.
- ArcGIS (ArcMap/ArcScene).
- LiDAR-data collected from Sveriges Lantbruksuniversitet.
- Maps collected from Lantmäteriet.
- Digital data with information from FMIS concerning the inscriptions and their locations.

## 3. – **Theory and Method**

How do we connect rune stones with the surrounding landscape? In this section the focus is on the theoretical perspective of the landscape and the methodologies used for the analysis. It creates the possibility to expand the stones as archaeological features in the landscape and put them in a spatio-social context. We need to be careful while analysing the landscape since there are many factors that can affect result. Humans and nature have interacted with each other as well as affected one another for a long time. It is a complex relationship as explained by Ian Hodder in his discussions concerning Entanglement (see Hodder 2012).

Several books have been written about the subject of landscape and phenomenology within archaeology. Since this is a field that is complex and where different authors might

have different opinions, I do not think that keeping to one single line of thought is convenient. The aim is to bring in as many different perspectives as possible to be able to understand the area where my research was conducted. Matthew Johnson has brought up one of the many problems important to keep in mind with landscape theories: many archaeologists within the English school of landscape archaeology are sometimes generalizing the discussion about landscape to the point where the individual spatio-social contexts are forgotten (Johnson 2007:xx).

One of the great advantages of studying the landscape today is the help we receive from digital tools and digital data. During the work process for this thesis I have used ArcGIS. By incorporating new digital tools into the research, it becomes possible to look upon aspects that previously were difficult to analyse. LiDAR data is one of the new tools that are used here. It is used in order to visualize the landscape in a three-dimensional way. With LiDAR it is also possible to see if there are any remains of roads, structures or other larger archaeological features near the rune stones. Through this we can get a better view of the area and expand our knowledge of the surrounding environment. As an addition to this there will also be an analysis of historical maps. The main reason for this is that older historical maps contain information and features that can be helpful for the analysis in different ways. In the last couple of years, many efforts have been made in order to minimize the gap separating administrative landscape analysis (Maps, GIS, quantity spatial analysis) and the phenomenological approach in archaeology (Graves, McEwan & Millican 2012:491). In an attempt to analyse the visual aspects of rune stones there is also viewshed analyses.

The combination of classic landscape and digital analysis through ArcGIS (and similar softwares) and phenomenology is the possibility to get a wider range of information. Mapping and analysing larger areas has previously meant a great deal of work (and still does) but it becomes much easier to pinpoint certain features and put them in a larger context. Since there is not an extremely large amount of literature concerning the Viking Age in Västergötland, this thesis will hopefully be a starting point for others as well. This type of landscape analyses of rune stones has to my knowledge not been done in the area. Hopefully this can be a part in bridging the gap between the Iron Age and the Middle Age in the region.

### **3.1. – Theoretical background**

#### ***3.1.1. – What is a landscape?***

The origins of landscape archaeology can be traced back to topographical studies from the 16<sup>th</sup> century and has evolved in various directions ever since (Johnson 2007:16f). The landscape in which archaeological remains are found is of course an important factor for interpretation. Sometimes the objects themselves provide us with information about the landscape and its past. We must however keep in mind that the interpretation of a specific area of land is not a simple task. First of all, nature changes with or without our interference. Secondly, there are many aspects and theories concerning analysis of landscapes and social environment.

So what is a “landscape”? Many suggestions have been put forward regarding its definition. It has been described as a text, a view and a backdrop. We also have the cultural landscape and the discussions of the relationship between humans and the landscape (Lihammer 2007:24). Physical features constructed by humans or nature, as well as theoretical knowledge and tradition, play a vital role for the analysis of landscape (Johnson 2007:4). In the Oxford dictionary, landscape is described in several ways, mainly in connection with artistic aspects. Two of these are:

“All the visible features of an area of land, often considered in terms of their aesthetic appeal” and “The distinctive features of a sphere of activity” (Oxford Dictionary 2015).

These are from a human perspective and are basic definitions of something complex. Archaeologists have dealt with this issue, hence expanding our usage of the term from a subjective to a scientific perspective.

Sometimes we are able to tell the history and social structure of specific area. Although the known history might not be 100% correct, it takes us closer to previous human inhabitants, their history and their monuments as well as how they lived in the landscape (Tilley 2010:34f). For archaeology today there are two main schools of landscape analysis that have been the most prominent. The first is an *ecological* one, where it is viewed as an ecological environment. The other is a *cultural* one in which it is seen as a cultural construction, a way to understand the surroundings (Lihammer 2007:25). A key aspect in landscape studies is the discussion of space and social space. We can divide into *abstract* (scientific) and *human* (humanized) space (Tilley 1994:8). Anna Lihammer states that the multitude of definitions might not be seen as a weakness but rather as strength when analysing landscapes (Lihammer 2007:24). There is no need to separate nature (ecological) and the cultural aspects. Dualism is not a fruitful way to approach these kinds of studies; humans and nature interact with each other. The landscape fuses the physical and mental, humans and the cultural landscape. It plays a part in every motion of our daily life. What humans make of the landscape and vice versa becomes the essential (Lihammer 2007:27f). Space and spatial relations are in general abstract (Hiller & Hanson 1984:28f). The dependence or interaction back and forth between humans and landscape is a fruitful angle from which to tackle this discussion. It also fits within the frames of the theoretical movement today, with Hodder (and others) discussing entanglement. Depending on where in the world we are, the landscape differs in unnameable amount of ways. A shared obstacle that appears in none GIS- as well as in GIS studies are natural features like rivers, vegetation, bedrock and paleo-surfaces. Palaeo-vegetation and other obstacles in the landscape that can cut off visibility should be taken into consideration while working with visual analyses (Lake & Woodman 2003:693). The paleo-environment has been affected by natural-, as well as human activates and impinge the result of digital landscape analysis (Lake & Woodman 2003:230). Different types of features could have affected previous inhabitants in various ways. Tilley has divided the landscape into several features, a selected number are of interest in this analysis:

- Prominent hills
  - Ridges and spurs
  - Rock spreads or ‘clitter’
  - Sea cliffs and river cliffs
  - Bogs and marshy areas
  - Springs
- (Tilley 2010:37).

This is an aspect that could be extended by analysing the structure of different material, and how various materials are formed in nature (Tilley 2010:36f). Rune stones have been associated with wetlands, water and rivers; and in general Vikings are associated with seafaring (for various contexts of the rune stones in Västergötland see Table 2). There is also the connection to Christianity, bridges and rune stones (see section 4.2.4. – *Bridges and rune*

stones). This aspect will be further explored during the analysis, mainly to see if there are any divergent results from this norm.

Phenomenology is a very personal way to analyse the landscape. Different individuals can experience and approach the world in different ways, in line with how we as humans experience the world (Tilley 1994:11). This is our mental map of our surroundings, which we as a group or as individuals create to understand and experience landscape. We can separate this from geographical mapping, which can be seen as a way to organise the world, creating space and social relations, a way to create or exercise power (Altenberg 2003:25). Within archaeology, phenomenology is a way to observe the landscape, to be able to describe what is there and understand it by making observations in the field. As this is a personal experience, there are of course limitations, and it is probably best used on a smaller area (Tilley 2010:25ff). Tilly belongs to the Post-processual spectrum within archaeology. Criticism of archaeology's role in society and the social and political aspect of archaeology lead to a lot of criticism towards the processual archaeology (mainly from Tilly and Michael Shanks). Tilly and Shanks wanted to emphasise that archaeology was overly influenced by the western ideology and that humans have not always been thinking that way (Olsen 2003:57f) In the 1990s, the post-processual criticism primarily towards the 1980s processualism became the launching point for the rise of phenomenology, which arose as an alternative method to textual metaphors (Johnson 2012:270f).

Phenomenology is closely associated with archaeological studies of landscape and how the remains of previous humans are situated within the landscape. In order to understand the landscape, we need to go out and experience it, we need to “feel” the landscape. This is of a controversial approach for the scientific field (Johnson 2010:117ff). Phenomenology is an analytic attempt to put humans and our behaviour in the centre while analysing landscape. However, since phenomenology is a very personal analysis, digital tools can add a more formal approach than what is possible with Tilly's original idea. His phenomenological theories have been a popular approach for landscape studies during these last two decades. Despite its popularity, there is a critical approach towards the subject as well. Altenberg aims some of her criticism towards the subjectivism and the lack of recognisable data in a phenomenological approach. She states that Tilly's approach is too personal, it limits the study of monuments in the landscape and visual impressions are over-represented compared to other types of experiences (Altenberg 2003:27, Johnson 2012). Matthew Johnson has summarised some of the criticisms towards phenomenology, mainly pointing at a lack of self-reflecting arguments used by some phenomenologists. However, he also emphasises that phenomenology has a role in archaeology and helps us to understand the human experience of landscape (Johnson 2012:276ff).

### ***3.1.2. – Humans and landscape, movement, interaction and power structures***

In order to analyse the landscape, we also need to understand how we as humans use it and interact with it. Anthony Giddens described humans as *actors*, our actions and ability to do things are defined as *agency*. Humans possess the power to change the landscape. Seeing humans as individuals with different ways to approach our surroundings is one way of understanding how humans have interacted with nature and the connections between *nature* and *us* (Lihammer 2007:29ff). The introduction of agricultural societies meant a greater effect on the landscape and the mark left by human activities (Johnson 2007:5). Space can be seen as an arena in which social norms, gender or class is created. Change of these norms occurs in time and space where space is not static and linear (Altenberg 2003:32). Maps are a good way to view the archaeological landscape, but there are other aspects that are lost. Movement,

weather, topography et cetera, as well as the interaction between humans and the landscape, personal aspects and decisions are not shown in a two dimensional space (Lihammer 2007:35). Socially constructed places in the landscape can also be put in a historical context for later societies. Connections to a place might, or at least the claim of connections, has been a part of human history for a long time in order to fulfil certain goals (Lihammer 2007:32). To understand how a group or culture used space can be fundamental if we want to understand them (Dodgshon 1998:2).

Roads, rivers, monuments and topographical features are vital aspects when studying our interaction with landscape (Lihammer 2007:36f). Monuments and structures found within the landscape can represent different kinds of communication or manifestations. One of them is power, or rather the ambition of power, which can be shown through monuments and structures. Centralization is also an indication of communication and the struggle for power within the landscape (Lihammer 2007:36f, Theliander 2005:23). A structure from a spatial point-of-view can be considered as a way to produce and re-produce social relations between humans (Altenberg 2003:24) or produce and re-produces space itself (Hiller & Hanson 1984:28). Depending on where the monuments are, it might be a way for the “elite” to distance themselves from others within the community in order to keep their identity (Rennell 2012:522f). Humans try to arrange their inhabitant with rules, borders and relationships to other humans (Hiller & Hanson 1984:26).

There have been many previous discussions about how power was manifested and produced during the Scandinavian Iron Age. The general idea is that it was most likely a heterarchy, a number of different actors/groups whom manifested power or ambitions for power, which in some cases had connections to a more prominent ruler (Lihammer 2007:40ff, Theliander 2005:23). Christianity changed social structure in Scandinavia during the late Iron Age (Theliander 2005:21). Archaeological material suggests that there existed groups/actors with close ties to the introduction of Christianity that held prominent positions in the local societies (Carlsson 2007:13).

### ***3.1.3. – The Spatiality of rune stones***

Studies of landscape and social space in connection with rune stones have expanded in the last decades (see Jesch 2011, Hansson 2011, Norburg 2015, Sawyer. B 2000). This is fortunate since it is not unreasonable to assume that the construction of runic monuments depended on social factors reflecting on a group’s or an individuals’ status in society (Williams 2013:62f).

The relationship between rune stones and roads/bridges/water has a scholarly tradition (see Brink 2002, Norburg 2015, Sawyer. B 2000 and Wideen 1955). But rune stones and inscriptions are found in several other contexts such as graves fields, villages and farmsteads (Wideen 1955:122). There is still the problem of generalisation with the material. Per Cornell and Fredrik Fahlander suggest that social significance varies from location to location. Analysing both from a general perspective *and* looking at/for unique features provides more accurate view of a specific site (Cornell & Fahlander 2002:120). A general analysis is of course not something that is wrong to do, though we have to remember that it tends to obscure and overlook specific details that are important in a local context.

Archaeologist Stefan Brink has in several cases discussed the significant role rune stones play in the study of old traveling routs. He suggests that many of our modern roads are older than we think (Brink 2002:104). Approximately 20 rune stones in Västergötland can associated with roads (see Table 2), though further investigations are necessary in order to estimate the age of these roads.

In recent years, Martin Hansson and Per Stille have been analysing the locations of rune stones. As previously mentioned; Hansson for example, has emphasised the spatial relationship between rune stones and medieval manors in Småland and the location as a manifestation (Stille 2007:51). Putting an inscription in a spatial perspective, its social function could be better understood (Hansson 2014:18). If we assume that a rune stone is in its original position, what can the surroundings tell us about it? Who was supposed to see it? What other human features are present? How is the visibility (Stille 2007:53)? Harald Wideen (1955), among others, has mentioned the spatial relationship between rune stones and early medieval churches (Wideen 1955:97ff). By reconstructing the Viking Age landscape/topography with the material and structures/monuments, we can place the runic inscriptions in a social sphere. Analysing the social structure and spatial relationship between various objects (rune stones included), the text on the stones can be put in a social context; hence we can uncover more about the Viking Age (Stille 2007). A large number of the rune stones in Västergötland have been found incorporated into the structure of various churches.

Rune stones are associated with the higher ranks of Viking Age society. Archaeology has often focused on prestigious artefacts and objects, which tend to alienate humans, that did/could not manifest themselves. In cases like this, the ideas put forward by Stille and Hansson can help us to reconstruct the local landscape, to visualise it, and from there we can analyse other aspects of society. What is a road constructed by a local chieftain without people to use it? What is a prestigious artefact or monument with no one to see it? In their book about micro-archaeology (2002) Per Cornell and Fredrik Fahlander point out the importance of analysing local/smaller contexts and then working outwards to the larger perspective. Using three-dimensional analysis, viewshed analyses and GIS on local/smaller contexts they suggested that we could find social structures that can provide us with information concerning the larger aspects (Cornell & Fahlander 2002:122f).

If runic inscriptions were used as documentation or claims of landownership as Birgit Sawyer suggests (Jesch 2011:31, Sawyer, B 2000) we still need to understand towards whom this manifestation was guided. Therefore we need to look at the individual stones, to see that context they are located in. Who could see it? Was it only for local dwellers, travellers or both? Hansson (and Stille) has analysed the context Sm 42 Tuna, in Ryssby in Småland. In this case, an excavation was conducted and the analysis showed that it most likely stood in its original position. Viking age graves are present at the location, though the stone is not in the direct vicinity of them. The location also raises questions on how the road was passing by the stone. Is it possible that the message was directed towards a local group (Hansson 2014)?

Digital methods have been introduced to the analyses of the cutting techniques used on runic inscriptions. A project headed by the Laila Kitzler Åhfeldt and the Archaeological Research Laboratory in Stockholm has focused on runic inscriptions in Västergötland, in comparison with so called *Eskilstunakistor* (Eskilstuna coffins) in the region. The area in question is located north from the area analysed in this thesis. Analysing the cut marks and the technique used in addition to method as well as the stone material (granite and gneiss) of carving rune stones indicated that the technique used was homogenous in the research area (Kitzler Åhfeldt 2011). If a similar survey was conducted on a larger area, it might reveal regional or local differences or similarities in the technique used by stonecutters. This would bring further notion to the discussion about relationship of different regions in Viking Age Scandinavia.

By analysing the local space with different places within, we can get other perspectives of social life, even though it might create a problem because of the complexity a society entails. I want to see how individual rune stones could have manifested and affected the social space, how people might have interacted with them in different ways. It is easy to generalise these monuments and say that: they have to be next to a road or a river, they commemorated

people lost abroad or that they are legal documents for inheritance. Focused analyses in different spaces and places can help us find eventual “anomalies”, things that do not fit in with our modern perception of a type of monuments or a time period.

I would suggest that both humans and the landscape/nature have agency and the power to affect one and other. This should be taken into consideration when analysing the landscape and objects within a certain area.

## **3.2. – Method**

### ***3.2.1. – GIS and Digital mapping methods***

During the last decades, the usage of digital methods has expanded within archaeology. The introduction of computers, GIS, satellite images, digital photography and other tools (or methods) has created new ways of analysing archaeological material. Archaeology and the subject of digital methods have previously been discussed by Wheatley & Gillings (Wheatley & Gillings 2002), Gary Lock (Lock 2003) and by Conolly & Lake (Conolly & Lake 2006). This does not mean that we should separate digital from traditional methods.

In Sweden, a lot of information concerning archaeological sites can be found through FMIS (Fornsök): the Swedish National Heritage Board’s database for archaeological and historical information. However, there are some problems when using this search engine. When it comes to information concerning time periods, it does not always specify what exact period the finding/site/monument is from. There is also some lack of information with specific details of some finds. This means that in the case concerning findings from the Viking Age in Västra Götaland, a survey of the specific finds around rune stones has to be done in museums where they are stored. At this moment, there is no time to conduct a survey of the museums storage and therefore no specific finds that cannot be directly associated with late Iron Age/Viking Age/early Middle Ages will not be taken in consideration during the GIS analysis. Therefore no cluster analysis will be conducted with this material.

Some consider GIS a “tool” for scientific research; others see it as a science in its own right. The scientific community has debated this for a long time, and as it seems the discussions will continue (Jacobsson 2014:23).

GIS is something most archaeologists are familiar with in one way or another. The impact could already be seen during the 1980s- and 1990s and the increase in knowledge about how the system has expanded the range of its usage (Gaffney, Stancic and Watson 1995:211). GIS was first introduced in the 1960s but it was not until the early 1990s that its potential was really brought into the open (Conolly & Lake 2006:7f, Zubrow 2006:17). GIS is a structured way to supervise a large amount of spatial data and provide several ways/methods on how to do this:

- Acquisition of spatial data
  - Spatial data management
  - Database management
  - Spatial data analysis
  - Spatial data visualization
- (Conolly & Lake 2006:13)

We can reconstruct archaeological sites, environments and objects through digital tools (Zubrow 2006:23f). However, we need to be aware of any eventual problems and limitations when using these tools. The major issues are: size of the data (amount of information from different sources), complexity (being able to handle the software, and again the large amount of data available) and the “toy” issue (playing around with various machines, programs and other tools for fun instead of focusing on the research) (Zubrow 2006:25f). Therefore it is important to know the programs we use and how spatial data is visualized. In GIS the main ways of showing features are maps (in raster or vector), points, lines and polygons (Conolly & Lake 2006:24ff).

Digital visualisation of the landscape has proven useful in understanding a larger area. The main method for this is what is known as (GIS-based) viewshed analysis (Rennell 2012:512f, Wheatley 2012), which is one of the methods used in this project. Some early projects in statistical GIS visibility studies can be criticised for lacking a hypothesis, though this has changed over the years (Lake & Woodman 2003:693). GIS models only gives us a partial view of the landscape, but by combining various other methods, this gap can be breached in order to provide a potentially deeper knowledge about our past (Rennell 2012:523). Experiential (phenomenological)- and digital methods can work together in order to expand the theoretical field and knowledge (Gillings 2012:610).

### ***3.2.2. – Maps and areal images***

Within archaeology, both new and old maps can be useful sources. No maps over Larv and Österbitterna prior to the 17<sup>th</sup> and 18<sup>th</sup> century have been found.

Modern maps have been obtained from SLU (Sveriges Lantbruks Universitet). SLU also provides the LiDAR-data, used to create the three-dimensional reconstruction of the landscape. By downloading LiDAR-data (and using the 3D-analysis tool in ArcGIS) it is possible to convert the data into different file formats, which can be used in a variety of ways.

### ***3.2.3. – Historical maps***

Historical maps can be very useful while researching both historic- and prehistoric materials. They contain a large amount of information, ranging from areal and economical divisions, ownership, and size of towns/villages to the structure of the landscape, monuments and names of places. In some cases, historical maps may contain information concerning prehistoric sites or monuments. In this thesis, information about structure of the landscape, vegetation and structure/location of villages in relation to rune stones is collected through historical maps in order to see how the landscape was structured in the past. If we are fortunate we can sometimes locate archaeological features in old historical maps (see Vestbö-Franzén 2002). When analysing the stone’s position (and if it has been repositioned), old maps can be a great source of information for the analysis. Maps from various time periods can also provide indications of changes in the landscape throughout history.

The relationship between different structures in the landscape can be a great resource for analysing the local landscape, especially if monuments or structures has been relocated or destroyed (Larsson 2002:52ff).

In Sweden, there has been a great effort to digitalize different kinds of material in order to make it available for everyone to use (Larsson 2002:37). Villages documented in historical maps can often have predecessors from pre-historic time periods. By using historical maps

and archaeological evidence, we have the possibility to locate human structures in the landscape (Larsson 2002:49).

The majority of Lantmäteriets older maps are from the 19<sup>th</sup> century. There are many differences between those maps and the ones produced today since they did not have the possibilities to recreate the landscape in the same way. Artistic freedom and what might have been deemed interesting also creates a problem when analysing historical maps. Because of this, there are issues with accuracy. With the help of tools in GIS-software, we do however have the possibility to reshape historical maps in order to get a realistic view of them.

There are other factors crucial for the analysis of historical maps, for example the necessity to understand its construction. Terminology, structure, and the ability to read older handwriting are some of the skills necessary to understand historical maps (Moström 2002:85f).

#### ***3.2.4. – Modern maps and aerial imagery***

Today we generally use two variations of maps. One is based on accurate “drawings” providing us with information about roads, navigation, simple areal divisions and other necessities we use to organise our surroundings. The second is obtained through satellite imagery and can be considered to be a more “realistic” depiction of the landscape.

Both map types contain information in their own unique way depending on which purpose they serve. Analysing satellite images and aerial photographs can reveal information and indications about prehistoric monuments and sites not visible from a ground perspective.

The usage of aerial imagery in archaeology began prior to World War I, with images taken by British and Italian aircraft for military purposes (Parcak 2009:14). During the 20<sup>th</sup> century, the art of aerial imagery developed within archaeology and today, one of the major resources are satellites orbiting our earth (Parcak 2009). With the rapid development of digital technologies since the 1990s, digital methods used within archaeology have expanded and become an important part in archaeological research (Harrower & Comer 2013:1).

#### ***3.2.5. – LiDAR-data***

With the introduction of LiDAR-data, it is possible to analyse the landscape around a monument with high precision. Even though it was just recently introduced to archaeology, it has gained a lot of attention. The scientific progress made using LiDAR-data has shown fruitful, especially in landscape studies (see Conolly & Lake 2006). This typology of data is an advantage, especially in wooded areas and uplands, regions that has not been extensively affected by modern agriculture. Airborne LiDAR has also expanded the possibilities in surveys of larger areas (Crutchley 2010:160f). Airborne LiDAR-data comes from georeferenced 3D-point clouds and elevation data (Guo, Chahata, Mallet & Boukir 2011).

The data is obtained through areal scanning with aircrafts using soft infrared laser beams with the possibility to acquire different materials. There are four types of LiDAR collecting; linear, flash, full waveform and Geiger, with linear being the most common (Sasaki, Imanishi, Ioki, Morimoto & Kitada 2011:157f, White 2013:177f). After the laser beams are sent out they “bounce” back from the surface and the amount of time it takes for it to come back defines the elevation of the surface (White 2013:177). It is possible for LiDAR to penetrate wooded areas and reveal what is beneath the vegetation. While downloading the data from Lantmäteriet, there is also the possibility to obtain data with, or without different structures and objects present in the landscape. Point clouds are a collection of three-

dimensional locations, or points, which together represent a surface. From the collected points we have the possibility to create Digital Elevation Model in order to analyse the landscape. In contrast to a point cloud, a DEM is a 2.5D reconstruction of a surface because it is only one elevation cell for a rasterized version of a scanned surface. This type of data can be hard to obtain since airborne LiDAR-scans are expensive (Conolly & Lake 2006:52, White 2013:176f). In Sweden it is possible to gain access to scans for the whole country from Lantmäteriet.

### **3.2.6. – Working with LiDAR-data**

Material for the LIDAR analysis was obtained through Sveriges Lantbruks Universitet. The data downloaded is a laser scan with the ability to show geographical features in the landscape from a three-dimensional aspect. The data is delivered as LAS-files, which is the necessary format for importing laser data into ArcGIS. LAS-files contain a number of points from which it is possible to create a reconstruction of the landscape. When the data is imported into ArcGIS we have to select how precise the reconstruction shall be. It could be one point every 0.4 meters or one point every two meters, it is up to the researcher to decide, and of course what type of research is done. With more points, the reconstruction becomes more accurate, however the files become heavier to manage in the program.

The LAS-file is imported into ArcGIS through the 3D analyst toolbox (in ArcToolbox). In the toolbox there are several options for handling data. For this procedure we go into the *3D analyst toolbox* to a map called *Conversion* in which we find a map called *From File*. Here we find a conversion called *LAS to Multipoint*. Using this tool we are able to create a shape-file containing a number of points (as mentioned before). However the representation on the screen is at the moment a dense number of points from which nothing can be analysed. Another step is necessary for creating a Digital Elevation Model that can be analysed in ArcMap and ArcScene. In the 3D analyst toolbox there is a tool to generate a Triangulated Irregular Network (TIN). Here we find the procedure to create a TIN (from example a multipoint, shape-file et cetera). When this procedure is done, the Digital Elevation Model of the area is completed, and can be worked with in ArcMap and ArcScene.

## **4. – Previous research**

There are multiple ways to approach runic inscriptions. In recent decades, the scientific community has expanded in its ways of analysing this specific material. New tools, different perspectives, archaeological excavations and research, and linguistic discussions have contributed to the discussion of runic inscriptions. Given the width of this field, it is impossible to present all scientific research affiliated with the subject. The foundation for our modern interest in Vikings can be found in the Old Icelandic sagas collected works such as the *Edda* from around 1270 AD and the story about *Beowulf*.

Some of the works presented in the following chapter will be further discussed in other sections of the thesis. This chapter is divided into two sections; the first is regarding research concerning the Viking Age and the early Medieval period in Västergötland, and the second will focus on previous research concerning runes and runic inscriptions in the region, with some focus on spatial and digital analysis of rune stones.

## 4.1. – Viking Age and the early Medieval Period

### 4.1.1. – Research into Viking Age and early Middle Ages in Västergötland

Archaeologists have discussed the archaeological material from the Viking Age since the 19<sup>th</sup> century (for example Oscar Montelius). Harald Wideen published the first major analysis concerning the Viking Age in Västergötland in 1955. His book *Västsvenska Vikingatidsstudier* is a thorough collection of findings, locations and theories active within the archaeological and historical disciplines at the time. It is still considered to be a good resource for archaeological research into the time period as it analyses various topics and contains good material in terms of images, typologies and maps for the region. Even though some hints of the 19<sup>th</sup> - and 20<sup>th</sup> centuries national philosophies can be found in the book (see Wideen 1955:3ff) it is still very useful. Here we can already see a discussion of continuity and the development from the Iron Age into the Middle Ages, with indications found throughout the central locations of Västergötland.

Between 1955 and 1985, the publications concerning the late Iron Age in the region was scarce. Agne Furingsten's PhD from 1985 analyses religious changes from 1500 BC to 1000 AD in the southern region of the landscape (Theliander 2005:307). The 1980s were also the time when the subject of the foundations of Sweden was highly discussed (Theliander 2005:308). It was a very harsh debate that will not be further discussed here.

Some archaeologists and historians have focused on the religious aspects of the period, for example Evind Claesson (1989) and Stig Lundberg (1997). Churches from the early Medieval period have also been analysed by Markus Dahlberg in 1998, with focus on the architectural dimensions. There is also a report by Lars Lundqvist from 2000, where he analyses central locations in Halland and Västergötland during the Iron Age (Lundqvist 2000).

In the last two decades, a number of works concerning the transition from the Viking Age to the Middle Ages have been published. In *Spåren av Kungens Män* from 1996, Maja Hagerman discusses events and factors leading up to the Christianisation of the region and the formation of modern day Sweden (and some of its neighbouring countries) (Hagerman 1996). A majority of the book reflects archaeological and historical research from previous decades, with a focus on Västergötland. The Christianisation of Västergötland is also the subject in Claes Theliander's PhD from 2005, *Västra Götalands kristnande: religionsskifte och gravskickets förändring 700 – 1200*. His analysis deals with the changing religious atmosphere through material from late Viking Age- and early Medieval graves and the reasons for this change. Theliander is also the author for *Det Medeltida Västergötland*, a book in a series about the medieval period in the Swedish provinces. With new cities emerging and trade networks developing, we need to remember the aspect of coining. Henrik Klackenberg have analysed the usage of coins and finds of medieval coins in several provinces, including Västergötland, with finds spanning from 1150 – 1350 AD (Klackenberg 1992).

In general, there is a trend of focusing on the religious and social aspects in this transition period, but in doing this; the runic material is lost. There is also a lack of depth when looking into the Viking Age in the region. Kristina Carlsson published one of the later works on the subject in 2007. Her book; *Vart går gränsen? Arkeologiska uttryck för religiösa och politiska aktörer i nuvaranden västsvrige under perioden 1000 – 1300* does however bring a more social and spatial perspective of the landscape. Carlsson is also responsible for research analysing early churches and cities in the region (see for example *Tidiga städer och kyrkor i Västergötland* from 2001).

A collection of articles focusing on Viking Age grave material in Nordre älv and Hisingen north of Gothenburg was published by the city museum the same year (Red. Berit

Hall 2007). Apart from these there are a vast amount of books, articles and scientific papers discussing the Scandinavian Viking Age. The Viking phenomena cannot be traced to only Denmark, Sweden and Norway, archaeological finds and written sources show a different picture than people might have.

#### ***4.1.2. – Late Viking Age in Scandinavia***

As previously mentioned, the Viking Age is a diverse period with many changes in the Scandinavian countries. The word *Viking* is highly associated with ships, raids and ragged warriors going berserk. Traces of the 19<sup>th</sup> century's nationalism still linger over the period (Harrison 2009:92ff).

The Viking Age starts roughly around 750 A.D. following Vendel (circa 550 A.D.) and Migration period (circa 400 A.D.) (Welinder 2009:43). On an international perspective the Viking raid of the Holy Island Lindisferne in 793 A.D. is considered to be the start for the Viking age (in Britain). The Norman Conquest and the battles of Hastings and Stamford Bridge in 1066 marks the end of it (Leciejewicz & Valor 2007:60, Sawyer, P 1985:16f), though the death of Norway's king Magnus in 1102 can also be considered as the end of the Viking period (Sawyer, P 1985:17). However, it is not often that we can say when one period ends and another begins, changes in society are often gradual and over a period of time. Klackenberg points out that the lines between different periods are not that clear. In some social contexts, very little actually changes for the common people over longer periods, even though greater changes occur at a "national" level (Klackenberg 1992:15). Cultural contacts with the continent become clearer from the 9<sup>th</sup> century and onwards. Archaeological artefacts indicate that the effect of these contacts was prominent the southern half of Sweden. With these contacts came the influences of Christianity (Nitenberg 2009:114f). Around 1000 A.D., cultural and social changes become prominent in Scandinavia. Christianity gains ground and a new political order appears, which emanates into the foundation for Denmark, Norway and Sweden. Society, social aspects and the economic structure changed gradually towards a more capitalistic society, though not in a modern sense (Carlsson 2007:11). Archaeological excavations in southern Scandinavia has revealed a number of larger settlements and farms (magnate farmsteads), indicating that society during the Late Iron Age/Viking Age was more complex than previously thought (Pedersen 2011:45) A number of noblemen- and woman or groups administrated their own regions, (Hall, R 2007:32). Society at this point in time was probably very hierarchal, with its foundation in local aristocracy. In Sweden we can see a relationship with the medieval warrior class and local rulers or elite during the Viking Age, suggesting some continuity (Hall, R 2007:32, Hansson 2001:134). As early as during the Vendel-period, social structures resembling what would later be common in the Medieval social hierarchies are noticeable (Harrison 2009:14ff).

#### ***4.1.3. – Västergötland: Late Viking Age and the early Medieval period***

As with many regions in Scandinavia, Västergötland had had contact with the Christian religion long before the actual establishment of Christianity during the 12<sup>th</sup> century (Lundberg 1997:2). Norse religion and mythology have long been discussed as a homogenous advisory of the new religion. It is more probable that the Pre-Christian religion in Scandinavia was decentralised and more locally based than on a regional level (Theliander 2005:21).

Social dimensions and structural power was during this period manifested by local leaders, with several significant locations (Lihammer 2007:40). Religious changes probably

occurred during different times in Scandinavia and Christianity was probably adapted in individual ways during its early stages in Scandinavia (Theliander 2005:21f). Indications leaning towards the aspect of local leaders and central regions are found in archaeological material going back to the early Iron Age (Carlsson 2007:11).

There is no lack of archaeological material from previous time periods. Sites such as Vittene and the sacrificial bog in Finnestorp both indicate human activity and the trade of valuable metals (Fors & Gerdin 2009:9f, Lundgren 2011:30). We can also see high activity during a long period of time in the area around Saleby, with findings ranging from Roman Iron Age up to the 13<sup>th</sup> century (Lundqvist 2000:100f). The amount of interest in forging material, the construction of halls and general indications of consumption (extravagant goods, feasts et cetera) can give us some insight in the societies that later became our Scandinavian countries (Harrison 2009:52). Conversion to Christianity also meant that Scandinavia became a part of administration controlled from Rome, connecting the north with the rest of Europe (Klackenberg 1992:15).

There are some indications that the rune stones erected in Västergötland could be connected with the Denmark. Recent studies suggest that the elite around Skara had close contact with the Danish kingdom (Kitzler Åhfeldt 2011:147). One of the prominent landscape features in Västergötland is Göta Älv, a river emanating from the lake Vänern runs out in the sea of Kattegat. Several locations along its shores probably had high human activity throughout the Bronze- and Iron Age (Claesson 2015:1ff). Humans have lived and interacted around the river from the Neolithic period until modern time (see *Fynd* 2014). Recent archaeological excavations have found indications of active trade networks. In 2013, a previously unknown trading post was discovered in Köping, west of Trollhättan, with minor similarities to the trading post Kaupang. Activity can be traced back as far as the 7<sup>th</sup> century AD, and continuing until the 10<sup>th</sup> and 11<sup>th</sup> century, when local trading posts was replaced by larger, for example Lödöse and Kungahälla (Lega 2014, Nordqvist 2015). These transitions could be indications of changes in social structures and ways to manifest power. Another indication of a new elite emerging is the increase of coining in the Scandinavian area. Sven Tveskägg (Sweyn Forkbeard) in Denmark, Olav (Olaf) Tryggvason in Norway, and Olof Skötkonung in Sweden were all producing coins during in the late 10<sup>th</sup> and early 11<sup>th</sup> century. Founding of new towns and the coining can be considered as ways to manifest authority and affiliation with the emerging Christian religion (Hagerman 1996:119f).

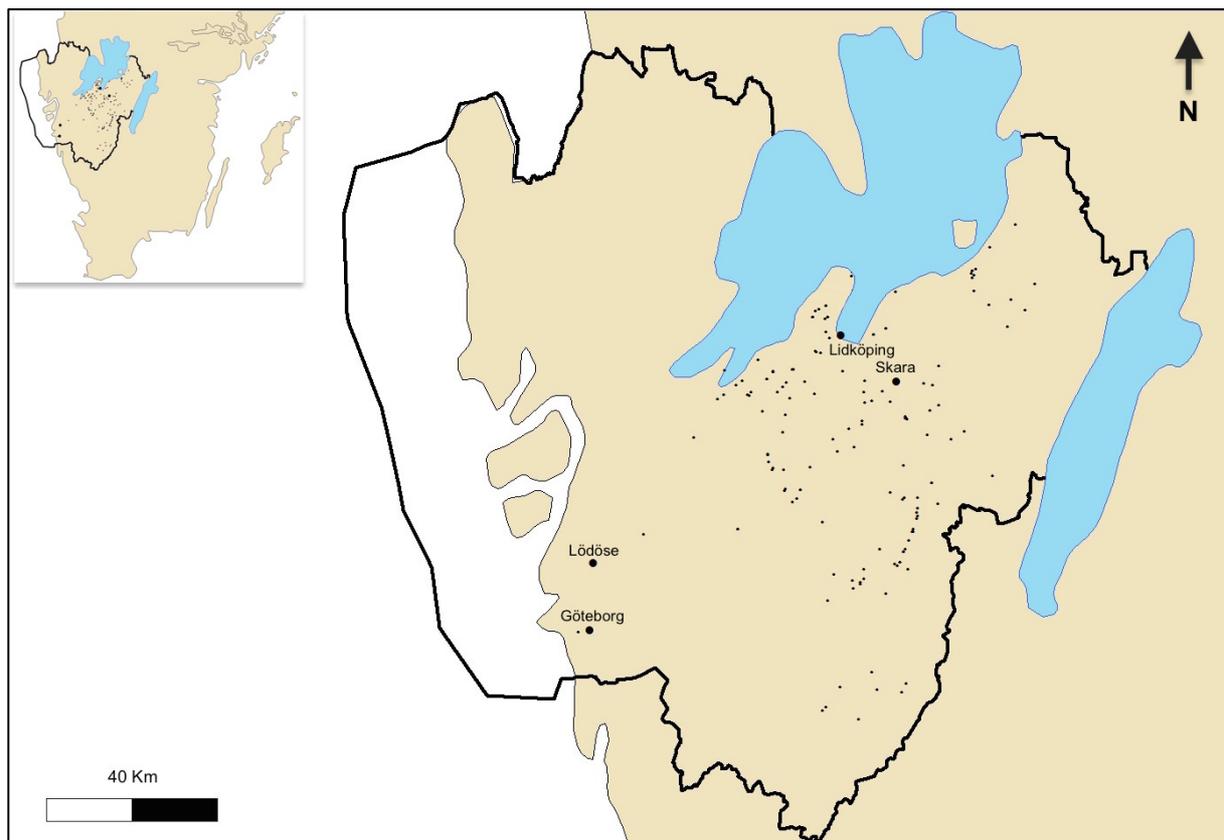
Construction of churches and erections of runic inscriptions close to prehistoric graves and sites in Västergötland can indicate some continuity and the presence of locations with central significance. A number of rune stones with Christian symbols on them are also indicators of this (Carlsson 2001:42, Carlsson 2007:15). A great number of graves from the Iron Age are located in the region, material that has been explored to some degree. Their locations and number could indicate that they are a manifestation of continuity. Pre-Christian graves from the late Iron Age often consist of mounds and stone structures of different shapes (Theliander 2005:314). Skara, together with Sigtuna, is the oldest Christian centres in Sweden (with Lund founded during Danish rule). Within this time period we have the late Viking Age rune stones, monuments in the landscape reflecting both old and new traditions and social dimensions within the region.

## 4.2. – Runic Inscriptions

Runes are closely associated with pre-Christian and Viking Age Scandinavia. However, people still continued to use them during the Middle Ages (Söderberg 1994:50). Can the continuity of runic writing tell us something about the social aspects during this time in history? The following discussion is focused on social- and spatial dimensions. Reflecting on

a material from multiple angles can help us understand their meaning in the social landscape and the interaction between humans. With help from digital tools, we are able to put rune stones in a spatial context previously difficult to obtain.

In Västergötland there are approximately 152 runic inscriptions. The western part of the region contains few runic inscriptions in contrast to the eastern part (Kitzler Åhfeldt 2011). In the area between the lakes Vänern and Vättern, a large amount of the region's rune stones can be found. Not all of these are considered to be runic inscriptions. A number of them are grave slabs from the early Middle Ages. They are often found in different contexts than those associated with "real" rune stones. Some of the different stones/inscriptions have been moved or their original locations are unknown and while others are simply findings of runic inscriptions on other objects.



*Map 1. Map representing the locations for all rune stones in Västergötland; the borders represent Västra Götalands Län.*

#### ***4.2.1. – Runes and runic inscriptions in Västergötland***

Scientific interest for runic writing can be traced back to the first half of the 16<sup>th</sup> century and the works by Johannes and Olaus Magnus and Laurentius and Olavus Petri. The most prominent person during the early development in runic researchers is Johannes Bureus, historian and teacher to the Swedish king Gustavus Adolphus (Enoksen 1998:173ff). Together with Bureus, the Dane Ole Worm played an important role for the foundations of scientific runic investigations, with collections information vital for to this day (Enoksen 1998:186ff, Sawyer, B 2000:15).

Though the interest in runic writing was forged early on, it was not until the late 19<sup>th</sup> century that a solid structural platform was developed. Ludwig Wimmer, Sophus Bugge and Otto Von Friesen were among those who would come to construct this platform through their

research and publications (Sawyer, B 2000:15). Since then, runic studies have taken off in several directions. Linguistic, archaeological, historical and technical studies are some of the main approaches towards this material (see Svärdström & Jungner 1970, Enoksen 1998, Palm 2004, Stille 2007). Lars Magnar Enoksen has published a number of books on the subject of runes (see Enoksen 1998, 1999 and 2003). His book *Runor* from 1998 is good gateway to the studies of runes and runic writing, with both linguistic descriptions and discussions concerning the development of the studies from an historical perspective. Regarding rune stones in Scandinavia, one of the most prominent researchers during the last decades is Birgit Sawyer. She has been working with several aspects (for example spatial aspects, thegns and drengs et cetera) but has been focusing on rune stones as documentation of inheritance (see Sawyer, B 1988 and 2000). With people in Scandinavia still using runic writing in medieval times, there are of course investigations analysing that material. A multitude of researchers have contributed their analyses in the collection *Runmärkt: Runor under medeltiden* (1994 red. Benneth, Ferenius, Gustavson & Åhlen). Another aspect of the transition during this period is the relationship between rune stones and early medieval manors. This subject has been analysed in Småland by Martin Hansson (2001) and in Östergötland by Johan Berg (2009). Research concerning the stylistic aspects of rune stones in Västergötland can be found in *Västergötlands Runinskrifter* (Svärdström & Jungner 1970) and in later research by for example Ann-Sofie Gräslund and Lise Gjedssjø Bertelsen (Bertelsen 2015, Gräslund 2015). During the Viking Age, several art types were used during different stages. These are of course also represented in the styles found on rune stones. The most prominent styles of art and decoration during the Late Viking Age were the Mammen style (c. 960s – 1000/1025 AD), the Ringerike style (c.1000 – 1075 AD) and the Urnes style (c. 1050 – 1125 AD) (Graham-Campbell 2013:9, Bertelsen 2015:56).

The extended usage of GIS within archaeology has also led to some interesting research into the spatial dimensions of rune stones (see for example Norburg 2013 and 2015). In retrospect we can see that rune stones have received a great deal of focus in previous research, though there are still many aspects to discuss. Analyses concerning their social and spatial meaning could contribute a great deal to the discussion of Viking Age society.

#### **4.2.2. – *Runes, religion and rulers: Reasons for raising stones***

More than 3000 rune stones are known to exist in Scandinavia. The discussion here is focusing on the runic inscriptions as a part of the landscape, and the interaction between humans and the landscape and the contact between humans. We can see variations in style in different regions and during different time periods (Sawyer, B 2000:7ff). In Västra Götaland and the neighbouring region Östergötland, we find two prominent rune stones: *Sparslösastenen* and *Rökstenen*, both probably erected during the 9<sup>th</sup> century. They gave some insight into society and myths during the late Iron Age (Hagerman 1996:51f). The runic inscriptions analysed in this thesis are younger than these and probably reflect other values; but it is important to point out the rich background of runic inscriptions. There is also a strong religious affiliation with the writing of runes, mainly based on the mythological stories collected in the *Eddas* during the 13<sup>th</sup> century. Here we learn that writing runes was something that should not be done without the knowledge how to do it correctly, and that you should not use them if you did not know how (Enoksen 1998:25ff). 62 of the registered rune stones in Västergötland are located in churches, Christian cemeteries or churchyards. A large number of these have been found as parts of the churches structures, or additional structures outside and are now located in close connection to the churches, or is still part of the structure (see Table 2).

There are two runic alphabets mainly used during the Iron Age called *futharks*. The first contains 24 runic characters, considered to be the older version and bears influences from the Roman alphabet. During the middle of the first millennium, changes occur in the usage of the runic alphabet. Runic inscriptions estimated to have been erected from the 6<sup>th</sup>-7<sup>th</sup> centuries and onwards are written in the younger futhark containing only 16 runes (Peterson 1994: 63ff, Enoksen 1998:33f). So what was the reason that such a great number of rune stones was erected in Scandinavia during the Viking age? There are a number of possible reasons that have been discussed. Some stones were erected in honour of voyagers, participants in raids and other sea faring men, though the numbers of these are not as high as one generally might believe. Others are connected to the Christianisation in Scandinavia. There is a connection with the changing burial customs appearing with the new religious belief. Interpretations on why and how varies, but one of the more prominent could be the lack of churches and churchyards in Viking Age Scandinavia (Sawyer, B 2000:16) For closer analysis concerning the burial transitions of Västra Götaland see Theliander 2005. Stylistically, the dominant type found on rune stones in Västra Götaland is Ringerike, which were prominent style in the first half of the 11<sup>th</sup> century, during the reign of Knut den Store (Canute the Great) (Bertelsen 2015:56).

Trade and the introduction of Christianity in Viking Age Scandinavia are related. Leadership and ideology from prominent rulers possibly influenced chieftains looking for prestige and means to show power and authority. Christian symbols could have been a way to show off a prestigious lifestyle (Winroth 2012:138). This could be another reason as to why rune stones from this time commemorates voyagers and indicates Christian manifestations.

Being able to travel is one of the corner stones for trade and cultural connections. While many probably only travelled within a smaller context, others were venturing to far away regions, hence roads and rivers were vital factors in order to get around. Routes connected to churches became a vital aspect in the local landscape once Christianity was a permanent factor in the Scandinavian societies (Brink 2002:107f).

Rune stones are seldom the subjects for archaeological excavations. Only two recent studies can be found, Hansson and Stille 2014 – and Ljung & Thedéen 2009. Why so few excavations have been made is difficult to say. The scientific history of runic studies and the way they are analysed might be the reason that archaeological excavations have not seemed necessary. Archaeological excavations are destructive research methods; it is not possible to excavate the area around all rune stones. But it would be interesting to see more excavations around rune stones, and usage of non-destructive methods such as Geo-radar and laserscans.

Birgit Sawyer argues that there are only a few runic inscriptions in Västergötland that manifests a Christian ideology, but Christianity was indeed present in the region during the early decades of the 11<sup>th</sup> century (Sawyer, B 2000:19, Dahlberg 1998:71), however, there are indications of early Christianisation in Västergötland (Harrison 2009:119f). Sawyer also points out that the inscriptions are not only for those who have died, but also for the ones who raised them (Sawyer, B 2000:19). Property and inheritance could have been manifested through the erection and commemoration of lost allies and relatives. Also sponsorship, carving and how relatives showed their relation to the deceased are important aspects of why these stones were erected, which Sawyer has discussed in depth (Sawyer, B 2000). The region had strong Christian foundations (Skara and Varnhem). Dating measurements (<sup>14</sup>C) have shown that the oldest Christian graves excavated in Varnhem are from the second half of the 9<sup>th</sup> century (Harrison 2009:121). This would mean that even though there are no Christian indications present on the rune stones, many of them were erected during a period when Christianity was established in Västergötland (it should be noted that that new excavations has been conducted in Varnhem during the summer of 2015).

#### **4.2.3. – *Runes and the social elite***

Runic inscriptions are considered to be the oldest *written* material found in Scandinavia (Sawyer, B 2000:1). The carvings have been found on a number of objects made out of various materials, not only on raised stones (Harrison 2009:52f). Findings from different locations in Scandinavia and eastern Germany indicate that runic writing was known and established during the early centuries of the first millennium. A larger number of the oldest runic inscriptions in Scandinavia have been discovered during excavations of sacrificial bogs in Denmark. These can be dated as far back as the second century A.D. and mainly consists of runes carved onto weapons and armoury (Snædal 1994:9).

Objects associated with the social elite during the Viking Age have been discovered with runic markings on them. These artefacts are created from valuable materials. Medallions, fibulas, weapons, golden beakers and circlets can be linked to the social elite and religious ceremonies of the time. Runes were not only carved on extravagant items. Tools and everyday objects with inscriptions can also be found, for example combs, shaving equipment et cetera (Gustavson 2002:22f). Runic writing was probably mainly used by the social elite in Scandinavia during the first centuries AD, and was later spread to other social groups (Gustavson 2002:23). This social division between the classes can also be observed during the early Middle Ages with the introduction of Latin (see 4.2.4. – *Runes and common people*).

Luxurious graves are associated with members from the social and/or religious elite. Rune stones are not grave markers, however they may commemorate the dead and are a social manifestation in the landscape.

Analysis concerning the construction of grave monuments in early Christian cemeteries and rune stones found in the northern region of Västra Götaland indicates an overlap between the two types of monuments. This suggests a slow progression into a time of changing social structures with other ways to commemorate deceased relatives and manifestations of wealth and power. If this is the case, the first half of the 11<sup>th</sup> century is a transition period with changing social values, with remains of older traditions still at work (Kitzler Åhfeldt 2011). This material indicates the gradual adaptation to “new” way of life, either effecting or affected by the social elite.

By analysing the parish structures in Scandinavia based on the distribution of parish churches through “Thiessan polygons” (a mathematical calculation map, not a representation of actual parish borders) we can see a structural image emerge. In the region between the lakes Vänern and Vättern, the density of parish churches is great. In order to support them there had to be a certain number of people living in the area (Jakobsen 2013:93f). With the dense number of churches and the dependence on a certain number of individuals/families living there we can assume that the population in this region was dense as well. It is within this region we also find the dense concentration of rune stones in Västra Götaland. So it is arguable that there is a connection with Late Viking Age rune stones and the construction of churches, which would indicate changes in the social dynamics during the 11<sup>th</sup> century.

#### **4.2.4. – *Runes and common people***

From what we can learn from the archaeological material, there are indications that not only the higher classes knew how to read and write runes during the Viking Age. In *Germania* (circa 100 A.D.) written by the Latin author Tacitus we find the earliest mention of what could be runic writing in the Germanic countries. It is presented in a context of everyday life within a small community (Enoksen 1998:21f).

Runic inscriptions have been found carved into various materials, unfortunately organic materials (wood, bones, antlers et cetera) deteriorate quickly and only few of these objects are found during archaeological excavations. Artefacts made of valuable metals with runic texts on them are not uncommon (Gustavson 2002:20). The Arabic writer Ibn Abi Jakub el Nedim mentions the usage of letters carved into wood amongst the Nordic people during the 10<sup>th</sup> century A.D. (Enoksen 1998:22) Archaeological excavations have shown that the usage of runes in the Middle Ages was common, and that many people during the Viking Age probably could read them in further extent than we might think (Gustavson 2002:19). The usage of runes was common on various types of objects in the centuries following Christianisation of Scandinavia. Carvings have been found on objects from the Middle Ages ranging from grave slabs, church bells, combs, bones and wood. It has also been determined that it was still used as a legitimate literary source for communication (Palm 1994:54). Latin writing was during the Middle Ages mainly used by the higher ranks of society, a language for the elite (noblemen, royalty and the church). The majority of the Latin text was used for administration and power, but the runic writing lived on amongst common people and can be associated with their everyday life (Andersson 1994:40). How does this reflect on the usage of runic inscriptions by the general public in during the Viking Age? Much of the discussion is guided towards high-ranking members of society, which in itself can be an issue. Extensive archaeological excavations could perhaps show another image of the material. We can still however look at the runes through the eyes of powerful people. Analysing the social elite does not mean we cannot see the “general public”, since there is no need to manifest power if there are no one to manifest your superiority at.

The use of runes was probably highly developed and widely used during the early Middle Ages, even though Latin was the language of elite. This could reflect on the extent to which people in general could read and write runes during the Viking Age.

#### **4.2.5. – Bridges and rune stones**

There are seven stones mentioning the construction of bridges known in Västergötland. They are all interpreted as Christian, and at least one of them is dated to the later part of the 11<sup>th</sup> century (Sawyer, B 2000:134f, Theliander 2004:17). However, there are seven additional stones that can be connected with bridges, either as located close by or that have been found incorporated into the structures of bridges (see *Rune stone database* in Appendix 1).

“Bridge stones” creates a unique insight on communication. These stones are also manifestations by someone, manifesting to others that they have the power to construct something that connects people (Brink 2002:104). Another aspect could be that the person/persons not only had the power construct a bridge, but also deconstruct it, the ability to *control* movement in the landscape.

One of the oldest know laws in Scandinavia is Västgötalagen, it is mentioned that the bishop Bengt in Skara built bridges so that Christians easily could go to church. This creates a relationship between the construction of bridges and early Christians in Västergötland. (Brink 2002:108) None of the stones analysed here mentions bridges, but the relationship between early Christians and certain types of rune stones is an interesting aspect for the analysis of the Viking Age. A large percentage of the bridge stones can be contributed to women, whom are heavily underrepresented as patrons in the rune stone material in general (Sawyer, B 2000:134ff).

The erection of rune stones in relation to graves, churches, borders and cemeteries could be an indication of social status. This includes bridges, waterways and fords as well (Williams 2013:65). Stones situated near bridges do not necessarily mention the construction of a bridge

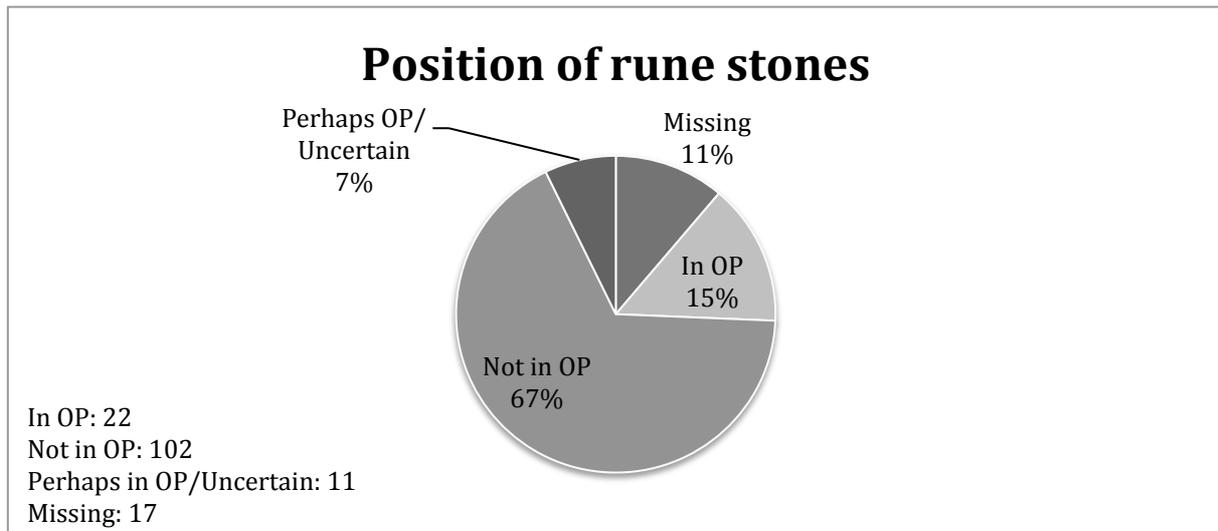
(see forthcoming sections about Vg 127). How are these supposed to be interpreted? Was it a local leader erecting a stone at tactic location and by doing so manifesting him/herself through both the bridge and the stone?

## 5. – Discussion/Analysis

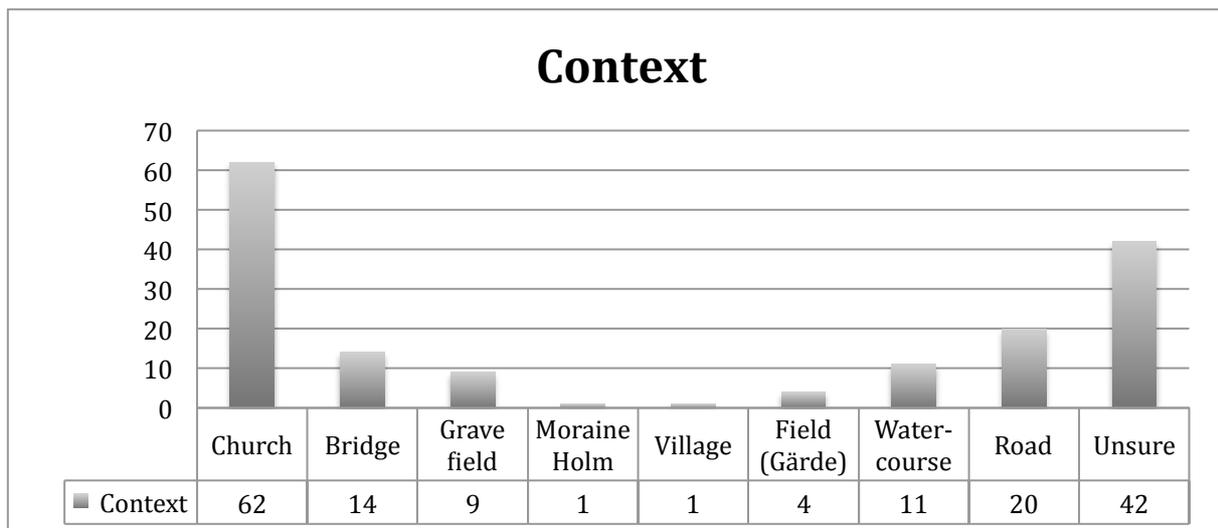
In the search engine FMIS (the database for the Swedish National Heritage Board containing historical and archaeological material) there are 152 genuine rune stones registered in the region of Västergötland, however some of these are missing but their previous locations are registered in the database (see Table 1). The rune stones in this thesis have been chosen because of their central location (Map 2). In the research area a few hundred are included. These are Kållands, Laske, Skånings, Valle, Gudhems and Vilske hundred. Not all rune stones within in these hundreds were a part of the analysis, the stones analysed here were handpicked with the help of *Västergötlands Runinskrifter* in order to get a verity of rune stones. They were also chosen within a smaller area in order to make the field analyses. The main rune stones, Vg 127 and Vg 128, are both situated in Laske Härad. They were chosen since it was possible to see early on that they were most likely in two different types of locations. High density of runic inscriptions with a variety of carvings gave the opportunity to analyse a number of these in the field. All of them are located close to Skara, either south, southwest or west of the town. As mentioned, the stones analysed here was handpicked in order to get at a variety of locations and different contexts in order to create a wider picture in connection with the social dimensions at multiple locations expressed through rune stones. This will be done as Cornell & Fahlander (Cornell & Fahlander 2002) suggests by analysing a specific location in the landscape and incorporate it into the larger spectrum.

The first step in the analysis is a basic summary of the information and interpretations made from previous investigations. The main source of information is *Västergötlands Runinskrifter 1940 – 1970*, which is a basic survey of all runic inscriptions in the region. As mentioned before, there is a lack of information and recent analysis of the runic material in the region. *Västergötlands Runinskrifter* is however a helpful recourse for information concerning the rune stones in Västergötland.

## 5.1. – Analysis step one: selection of runic inscriptions

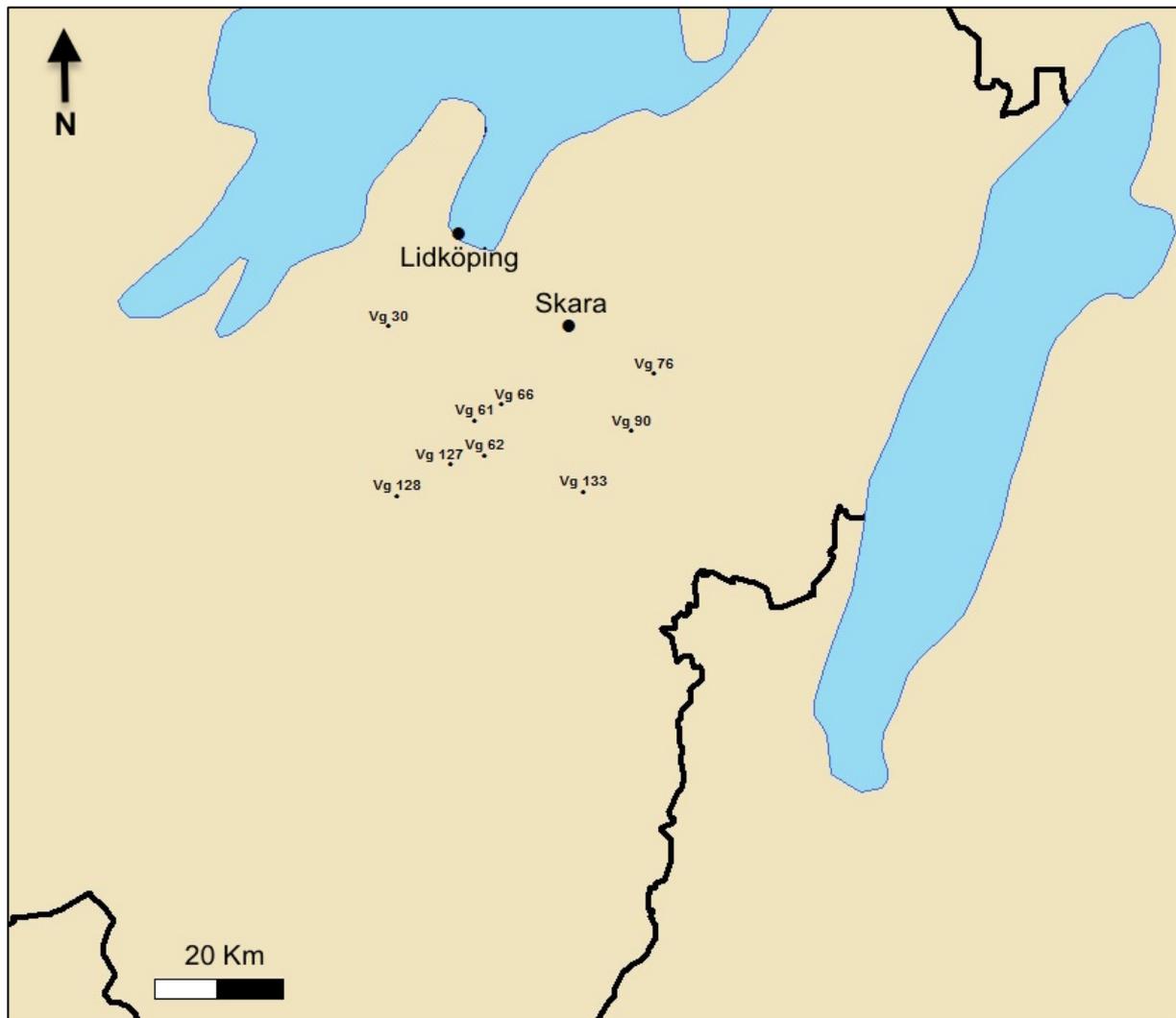


**Table 1.** Pie chart representing the locations for the 152 rune stones found in Västergötland. OP= Original Position (based on Svärdröm & Jungner 1970).



**Table 2.** Bar chart representing the contexts for the 152 rune stones found in Västergötland. Some of the stones can be associated with two contexts so the numbers in the chart are higher than 152 because of that, 164 in total (based on Svärdröm & Jungner 1970).

The tables above are based on information from FMIS and Svärdröm and Jungner 1970, They represent a good overview of where/how the 152 registered rune stones in Västergötland are located. Table 1 indicates if the stones location has been altered or not. If Svärdröm & Jungner have not mentioned any alteration of the stones location these are considered to be in their original position, but there is of course a possibility for errors regarding this. Table 2 represents the different contexts in which the stones are be found. These are the author's personal interpretations of the locations based on the material presented by Svärdröm and Jungner, with a maximum of two types of contexts per stone.



Map 2. The location of the rune stones chosen for analysis

### 5.1.1. – VG 30 (FMIS: Järpås 21:1)

Vg 30 is located in the parish church in Järpås. It is situated in the western wall next to the entrance. The stone is 1,25 meters high and 0,57 meters wide and made out of dark granite. The church was constructed in 1805, which means the stone must have been incorporated then or sometime after that. Close to the church lies a shallow basin, and the text on the stone might indicate that the stone had been located in the area previous to its incorporation to the church.

The inscription is read as following:

× **kabr** × **uk** × **uikmanr** × **satu** × **stin** × **þisi** × **uk** × **karþu** × **bru** × **aftir** × **þuru** ×  
           5          10          15          20          25          30          35          40

*Kanþr(?) ok Vigmann(?) sattu sten þennsi ok gærðu bro æftir Þoru.*

»Kanþ(?) och Vigman(?) satte denna sten och gjorde bro efter Tora.»

English translation:

“Kanþ(?) and Vigman(?) placed this stone and made bridge after Tora”  
 (Svärdström & Jungner 1970:46ff).

Here we can see the relationship between women and the construction of bridges (with the female name Tora present). It could also indicate that the stone had been placed in the area if there were a need for a bridge.

### 5.1.2. – VG 61 (FMIS: Edsvära 20:1)

The first of two rune stones situated in Edsvära is can be found in a small community/farmstead called Härlingstorp. Previously it was located 40 meters from this location, close to a small stream, which was probably its original position. In 1920 it was relocated to its current position. The stone is slightly damaged on the right side of the inscription, but otherwise in good condition. It is 1,14 meters high and 0,91 meters wide, made out of red/grey granite. The first mention of the stone is from 1672, where it is found at its previous “original” location.

The inscription reads as following:

: tula : sati : sten : þ ... [iR KR : sun] : sin : harþa × kuþon : trok : sa × uarþ : tuþr : o : uastr :  
                   5      10                  15          20                  25          30          35          40          45          50  
 uakm : i : uikiku :  
 55          60

*Tola satti sten þ[annsi æft]iR Ger, sun sinn, harða goðan dræng. Sa varð döðr a vestrvegum i vikingu.*

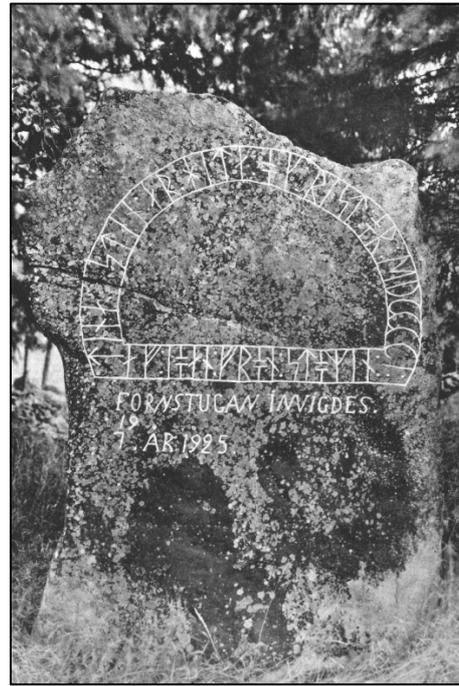
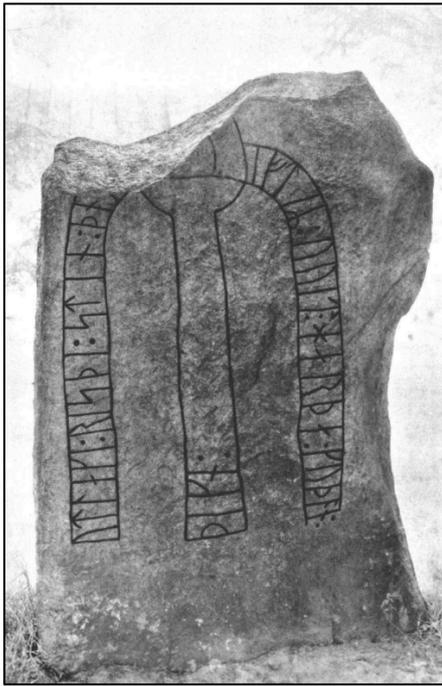
»Tola satte denna sten efter Ger, sin son, en mycket god ung man. Denne vart döð på västervägar i viking.»

English translation:

“Tola set this stone after Ger, her son, a very good young man (dræng). He died during traveling west on Viking”

As seen, the inscriptions mention both *dræng* and *Viking*, and the stone/inscription could be a possible link to the Scandinavian occupation of England during the turn of the 11<sup>th</sup> century. (Svärdström & Jungner 1970 1970:90f).

### 5.1.3. – VG 62 (FMIS: Edsvära 39:1)



**Fig 1.** (Right). Vg 62 as depicted *Västergötlands runinskrifter* 1940 – 1970. Original inscription  
**Fig 2.** (Left.) The other side of the stone with the modern inscription from 1923.

The second stone in Edsvära, Vg 62, has an interesting story. A local farmer discovered it in 1900. It had previously been used as a bridge over a small stream, and the runic inscription was not observed until 1901. The stone was tampered with in 1925. A new inscription was carved onto it, commemorating the construction of a local museum for prehistoric objects from the area.

The inscription is one of many from Västergötland mentioning the word *thegn*. Approximately 2,20 meters high and 1,5 meters wide and made out of grey/red granite with the inscriptions facing east.

The inscription reads as following:

utlaki : rispi : stin : þn- iftir : uuit : harþa : kuþon : þikn :  
 5 10 15 20 25 30 35 40

*Utlagi resti sten þenn[a] æftir Övind, harða goðan þegn.*

»Utlage reste denna sten efter Öjvind, en mycket god tägn.»

English translation:

“Utlag erected this stone after Öjvind, a very good thegn”  
 (Svärdström & Jungner 1970:91f).

### 5.1.4. – VG 66 (FMIS: Norra Vånga 1:1)

Vg 66 is first mentioned in the 17<sup>th</sup> century. The stone has been moved at least two times throughout its history. Until recently it was located at the old post office, and previous to that it was standing 20 meters northwest. During the field analysis for this thesis it was discovered that the stone had been moved again, this time to the church in Norra vånga (approximately one kilometre south from its previous location).

Made of grey and red granite, it is 1,6 meters high and 1,08 meters wide. Some damage and weathering has affected the stone but the inscription is still clear. See field analysis for more information.

The inscription reads as following:

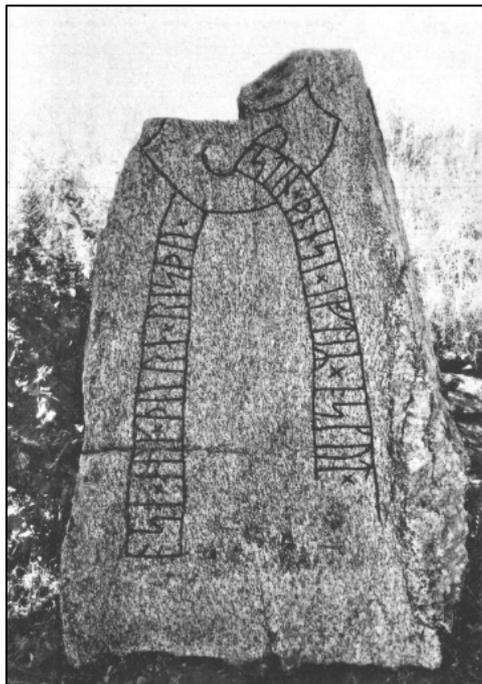
osa × auk × þura × rispu × stin × þonsi × iftir × oskut ×  
5 10 15 20 25 30

*Asa ok Þora restu sten þannsi æftir Asgöt.*

»Åsa och Tora reste denna sten efter Åsgöt.»

English translation:

“Åsa and Tora erected this stone after Åsgöt”  
 ( Svärdström & Jungner 1970:107f).



**Fig 3.** (Right). Vg 66 as depicted in *Västergötlands runinskrifter 1940 – 1970*. Previous location.  
**Fig 4.** (Left). The stone as it is seen at its new location in front of the parish church, April 2015.

### 5.1.5. – VG 76 (FMIS: Bolum 77:1)

The rune stone Vg 76 was discovered in a stone mound circa 20 meters east of its present location. It was badly damaged and was later reconstructed. It is now located at Råberget, where it has been since 1926. This stone also mentions the construction of a bridge, however no female names are present at the inscription.

The stone type is dark grey granite and the stone is 1,15 meters in height and 0,57 meters wide. The earliest depiction of the stone is from 1687, in which the stone does not show any signs of damage. Linguistically the types of runes that were used are of a later type, though it is hard to get a definite date.

The inscription reads as follows:

[s]uen : gislar : sun : let : gira : bro þæsa firir : sial : sina ok [- - þur sins :] þat ær : reṭ :  
 5 10 15 20 25 30 35 40 45 50 55  
 h[- ær]ium : atþipia : bat[ær]  
 60 65 70 75

*Svenn Gislar[s]sun let gæra bro þessa fyrir sial sina ok [fa]ður sins. Þat er rett hærium at biðia Pater.*

»Sven Gislarsson lät göra denna bro för sin och sin faders själ. Envar bör (här) bedja Pater (noster).»

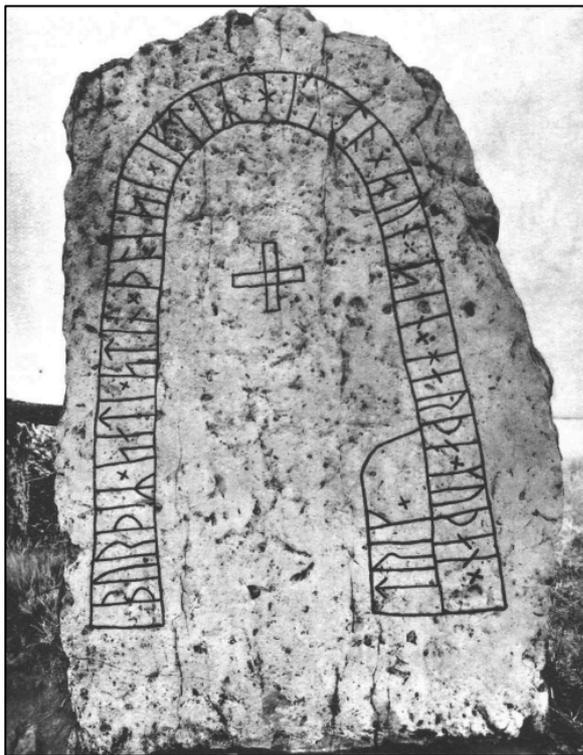
English translations:

Sven Gislarsson constructed this bridge for his father and his fathers' soul. Envar should (here) pray Pater (noster).

(Svärdström & Jungner 1970:127).

The line *pray Pater (noster)* is a clear indication of Christian values, this in combination with previous discussion of bridge stones and Christianity is another indication of the relationship between bridges and Christianity.

### 5.1.6. – VG 90 (Håkantorps 42:1)



**Fig 5.** (Right). Vg 90 as depicted in *Västergötlands runinskrifter 1940 - 1970*, with the inscription filled in.

**Fig 6.** (Left) The stone in April 2015.

VG 90, is located close to the church and former monastery of Gudhem, and approximately 1,5 kilometres from the local church in Håkantorps. The site is locally known as Runshall. It is possibly one of the earliest rune stones in Sweden mentioned in literature. The Swedish king Magnus Ladulås mentions the stone in a letter from 1287; he mentions it as marker in the landscape.

The structure of the inscription is very simple, the runes are written in arch resembling a portal. A portal shape like the one found on Vg 90 is possible a reference to a section in the Bible (John 10:9) and the entrance into heaven. In the inscription we find the word *dræng*. No

mention of movement of the stone can be found, however it had at some point fallen or been overturned. This could have happened during tampering with the hill the stone is located on. During the second half of the 19th century the stone was re-erected to the position found today.

The inscription reads as following:

**burþir × sati × stin × þonsi × iftir × hj - - o × sun × sin × harþa × kuþan × trik ×**  
5      10      15      20      25      30      35      40      45

*Broðir satti sten þannsi æftir H ..., sun sinn, harða goðan dræng.*

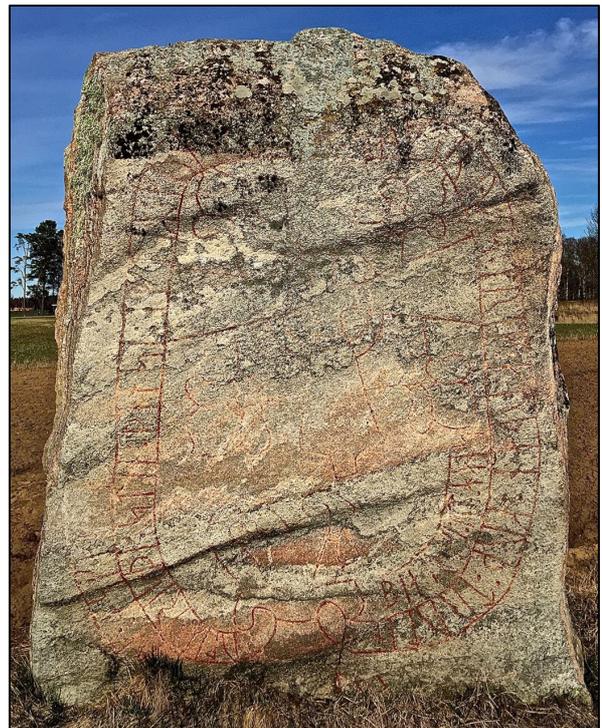
»Broder satte denna sten efter H ..., sin son, en mycket god ung man.»

Translated to English:

“Broder (Brother, as a name) put this stone here after H..., his son, a very good young man (dræng)”.

(Svärdström & Jungner 1970:149ff, Bertelsen 2015:61).

### 5.1.7. – Vg 127 (Larv 3:1)



**Fig 7.** (Right). Vg 127 as depicted in *Västergötlands runinskrifter 1940 - 1970*, with the inscription filled in.

**Fig 8.** (Left) The stone in April 2015, colour heavily faded.

VG 127 (or Larvs hed) is located two kilometres northeast of the church in Larv. The height is approximately 2,67 meters. On the stone a large cross, surrounded by the runic line shape as a serpent. The structure of the inscription is complex, considering its size and detail. We can find some deeper religious meaning in the structure of the cross motif, with the four leafs surrounding the cross representing the tree of life (see fig). The inscription is shallow, but can be seen clearly.

The inscription reads as following:

ulir : rispi : | uk : askatla : | stin : þensi : eftir : kunar : sun : sygtrygs : trik : kuþan : kuþ :  
           5      10     15      20      25     30      35      40      45      50      55      60  
 trutin : biargi : ut : hans  
       65      70      75

*Ölver(?) resti, ok Askatla, sten þenssi æftir Gunnar, sun Sigtryggs, dræng goðan. Guð drottinn biargi and hans.*

»Ölver(?) och Åskatla reste denna sten efter Gunnar, Sigtryggs son, en god ung man. Herren Gud bärge hans ande.»

Following is the translation of the stone:

“Ölver(?) and Åskatla erected this stone after Gunnar, son of Sigtrygg, a good valient man. May God lift his spirit” (Bertelsen 2015:69).

The line “and Åskatla” can be found on the outside of the main inscription line (see fig). This kind of ornamentation is not that common in Västergötland, but bares more resemblance to those in Sörmland. The stone is first mentioned during a rebellion in 1529 (Svärdström & Jungner 1970:243ff). There is no mentioning that the stone has been moved, so it is assumed to be standing in its original position.

#### 5.1.8. – VG 128 (FMIS: Österbitterna 14:1)



**Fig 9.** (Left). Vg 128 as depicted in *Västergötlands runinskrifter 1940 – 1970*.



**Fig 10.** (Right). The stone in April 2015.

The rune stone in Österbitterna is situated in a field east of the old village, approximately 800 meters north-northeast from the old church village in Österbitterna. It is placed directly on the bedrock and erected with the help of smaller rocks. The stone is mentioned in several documents from the late 17<sup>th</sup> century and can be located to the same position as it has today. The material is grey granite, 2,23 meter high and 1,65 wide with the inscription carved on the south-southeast oriented side of the stone. In general the inscription is shallow, the ornament

shaped in a rectangular form with a large cross in the centre. Some of the runes at the bottom of the inscription are missing due to some damage on the stone. Aside from that the stone is well preserved. In 1861 a fire plagued the small village of Österbitterna, but the stone did not sustain any damage.

The inscription is read as follows:

hakun · ouk · þurkuþr · risþu · stin · þina · iftir · faþur · sin · r - - - buṭa · kuþan ·  
 5            10        15        20        25        30        35        40        45        50

*Hakon ok Þorgotr restu sten þenna æftir faður sinn ..., bonda goðan.*

»Håkan och Torgöt reste denna sten efter ..., sin fader, en god bonde.»

English translation:

“Håkan and Torgöt erected this stone after ..., their father, a good bonde”  
 (Svärdström & Jungner 1970:245f).

### 5.1.9. – VG 133 (FMIS: Marka 5:1)

Discovered in 1934, this rune stone was severely weathered and had lain overturned with the inscription facing the ground. Some sections of the inscription are hard to read and the surface is unfortunately gradually fading away. The material is red gneiss with surfaces a 2,4 meters high and 0,87 wide. Stylistically the inscription is in a familiar horseshoe shape with a line on the inside of the line (see also 4.3.6. – VG 90).

The inscription is read as following

- - - þurir : si - u : su - raisþi · stin · þisi · - ftir · suin · þrupur · sin ·  
 5            10        15        20        25        30        35        40        45

*[Sten]þurir(?), Si[ð]u(?) sunn, resti sten þenssi æftir Sven, broður sinn.*

»[Sten]tore(?), Sidas(?) son, reste denna sten efter Sven, sin broder.»

English translation:

“(Sten)tore(?), Sidas(?) son erected this stone after Sven, his brother”  
 (Svärdström & Jungner 1970:254).

## 5.2. –Analysis step two: Field analysis

### 5.2.1. – Field analysis

In the spring of 2015 a short field study was conducted as part of this thesis. It was a small but important survey aspect in the process of understanding and analysing rune stones and the places where they are situated. Since the information concerning rune stones is not regularly updated, a field study was the best way for collecting information concerning the context of the inscriptions. The guidelines for the survey was:

- How/where are they situated in the landscapes
- How is the view from the stone?
- Are they considered to be in situ?

Four of the runic inscriptions were part of the field analysis. The goal was to visit five locations, but one, Vg 62 in Edsvära, was passed due to time limitations and difficulty to

locate. These four inscriptions were chosen because of their location, possible original position and variation. Of course the possibility to visit all of them during the field analysis was crucial factor as well.

The inscriptions visited were Vg 90, Vg 66, Vg 127 and Vg 128. All of them are situated in various types of locations; even though some are fairly close to each other, the contexts were different. However Vg 66 was left out of the field analysis when it was discovered that it had been moved almost a kilometre away from its previous position, thus taking it out of its context.

Other rune stones can be found in the area, however these have either been moved from their original position, badly damaged or has been tampered with. Therefore they are not representative for this analysis where original position is an important factor.

### **5.2.2. – Vg 90 (*Håkantorp 42:1*)**

In the parish Håkantorp (now an external part of the town Falköping) we find the rune stone called Vg 90. It is situated on what is locally called *Runshall (Runic Hall) or Runmosse (Rune Bog)*. The stone can be hard to locate since trees now obscure it. It is positioned on a small sandy hill in the landscape. The inscription is turned in a northeast direction, facing the modern road (but it is possible that the road is of older age).

Visibility of the surrounding landscape is good, and without vegetation the stone can clearly be seen from a distance. This might indicate that the landscape was not so vegetated during the Viking Age/early Middle Ages. There is also the possibility that the rune stones may have affected the formation of the landscape, holding some kind of power/authority? It might not seem as manifesting in the landscape as some of the other stones, but it is fairly large. Approximately 2 meters in height and 1,3 meters wide. A small cross is carved into the middle of the stone. The formation is very simple, similar to the symbol for plus (+) and is a prominent feature in the inscription despite its modest size.

The landscape is slightly rolling with plenty of fields and forest. West of the stone there is something that is similar to an older travel path, though it is more likely something dug out later in time. According to local traditions, people have been looking for gold in the area around the stone. There are only a few other archaeological features around. Some stone formations, graves, stone circles, remains of prehistoric farming, older roads (indications) and stray findings of human activity have been observed.

### **5.2.3. – Vg 127 (*Larv 3:1*)**

The rune stone is standing at the eastern boarder of Larv village. It is a large stone situated in the middle of a modern farming field, located on a height in the landscape with clear visibility in all directions. Thou it is difficult to tell how the view was during the Viking Age/early Middle Ages. The surrounding landscape is however seemingly flat, slightly tilting down to the north and south. There are some similarities to the landscape around Uppåkra, but with more vegetation and smaller fields. The ridge on which the stone is situated stretches southwest – northeast with the modern day roads almost reaching the top, with the rune stone placed in between the roads.

With some knowledge about how and where humans have placed objects throughout history the location of the rune stone in Larv is logical. The view over the land is good; it is hard not to appreciate the location looking out over the slopes. The size the stone really manifests itself in the area; it is difficult to miss while traveling by. However, the inscription

is directed to the west (towards the town). This means travellers would not have been facing the inscription while entering the village from the east. If the stone is in its original position, it means that people traveling west to east through the village would see. Why it is situated in this direction is hard to tell. One reason might be that a large number of travellers bound eastward came through that route. The stone can clearly be seen in a Christian context since it contains a large cross and the inscription mentions the words *God* and *soul*.

Within the village and the surrounding area, a number of historic and prehistoric monuments can be found. A good amount of mounds, remains of settlements, grave fields and stone circles are located not far from the rune stone. There are also remains of older roads in the village, though no indication or suggestion of their age can be found. As many of these objects are found along the road leading through Larv and the roads location at the ridge it could be of great age. Ridges and elevated places with flatter surfaces make traveling easier. With the amount of objects located here, this is a highly plausible suggestion.

#### **5.2.4. – Vg 128 (Österbitterna 14:1)**

The landscape in which the rune stone Vg 128 is situated differs from the other stones analysed here. Only few other archaeological features can be found in the close vicinity of the stone. However, there is a great amount of prehistoric sites found in the areas further away from the stone.

The rune stone is located in a small field used for pasturing. Bedrock and various amounts of stones are scattered around and the ground contained a high amount of water. The area is very different from the others in the survey and with its large number of stones, visible bedrock creating a small plateau, watery ground and most interesting of all, the visibility of the rune stone. To the north, east and southeast the view of the area is decent with slightly rolling landscape with farms and fields stretching out. To the northwest, west and south, sight is obscured by bedrock and small hills. The inscription is directed in a southeast direction, which obscures in some manner. It is placed directly at the bedrock with a number of smaller stones supporting it, but not much else. Local legend says it is supposed to have stood close to the old village road though it is not clear where this is supposed to have gone through. However, some indications suggest that it could be what is now a small ditch next to a dry stonewall east of the inscription. The hollowness of the ditch shares some similarities with older travel roads and further south it is widening and goes into a rough traveling patch still used. Considering the terrain, the road would logically not be going across the stony terrain but rather to the east, where the ground is easier to travel. Some of the remaining farms in the area might have fairly old lineage, though only a few still exists in the area.

In general the stone and its inscription share similar features with those found at Vg 127, inscription in a horseshoe shape with large cross in the middle. Smaller vegetation and bushes are growing around it and it could be considered a little unkempt. If it is seen as a manifestation in the landscape, why is it placed in an area with a lot of stones? Wouldn't that make it less visible, or did the view not play an important part here? Since other stones have been located in areas with better visibility in comparison to this one and the stone in Larv would be a good discussion about the variation of locations.

The location and how the stone is situated in the area suggest that it has been in a more private sphere. If it is considered to be a private location, to whom was message/inscription was directed towards; travellers or people in the living there? Was it situated in a social context only open to a few people?

Traveling southwest along the roads from Österbitterna plenty of prehistoric features can be scouted. Erected stones, graves (with indication of the Iron Age), mounds, hill

fortresses, stone circles and a similar landscape as found near the rune stone. A few kilometres south of the stone, remains of an older road have been found, though it is difficult to see where it leads since the construction of modern roads and agriculture have destroyed it.

### **5.3. – Analysis step three: Digital analysis – Surrounding archaeological finds and contexts**

#### **5.3.1. – Larv**

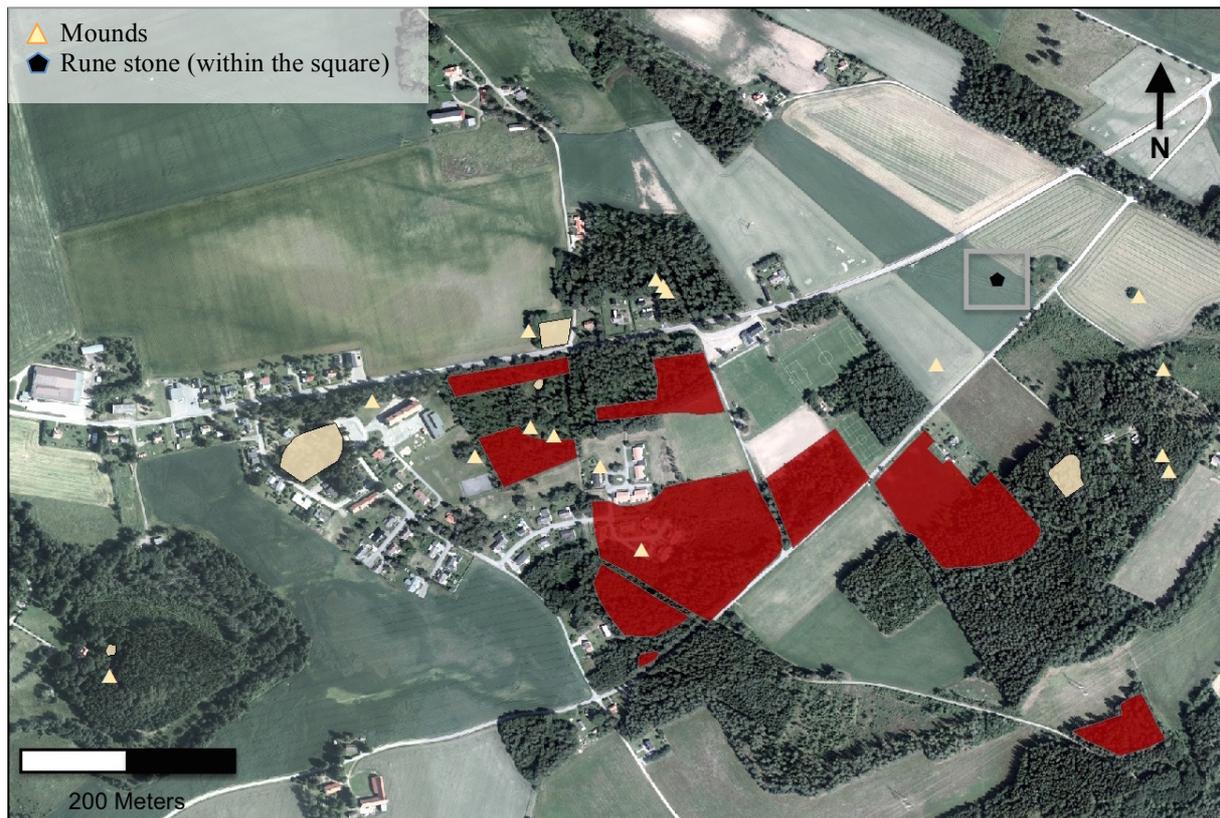
Within the landscape around Vg 127, a number of other archaeological features can be found. The majority of these are structures in the landscape; the only artefacts that have been found, consists of a few minor stone tools. No excavations have been conducted in the area, but the constructed features indicate the possibility of archaeological artefacts in and around Larv.

The landscape surrounding Larv contains a great number mounds and grave fields. These have (without archaeological excavations) been dated to around the Bronze and Iron Age. Several of the mounds are visible in the Digital Elevation Models. The large number of prehistoric graves in the area close to Vg 127 is a good indication of a population in the area previously in history. 16 individual grave mounds and four areas with grave fields are located within a one-kilometre radius from the rune stone.

The local church was constructed in the 1860s, however the baptismal fount is possibly from the 13<sup>th</sup> century, indicating that there could have been a church at the site during the early Middle Ages (Bebyggelseregistret.raa.se). This would mean that Larv (and its surrounding areas) had a population large enough to sustain a church during the early Middle Ages. Since there are Christian features on the rune stone it is possible to assume that Christianity had already gained ground in the area during the 11<sup>th</sup> century.

Another indication of longer periods of human activity is the fossilised farm fields/remains of agriculture southwest for the stone (towards the village). Nine areas have been found (the red areas in Map 3) in which indications of fossilised agricultural activity are present. The information was obtained from field surveys (conducted by Riksantikvarieämbetet in 1983) but unfortunately no further information or excavations can be found. Therefore it is not possible to give a conclusive answer to when these fields were in use and for how long they were active.

The presence of agriculture and graves fields/mounds in the area indicates that humans have been active in the area for a long time. Also, the stone itself shows the presence of humans in the landscape. Unfortunately no artefacts, graves and other human activity can directly be linked to the Viking Age (except for the rune stone). With human activity during the Early Middle Ages, and the grave mounds in the area in and around Larv, it is possible to suggest some form of social continuity from the Late Iron Age and onward (see Hansson 2001:14).



*Map 3. Archaeological features around Larv, the beige areas are grave fields and the red areas indicates fossilised agricultural fields.*

### **5.3.2. – Österbitterna**

Österbitterna has a very different archaeological context compared to Vg 127 out side of Larv. Only 14 archaeological features/findings aside from the rune stone are registered in the area. Seven of these are represented on the map (see map 4). I have chosen to exclude three flint tools, two flint daggers and two rock carvings (located in the southeast) since they are from the Stone and/or Bronze Age. They are also considered to be stray finds, with most of them found by local farmers in modern times.

One of the mounds was unfortunately removed sometime during the 20<sup>th</sup> century (location marked wit a circle in Map 4) during an expansion of the local sawmill. This was done without any archaeological documentation and nothing remains at the site. All the mounds, stone mounds and marked graves in the area have been dated to Bronze/Iron Age, though no archaeological excavations have been made in any of them.

Unfortunately, the amount of information gathered from archaeological features and findings in the area is low. Without archaeological excavations or surveys (and more stray findings) it is hard to determine how the local landscape was used. But there is a rune stone erected there for some reason. Perhaps it was not meant to be a dominant object in the landscape, but rather serve some other purpose? Maybe it carried a message for a local group, something not intended for people passing by, but rather towards a village or a group of households.



Map 4. Archaeological features around Österbitterna.

## 5.4. – Analysis step three: Digital analysis – Historical Maps

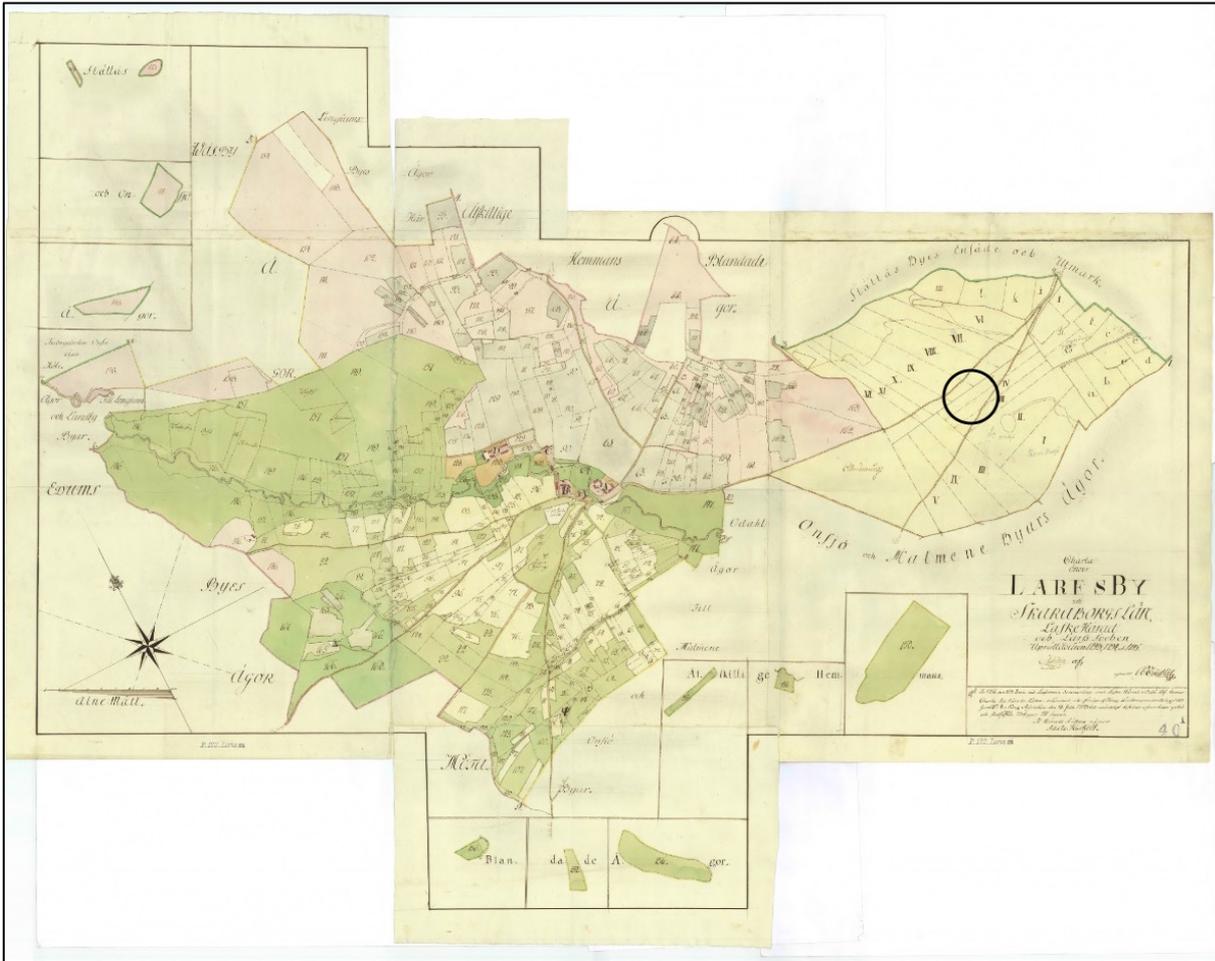
### 5.4.1. – Larv

There are three older historical maps depicting the area around Larv, the first one is *Storskiftes-kartan* from 1793, the second is *Enskiftes-kartan* from 1822, and the third is *Häradsekonomska-kartan* from 1877 – 1882. All of them are basic maps, made for administrative purposes and do not have any “artistic” depictions of houses or other structures. The landscape and depictions of roads, rivers and buildings are accurate compared to a modern map. In the map from 1822, it is difficult to determine the presence of woodland, however in the one map from 1877-1882, some areas (marked with green) are possibly wooded. This would mean that the rest was farmland used for agriculture, creating an open landscape. Therefore it is possible that the land around Larv was open, creating good conditions for visibility.

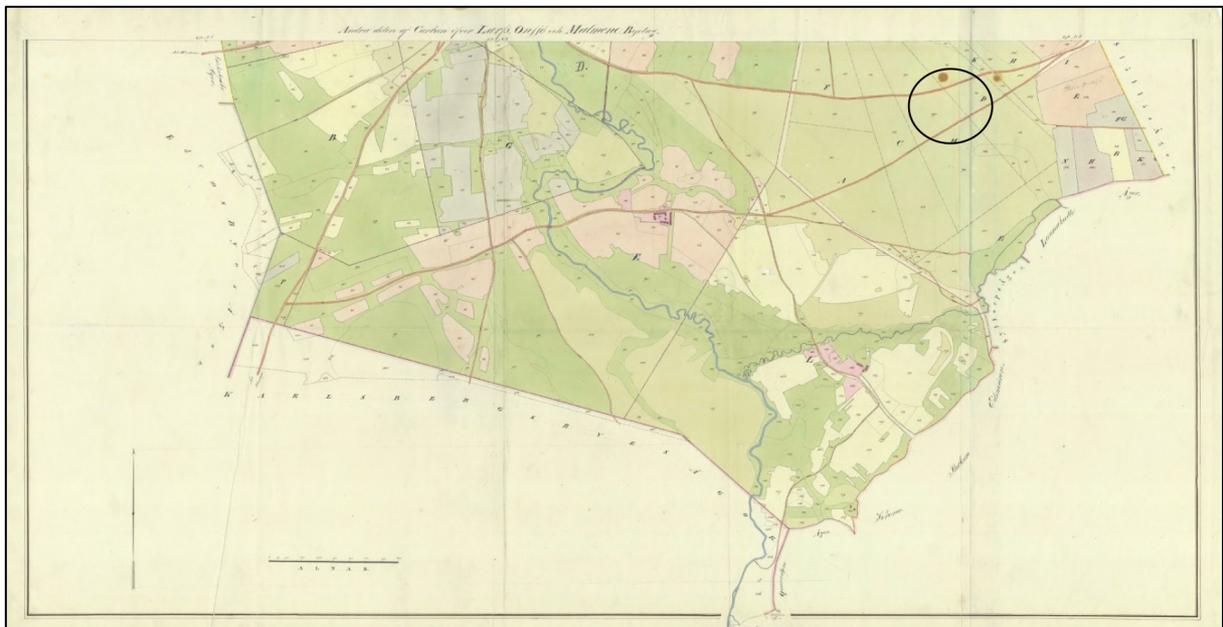
In the *Häradsekonomska-kartan* there is no indication of the rune stone. Its location can however easily be seen since the depiction of the landscape is of such a high quality. By using the *Georeferencing* tool in ArcGIS, it is possible to change the structure of the historical map with the help of a modern map in order to point out the exact location of the stone. The *Storskiftes-karta* has the same situation with no marker or indication for the position of the

stone. However, in the *Enskiftes-karta* there is a marker for the stone (R), indicating where the rune stone is positioned.

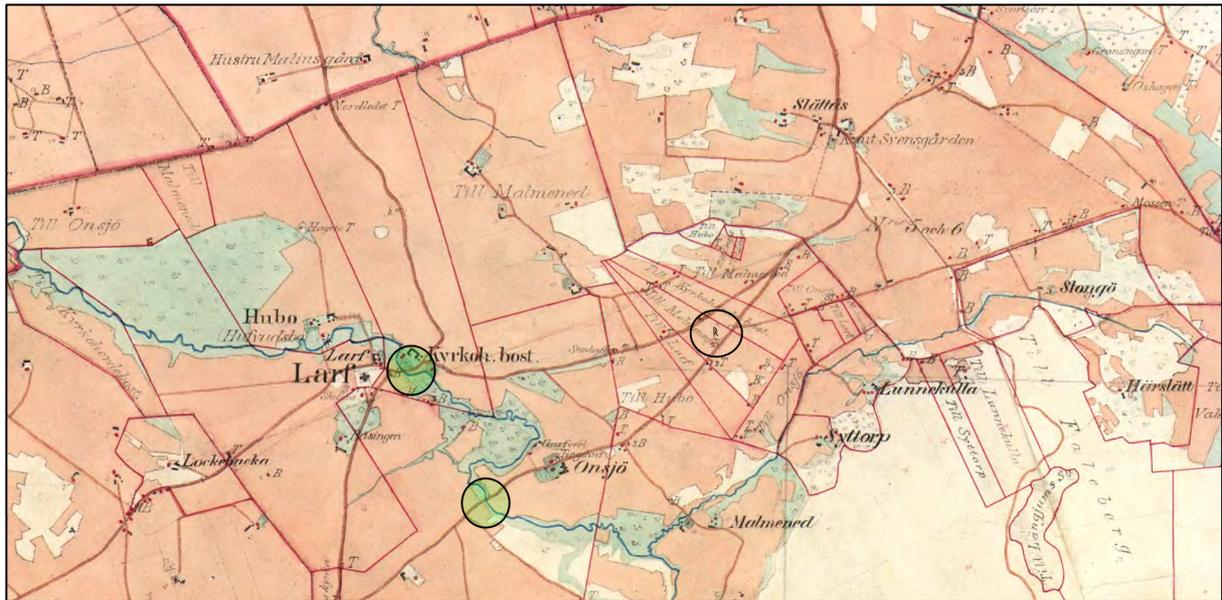
If we compare the three maps and how the rivers and waterways are depicted, there is a lot of resemblance with the modern size and structure of these. However, they were still obstacles for travellers. Without bridges it would be difficult to pass the larger river that runs through the landscape. Since the roads leading towards Larv from the east still has the same structure as in 1793, a logical hypothesis is that the structure of the roads are very old. If a church was located in Larv during the early middle ages there was of course a need for bridges to cross the river. As previously seen, there is a connection between rune stones, bridges and churches (see the section 4.2.4. – *Bridges and rune stones*).). The map from 1877 – 1882 clearly shows that the roads leading from the east are crossing river at two points (see Map 7). With prominent towns as Skara and Skövde (and Varnhem) located northeast, Lidköping to the north and Falköping and Gudhem to the east, we can assume that there was a need to cross the river in order to travel in those directions. Therefore the location of the rune stone is logical. The inscription is directed to the southwest making it possible to observe while traveling east/southeast.



**Map 5.** Map from the Storskifte in 1793 (the rune stone is located within the area of the circle)



**Map 6.** Map from the Enskifte in 1822 (the rune stone is located within the area of the circle)



*Map 7. The Häradsekonomiska karta from 1877 – 1882, the bridges crossings are marked with the green circles.*

### **5.4.2. – Österbitterna**

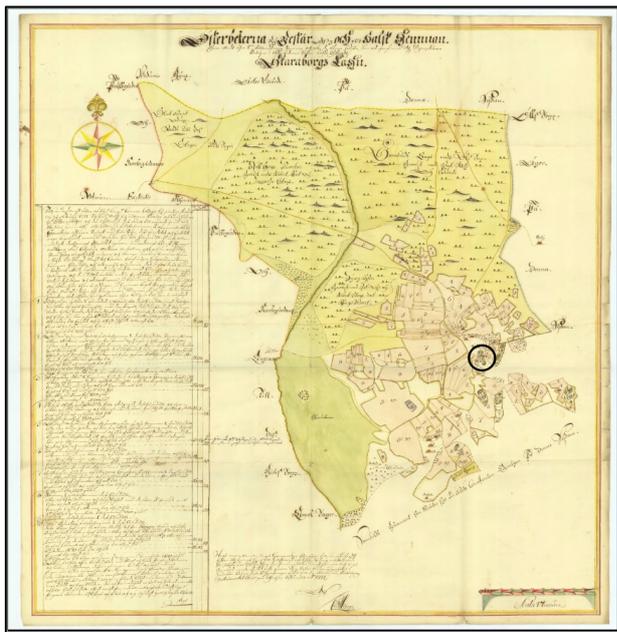
Several historical maps can be provided for Österbitterna. They all show the village and the surrounding area in great detail. In three maps the rune stone clearly marked, depicted clearly and much larger in proportion to other features in the landscape. The reason for this depiction is not apparent, the cartographer might have found it interesting or ecstatically attractive, or it had some local “fame” at the time.

A recurring problem with historical maps is that the locations and topography of the map does not always correspond with the actual landscape. This is possible to correct through georeferencing within ArcGIS and similar software, but in this case the recognisable features in the historical maps are quite accurate, hence no georeferencing is necessary. For Österbitterna two historical maps are used. Both are from 1721 and are fairly similar. The stone is situated within the circles on the maps.

On both maps we can see that at least towards the north and northwest the landscape was forested during this time period. No wetlands are marked on the maps, but the roads going through the village are quite accurate compared to modern maps or satellite images. The village is not large but there are a good amount of fields belonging to its inhabitants. Directly towards the south and southeast of the village, the outlands start. These areas correlate with the areas with higher elevation and rock filled soil, which is a possible reason that the locations were not used for agricultural activities. This could also be the reason that the rune stone has not been moved or destroyed, since the soil is filled with bedrock and is today most likely used for pasteurising livestock. In that case, the stone would not have been an obstacle for the farmers. We can find other inductions of a rather stony landscape surrounding Österbitterna. On the second map, the area marked with dense forest also shows a great number of hills or sections where the bedrock is penetrating the surface.



**Map 8.** (Right) Map over Österbitterna, 1721  
(Left) Zoomed in version of the map with the stone encircled.



**Map 9.** (Right) Map over Österbitterna, 1721  
(Left) Zoomed in version of the map with the stone encircled.

## 5.5. – Analysis step three: Digital analysis – The Digital Elevation Models

The Digital elevation models are not only used as basis for the viewshed analyses. There are other features that can be detected in the landscape while analysing the DEMs. This part of the analysis focuses on features that are significant for the analysis of rune stones in the landscape, based off of discussions from previous chapters. The number of points in the DEM used here is one per every 0,4 meter.

For each location, three separate DEMs were created in order to show how it is possible visualise the landscape in different ways depending on how we recreate it. A DEM with a large number of elevation steps can be more precise than a one with less. But depending on what features you want to observe in the landscape, less elevation steps can be more efficient than a higher number.

### 5.5.1. – Larv

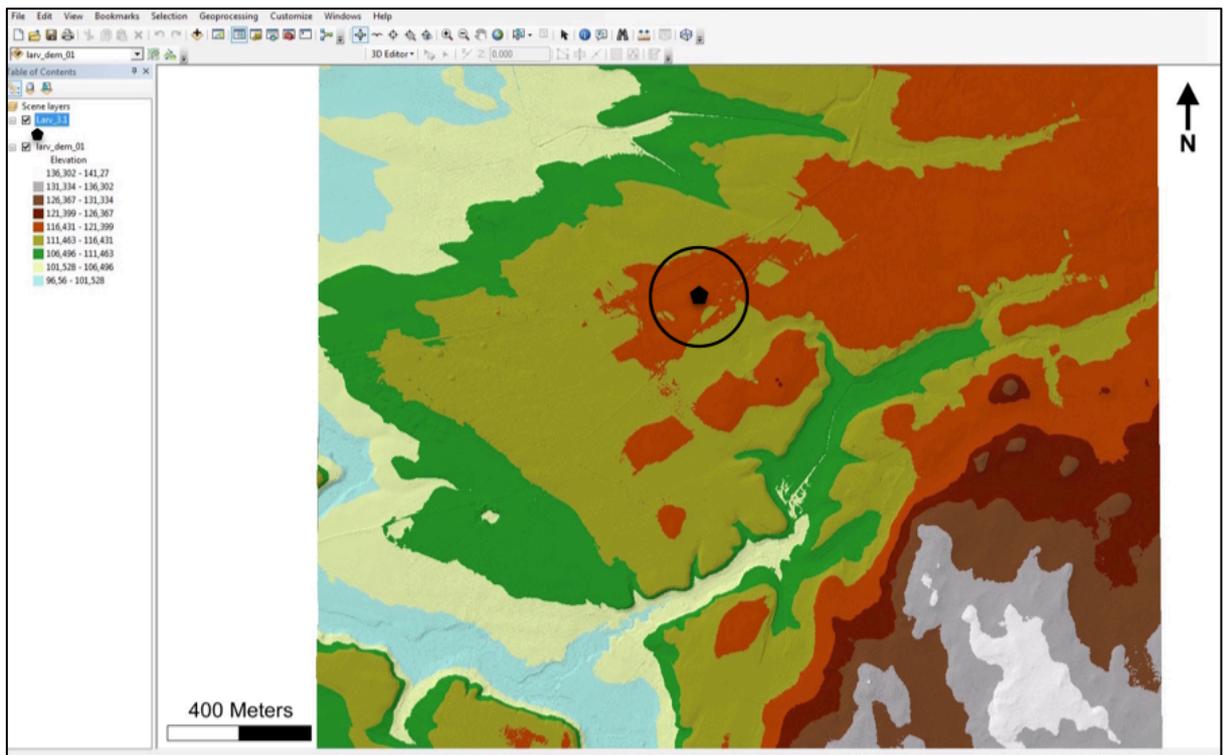
Vg 127 in Larv is positioned at a location with great visible in several directions. In order to see how the rune stone is situated in the landscape I have made three DEMs. These have varying height definitions, the purpose of this is to visualise where the stone have been placed in contrast to the visibility. As we can see from the historical maps, the area has possibly had little vegetation in the past, similar to its present situation. The stone is approximately located at an altitude of 116 – 117 meters above sea level. As seen in fig 1, blue represents the lowest elevation in the landscape, and white represent the highest.

On the first map, there are nine different elevation levels (see Map 10). The second has 20 elevation levels (see Map 11), and in the third there are a total of 32, which is the maximum capacity for ArcGIS (see Map 12). The elevation of the landscape ranges from 96,5 meters to 136 meters above the sea level and the variations of altitude in the land are distinct in all three DEMs. With three different maps, it is possible to define how certain elevations stands out in the area.

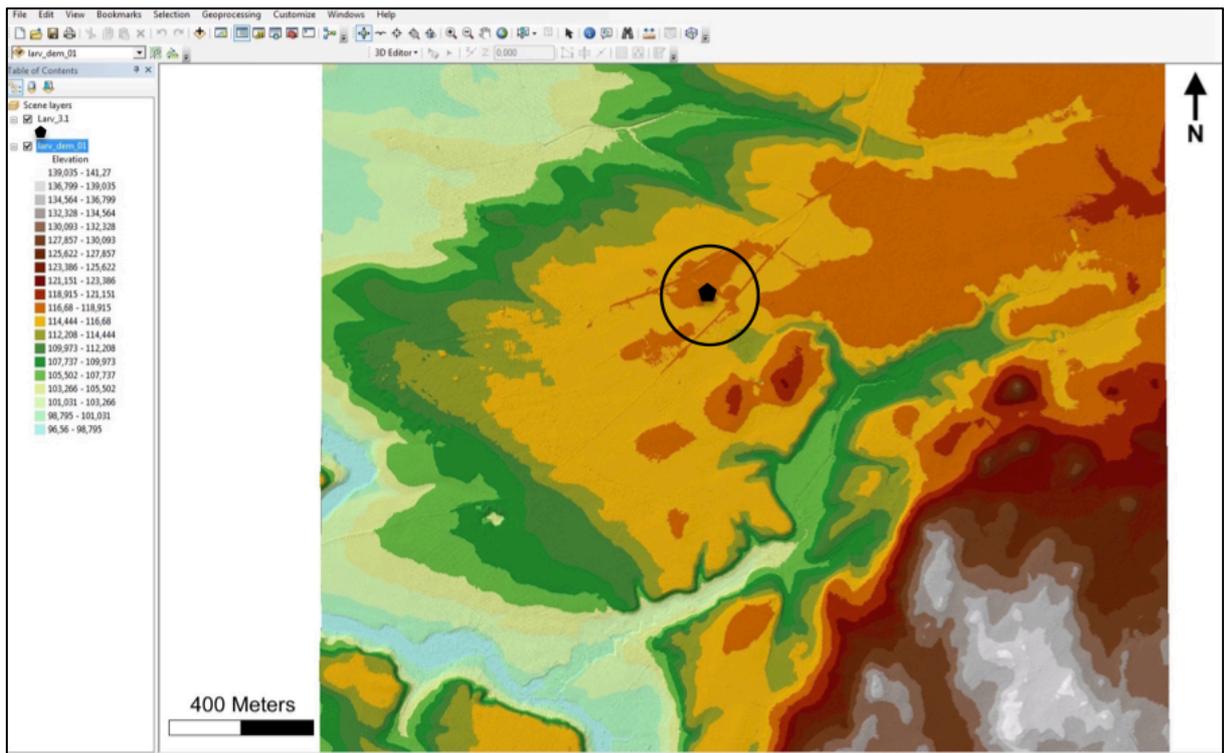
On the first map, the position of the stone is prominent compared its surroundings. When compared to the second map containing 20 elevation levels, it is still at a rather high altitude in general, though other features have become more prominent. However, on the third map, the altitude shows more resemblance to what can be seen on the first. The visibility is good in several directions, but going southeast, the altitude of the land increases significantly, an area with dense forest in present time. To the northwest, we have the best view over the landscape from the position of the stone, as demonstrated in the three maps. From the historical maps we can see that the road network was the same during the 17<sup>th</sup> century, and from the DEMs we can see that the roads passes through a natural height in the landscape, this indicating a natural traveling route.

By using 32 elevation levels it is possible to reconstruct the slopes and elevations in the landscape in an accurate way. One interesting thing is the indication or archaeological evidence for fossilised agricultural fields/farming in the areas west and south from the rune stone. This indicates two things, presence of humans as well as human activity, and that the area was possibly open landscape to at least some extent in prehistory. There are several mounds throughout the area, which can be seen in the DEM (see Map 12),

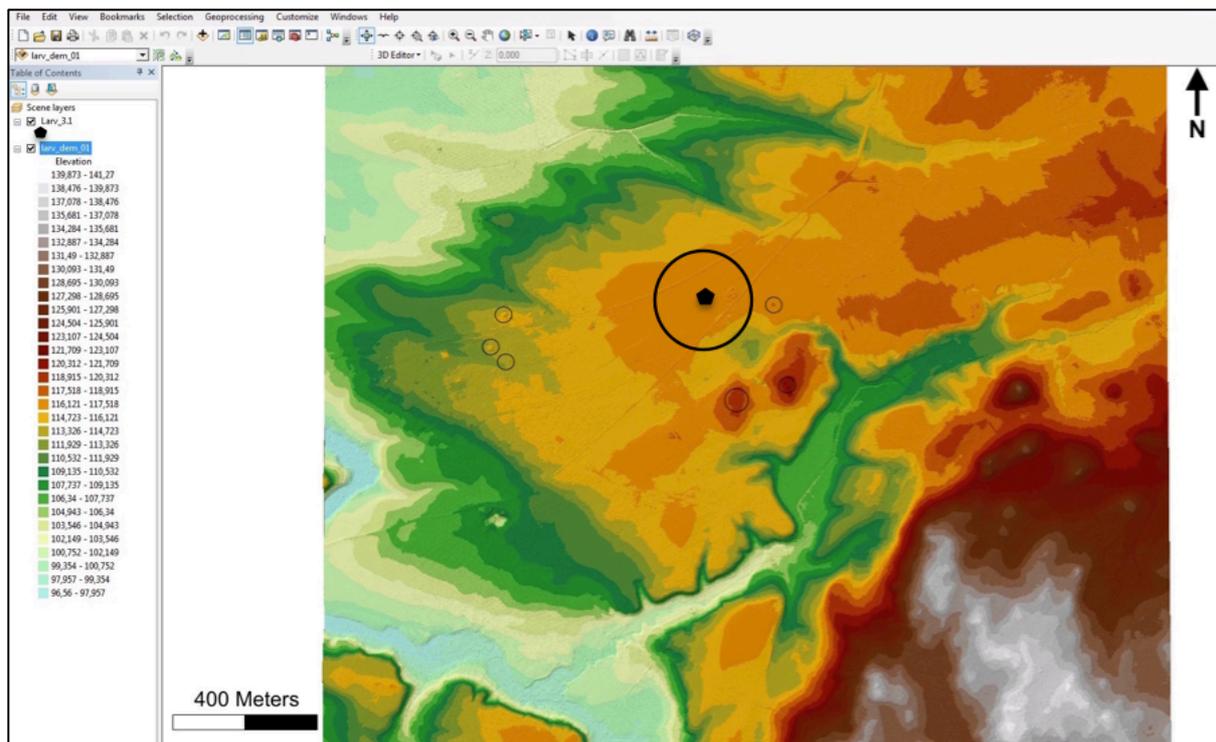
The stone is located in a visible location between two roads. Travellers would have seen it from afar if there were no trees, buildings and vegetation in the landscape. From that perspective, the location of the stone is quite logic if someone wants to manifest through a rune stone.



*Map 10. DEM for Larv with 9 elevation steps with the stone in circled.*



*Map 11. DEM for Larv with 20 elevation steps with the stone in circled.*

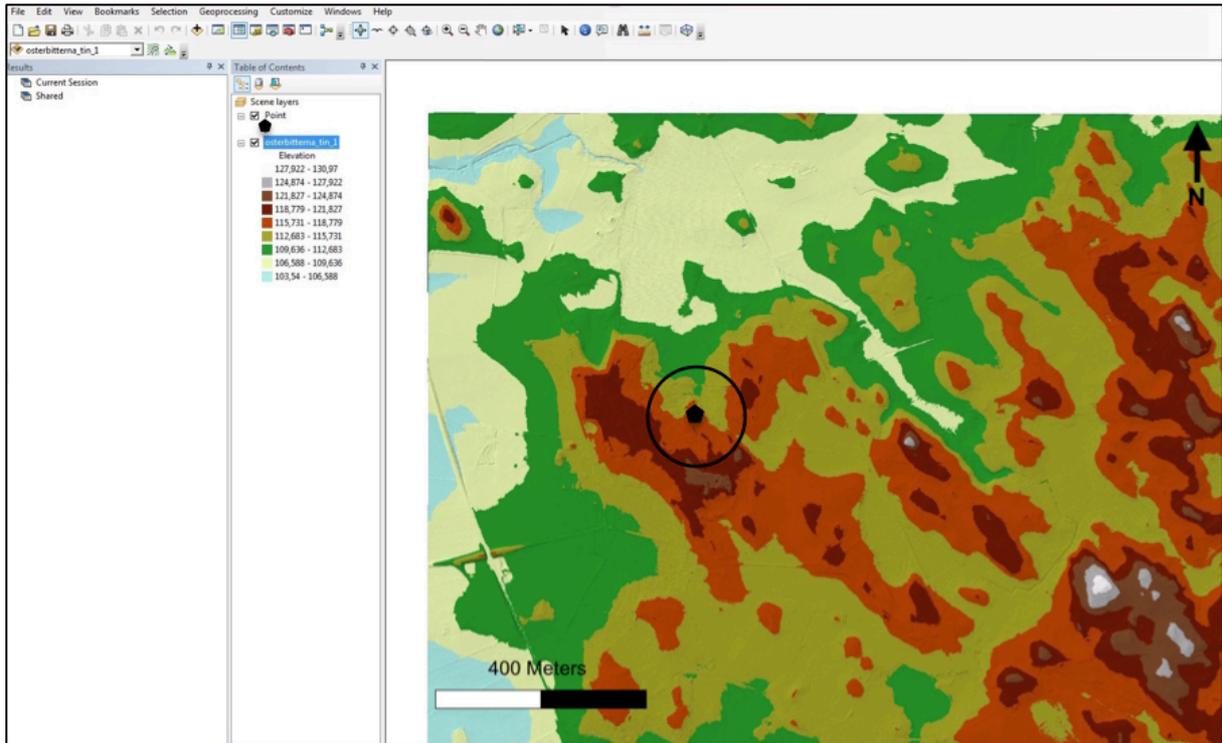


*Map 12. DEM for Larv with 32 elevation steps with the stone in circled. The mounds are located within the smaller circles.*

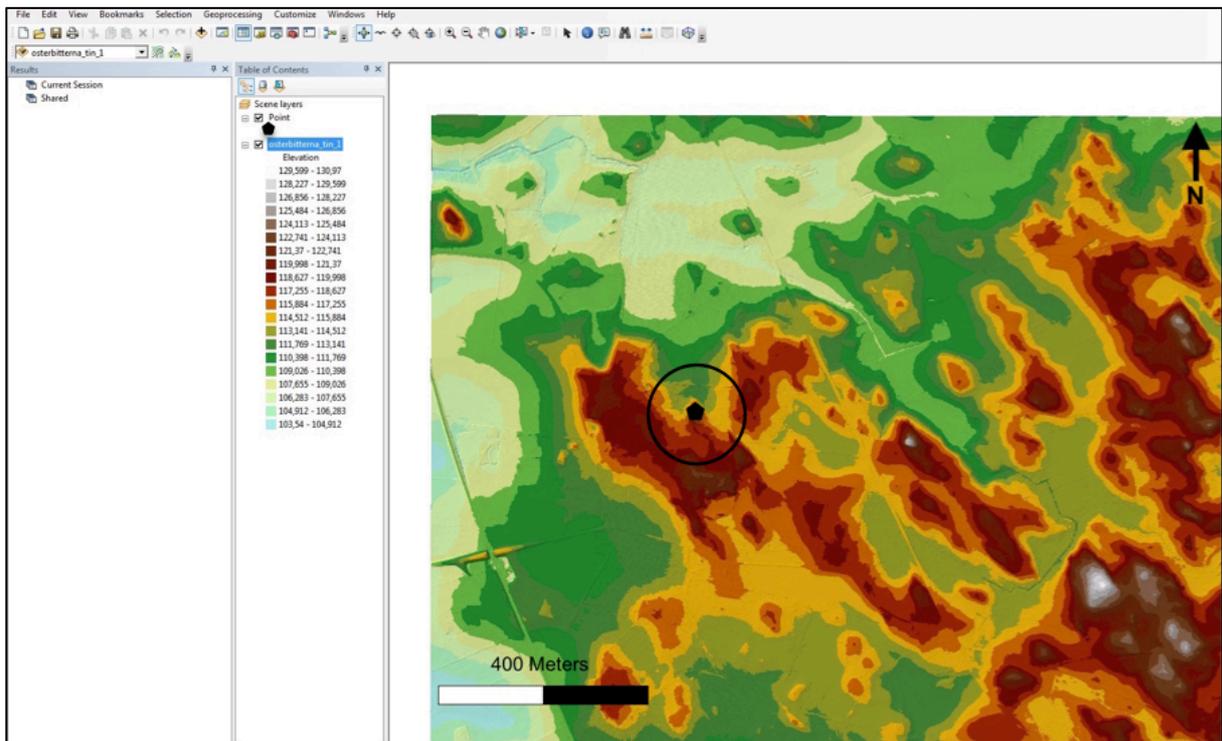
### 5.5.2. – Österbitterna

The landscape surrounding Östertbitterna and the rune stone Vg 128 is very different from Larv. It is also situated around 116 – 117 meters above sea level, but the structure of the landscape creates other pre-conditions for the visibility at the sight. As in the previous case, there are three different maps, with 9, 20 and 32 levels representing the elevation. Here the result of the three maps is not that different compared with each other. On the maps, the elevation ranges from circa 105 to 130 meters above the sea.

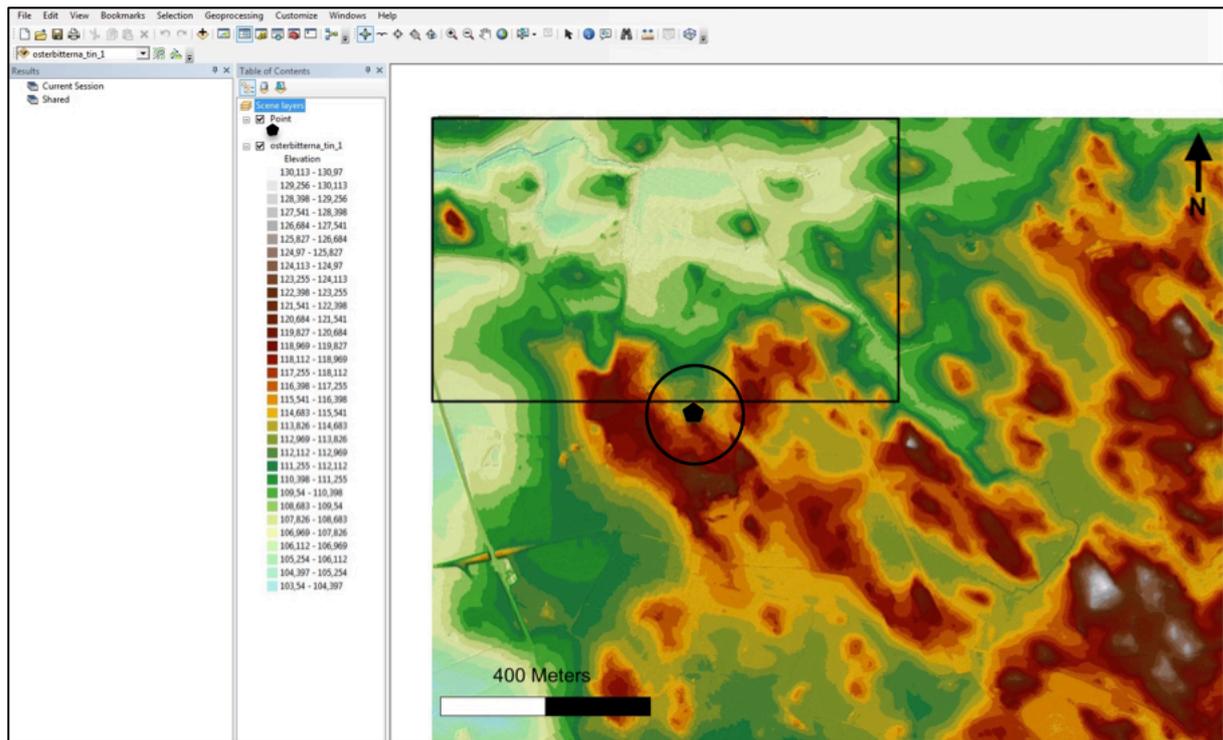
There is a clear distinction between the lower and the higher areas with the bedrock visible in many places. The rune stone is situated north/northeast at the slope for one of the prominent heights in the area. This is, as mentioned previously, the place where the village Österbitterna is located, and has been for at least several hundred years. The stone is approximately 2,1 meters high. Directly to the north the elevation of the landscape is decreasing and is at most almost 10 meters lower than where the stone is situated. This means that the visibility to the north is good. If we look on the DEM maps it is clear that north is the only direction in which the visibility from the stone is not obscured by other natural features in the landscape. Even though the stone is more than two meters high, the obstacles in the landscape are at least to some degree blocking the visibility of the stone. By using the third map with 32 elevation levels, we get a very good representation of the landscape and it becomes clear that the location of the stone is not the most sufficient for manifesting itself in the landscape. If trees, brushes and possible buildings were added, its potential visibility would be affected even more. But there must be some reason for putting the rune stone at this location; perhaps the situation of the stone is an indication that there were human settlements in Östrabitterna when the stone was erected and there for this location were chosen.



*Map 13. DEM for Österbitterna with 9 elevation steps with the stone in circled.*



*Map 14. DEM for Österbitterna with 20 elevation steps with the stone in circled.*



**Map 15.** DEM for Österbitterna with 32 elevation steps with the stone in circled. The area for possible wetlands is marked with the square.

### 5.5.3. – Larv: Rivers and waterways

Despite variations in the different maps, one feature can easily be detected in the area: the river. As of 2015, it is easy to overlook it whilst traveling through Larv, even though there are two bridges crossing it. The DEMs suggests that the water level was higher in the past. In DEMs number three we can see indications of several waterways and streams that do not exist today. The river itself indicates that its size was much greater in the past (see Map 12), which becomes interesting for discussing rune stones and waterways. The areas in the DEMs are interesting in regards to how the river was spread in the past are the ones ranging from 96 meters to 106 meters above sea level. Through the DEM it is quite clear that the river probably had a much larger water flow and more expansive when compared to today. It would have been a great obstacle for travellers that came by land; the width and depth however would have made traveling by boat possible. The stones position in connection to the bridges can be connected to previous discussions (see rune stones and bridges). Within the township of Larv, there is one bridge found through FMIS (Larv 27:1), dated to the medieval- or a later period. Traveling through Larv would not have been possible without a bridge or boat.

### 5.5.4. – Österbitterna: Rivers and waterways

During the field analysis of Österbitterna, certain areas gave the impression that they are prone to assembling water, and that the area close to the stone contained high amounts of moisture. In the northwest corner of the DEMs, a spring or small river can easily be seen (see Map 15). Here we find some of the lower elevations in the landscape surrounding Österbitterna (103 to 110 meters above sea level). The elevation also corresponds with some areas in the west.

The low elevation in combination with a still existing spring/river could be an indication that the area was a wetland at some point. Observations from the previous field analysis indicate this as well. If we assume that this area was wetlands in the past, it is possible to argue that it was that during the Viking Age. It was not until the 19<sup>th</sup> century that wetlands and water rich areas was converted into land that could be used for agriculture (NE.se). This creates further questions concerning why the stone is located where it is. Wetlands/marshlands/bogs are not good localities for travellers and therefore no one would see it from there since people would not be traveling there. It is possible that the symbolism and message of the stone was directed to a local sphere living very close to it, perhaps passing or seeing it on a daily basis.

## **5.6. – Analysis step three: Digital analysis – Viewshed analysis**

For the viewshed analysis I choose a DEM with less points than were used in the analysis of the digital elevation models. This in order to get a more efficient work-pipeline, since more points means larger files, digital data with large size can be difficult to handle. Usually only the X and Y values are used to look at the spatiality during a Viewshed analysis. However, I want to try to implement the Z-value as well to create a more realist aspect.

In order to create a functional Viewshed in GIS the metadata needs to be accurate and comprehensive. Repetition is a good way to test for errors or other things that might alter the result of the Viewshed analysis (Wheatley & Gillings 2000:9ff).

### **5.6.1. – Larv: Viewshed 1**

The first viewshed analysis was made in the traditional way, from a point at the same elevation as the ground (117 meters above sea level). At first the result does not look like a success, however there is nothing wrong with the calculations in the program (see Map 16). Since the point is based on the same level of elevation as the ground, it is not possible for it to see certain parts of the landscape that are not at the same height due to its elevation. The algorithms are based on what is visible from the specific point and height, and thus are not sufficient when analysing the visibility from an object that is rising *above* ground level.

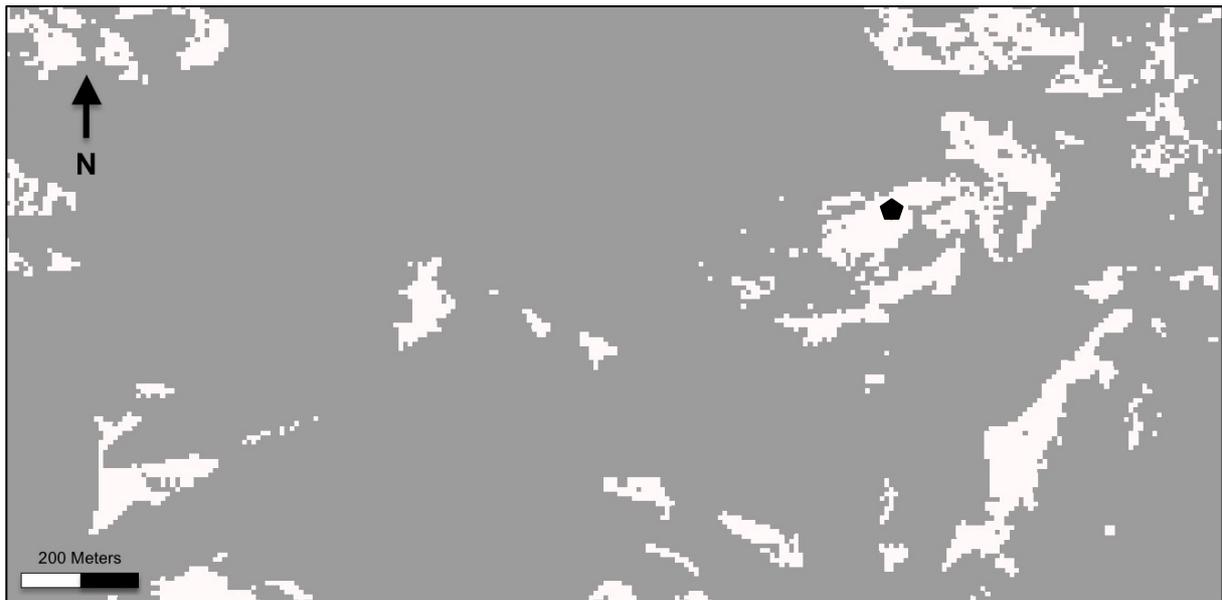
The basis for the analysis was a digital elevation model; the model was obtained through following sequences:

1. LiDAR-data obtained from Sveriges Lantbruksuniversitet. The LiDAR-data (LAS-files) is point clouds made from laser scans.
2. LAS to multipoint. By importing the LAS-files through this feature in the ArcToolbox, it is possible to create a DEM, which is done through the next sequence.
3. Create TIN. This is basically the DEM, the “3D” reconstruction of the landscape. The information of elevation in the DEMs are necessary for the creation of a RASTER image which can be used for a Viewshed analysis.
4. TIN to RASTER. Form the raster image we can perform the viewshed analysis.
5. A Viewshed analysis is performed on the RASTER by also using a point, which represents the rune stones situation in the landscape (obtained from FMIS).

From the analysis we can see that the rune stone is situated in a large area higher in the landscape (see also the DEM analysis in the previous section). This is interesting, since the area is located within an agricultural field that has been used for farming since at least the 18<sup>th</sup>

century, which would alter the height and shape of the land (see analysis of historical maps). As the archaeological findings indicate, there are remains of prehistoric agriculture in the area around the field in which the stone is situated, as well as a number of grave mounds (see analysis of archaeological contexts). The grave mounds are in many cases placed on a high elevation within the landscape, and therefore it is possible that there have been mounds in connection to the rune stone, but they are now destroyed by agriculture in the area. This would mean that they are not visible anymore. The visible areas are white, while the not visible are grey.

As previously stated, the result was a success as traditional viewshed analysis, but it is not the most sufficient way to analyse the visibility of objects that are not situated at ground level. Therefore another way of making the viewshed analysis is needed.



**Map 16.** The Viewshed analysis for Larv, note the area around the stone, which is larger area with the same height, the pentagon represents the stone.

### 5.6.2. –Österbitterna: Viewshed 1

As previously mentioned, the viewshed is done by the common standards using a point based on the same elevation as the ground. The information was processed through the same procedure:

1. LiDAR-data obtained from Sveriges Lantbruksuniversitet.
2. LAS to multipoint.
3. Create TIN.
4. TIN to RASTER.
5. Viewshed analysis on the RASTER and the point, which represent the rune stone.

The stone is located at an elevation at a height around 116 and 117 meters above sea level, and rising almost 2,1 meters above the ground. With the point based at ground level it is not possible to get an accurate viewshed representing the actual stone. In the viewshed the *white* areas depicts what *is* visible from the point and grey areas represents what is *not* visible. Even though the same problem occurs (with the surrounding ground blocking the view from the point) it is possible to determine one thing: that the view towards the north and southeast is good. This indicates that the ground is tilting slightly down to the north where the stone is

standing, creating good conditions for visibility towards that direction. An unexpected aspect is the long “string” of visible areas stretching to the southeast. At first I did not expect this to appear, since the elevation of the landscape in that direction is generally higher than where the rune stone is situated.

Since the stone is situated in a secluded location from all directions except to the north the “anomaly” becomes quite interesting. The question that comes to mind is if the visibility to the southeast from the stone deliberate. At this state it is not possible to determine, but the possibility is there. One aspect supporting this is that the carvings on the stone are positioned towards the south – southeast. It could be the remains of a road or some other man made feature in the landscape. However further research in this matter is needed, and another field study should be conducted to see if there is any thing to substantiate this.



*Map 17. The Viewshed analysis for Österbitterna, note the visibility towards the north, and the “line” going in a southeast angle. The pentagon represents the stone..*

### **5.6.3. – Larv & Österbitterna: Viewshed 2**

The aim with the second Viewshed analysis was to alter the height of the point from which the visibility is determined in order to get a more realistic representation of the landscape. Theoretically, there should be a difference in what is visible or not depending on the height of the point. Unfortunately this was not a success. The result came out the same as the during the first Viewshed analyses, indicating that something wrong with the correlation between the point and the raster image used to make the analysis. At first it seemed to be a problem with the Z-value (height values) of the points used, however it is possible that it is something else that is wrong.

Several attempts were made to create a successful analysis. At first the height of the points were altered manually through ArcGIS placing them at around two meters above the ground level, the approximate height of both rune stones. The result was the same as the first

Viewshed analysis at both locations, showing the same visibility pattern as previously. This is strange since it was possible to see the exact height of the points, and in both cases they showed to be at least two meters above ground level.

Another attempt was made to create a new point (shapefile), allowing it to have a Z-value. The points were placed at the same location (X,Y) as the original points obtained from Riksantikvarieämbetet (FMIS), but their height (Z) placed them around 1,5 – 2 meters above the ground. The result was yet again the same as before, therefore the height was altered even more. Three different attempts were made, one at 5 meters above the ground, another at 30 meters and the last around 65 meters above, yet the results were the same as for the first Viewshed. A similar procedure was performed, but this time the point was moved a few meters to the south. The result became a bit different, but the visible distance did however not change. I have no explanation for this at the moment.

It is unfortunate that I could not create a successful analysis for this thesis, but I will continue working and hopefully be able to create a functional analysis in the future. From the field analysis and the DEMs it is possible to see that the visibility from the stones should be greater if seen from a greater height (see Fig 11 and 12).

One of the hopes was also to explore the three-dimensional aspects of the Viewshed analysis. This means a reconstruction of the landscape, buildings, and the rune stone as well as ecological features such as trees in order to test various factors for visibility. How visible was the front of the stone in contrast to the back? Are there specific parts of the stone that has better visibility than others? These types of analyses are helpful in order to more realistically analyse visual spectrum in the landscape. However there is a lack of information concerning



*Fig 11. Vg 127 in Larv, here we can see how far it is possible to see in the landscape in a north direction. The view here is based on the height of the author, which puts the camera around 0,5 meters below the top of the stone.*



*Fig 12. Panoramic view for Vg 128 in Österbitterna. The landscape is a bit distorted because of the panoramic view, however we can see that the visibility from the stone is better than shown in the Viewshed.*

vegetation and the flora and fauna of the area. If we want to recreate the landscape in realistic way we need to extend the information through various methods (excavations, pollen analysis, macrobotanical analysis et cetera). Until then it is difficult to create these types of analysis, but it might be possible in the future with the development of new analysis technics.

## **5.7. – Analysis**

### **5.7.1. – Vg 127 (Larv)**

The rune stone Vg 127 in Larv is situated at a location with high elevation (between 116 and 117 meters above sea level) in the landscape, which can be confirmed by the DEMs and the first viewshed analysis. Its placement east of the village is quite interesting since a number of early towns and historical sites in Västergötland are located in that direction (if traveling from Larv). The stone is placed in a field located at a fork in the road, which makes it visible in whatever direction a traveller is traveling. With the inscription facing towards west/southwest, one hypothesis is that it is intended for people exiting Larv to the east. The location is also interesting concerning the need for a bridge in order to leave the village in that direction. In this case, there are two sites where the bridges still are a necessity for people to be able to cross the river running through Larv. These features are represented on the historical maps, and it is very possible that the roads are of great age. We know that there exists rune stones commemorating the construction of a bridge, but does that necessary mean that text on the stone needs mention this in order for it to be a "bridge stone"? I would argue that the stone in Larv could have had the same purpose as a rune stone that does mention the construction of a bridge. People traveling past the stone (and had the knowledge to read runes) would get the erectors message and perhaps associate the construction of the bridge with him as well. The location is also sufficient since both the bridges as well as both roads leading across them are covered. If the stone had been located at one of the bridges, the other one would not have been affected by its presence. Another interesting connection is the Christian symbolism of the rune stone and the 13<sup>th</sup> century baptismal fount present in the modern church. Was there a church or temple in Larv previous to the old church? If so, it would create a need for efficient traveling routs into the town.

The stone is a prominent part of the landscape, and is visible to people traveling through the area. Both the DEM and the Viewshed analysis show that the location has a higher elevation, creating great potential for visibility. Therefore I suggest that the stone was intended for an open sphere, the message was directed towards anyone who travelled past it, not just the local inhabitants. The historical maps suggest that the area was rather free from

woodlands, making it possible to see the stone from afar and finds of fossilised agricultural layers indicates that the land around Larv indeed has been cultivated for a long time.

The message should be seen from a Christian aspect, but of course pre-Christian themes still remain in the symbolism. I would argue that the late 10<sup>th</sup> and 11<sup>th</sup> century is a transition period, with the society in Västergötland in the midst of moving towards a general Christian ideology, and therefore new manifestations occurred in the landscape (churches and rune stones). Grave mounds can be seen as prominent markers of authority and continuity in the landscape constructed by previous inhabitants, but with the new religion, new ways had to be adopted. The rune stone in Larv probably had a social value, manifesting a person or family's status, a message guided towards whoever passed by the stone. The text says: "Ölver(?) and Åskatla erected this stone after Gunnar, son of Sigtrygg, a good valiant man. May God lift his spirit". With the last sentence it is clear that message was guided towards a society that at least *knew* about Christianity. Sigtrygg and Gunnar (and perhaps Ölver and Åskatla) were probably well known people, at least on a local level. If we turn to Birgit Sawyers theories about inherits and stones as claim of property it is possible that Ölver and Åskatla wanted to succeed Gunnar, to claim the same authority that he had? The style of the ornamentation is Ringerike, which places it roughly 1000 – 1075 AD, a time of change in Scandinavia. Could this perhaps be an early sign of nobility in the area? With the complex symbolism and great craftsmanship of the ornamentation, it is likely that someone with deeper knowledge about Christian traditions and mythology was involved in the construction.

I would argue that the stone is situated in what can be considered to be "public space", it was supposed to be seen by others. As mentioned earlier, the stone situated on a natural height in the landscape, which creates good conditions for natural traveling paths in the landscape. If a person were traveling that route, they would likely have seen it, especially if they travelled eastwards from Larv. Ölver and Åskatla may have wanted to pursue power, trying to adapt to a new way of life as Christians, using the stone as the manifestations to the inhabitants of the area. Another hypothesis could be that if the route was well travelled, what better way to get their names known? Anyone with the possibility to read runes would be a potential marketer for Ölver and Åskatla. The location is very logical if you want to use the social landscape in order to manifest yourself towards other humans. A clear indication of how humans interact with each other as well as they interact with the landscape, and use it.

### 5.7.2. – Vg 128 (Österbitterna)

Vg 128 in Österbitterna is located in a very different context compared to Vg 127. The topography of the landscape and the position are not the most sufficient when considering the aspect of visibility. In contrast to Vg 127, Vg 128 is obscured and secluded by the landscape. As seen in the DEMs and historical maps, to the north there were probably mostly wet- and woodlands. Towards the east, south and west, the view is obscured by the higher topography and bedrock. These are not the best preconditions for a manifesting object guided towards a broader audience. It is possible to assume that the reason for erecting the stone there was not to make a statement to people passing by. *If* there were settlements in Österbitterna similar to what is seen in the historical maps during the 11<sup>th</sup> century and the structure of the roads were the same, Vg 128 would definitely have been "hidden". The result from the first viewshed indicates that it is only to the north that the visibility could be considered good, except for the "anomaly" towards the southeast. However, since the first viewshed can be considered not to be representative for the "actual" visibility from the rune stone, further analyses are needed.

What could be the reason for erecting the stone at a secluded location? The text on the stone says: "Håkan and Torgöt erected this stone after ..., their father, a good bonde". It could

be intended towards a private sphere, a group inhabiting Österbitterna. In that case Birgit Sawyers theories about rune stones, as documents for inheritance, make up a plausible answer (Sawyer, B 2000). Håkan and Torgöt raised the stone to manifest their right as inheritors of their fathers' power/wealth/land/statues et cetera, and might not have felt the need to proclaim it to anyone but the inhabitants of the hamlet/village. This could however have been done in a "public" area as well. From what we can gather from the historical maps, the structure of the road is at least from the 18<sup>th</sup> century, but probably older. Why not place it along the road? During the field analysis, it became clear that the area where the stone situates is full of bedrock coming out of the ground. No natural traveling routes can be seen, which indicates that no road has gone through from that direction, even though there is some features that could be interpreted as an older road to the northeast. But if we look at the DEMs and the historical maps, if the area was wet- and woodland it is more plausible that a well-travelled route did not go through there.

In this case it is more difficult to suggest a logic hypothesis. However, we can say that (possibly) two brothers erected the stone over their father with the intention to commemorate his death. By doing so, they also manifested their own right to whatever position the father had had society, or they at least sought it. The structure of the inscription is simple, but the cross motif in the centre indicates that it was made in a Christian context, or at least an attempt to manifest themselves as Christians. From the location in the landscape we can suggest that it was intended towards a small group. The reason for this is unfortunately difficult to answer. In order to do so, further archaeological investigations are needed, with focus on rune stones in areas that are considered "private" or secluded. By comparing the inscriptions, message and contexts there might be some pattern or indication that can give and sufficient answer. Unfortunately, only 22 of the 152 rune stones in Västergötland can be considered to be at the original location, which creates some problems.

## 6. – Conclusion and future work

In order to find settlements and other remains from the Viking Age in Västergötland, we can use the material already present. Rune stones are great indications for human activity during the time period. Within this thesis I have attempted to use various theories and methods in order to shed some light on the possibilities with researching rune stones. Not just as static objects in the landscape, but as an active part, something that had meaning and purpose for those within in it social space, as well as "outsiders".

Only two rune stones were analysed, however it is possible to conduct this type of research in other locations. With the possibilities to analyse the landscape in detail through the digital methods presented, we can expand our understanding concerning what contexts rune stone can be found. If this type of analysis was made on every stone in Västergötland we might find specific patterns or other indications as to why and how they were erected at certain locations.

From the result we can see that the rune stones Vg 127 (Larv) and Vg 128 (Österbitterna) are erected at two different contexts within the landscape. Vg 127 is situated within in a *public* sphere while Vg 128 is erected in a more *private* or secluded location. The inattentions for the latter are difficult to answer and further research is needed to determine the reasons for its location. From the historical and archaeological sources we can say that during the 10<sup>th</sup> and 11<sup>th</sup> centuries there was a transition from the old religious traditions and social values, towards a new Christian way of life. I consider rune stones to be social manifestations made by people with power, or at least aspiring to power. Whether it was inherited or self-proclaimed power is more difficult to tell. But depending on where in the

landscape they are situated, I think that we can see different social contexts for the rune stones intended for either a private or public purpose. The connection between rune stones and early Medieval manors presented by Martin Hansson (2001) is something that would be interesting to further investigate in order to better bridge the two time periods. Another aspect that might be suitable for future works concerning the social dimensions of rune stones is process of constructing and erecting a rune stone. Was it a great event with many participants, or did it just concern a selected few at the time? How did the whole process around the construction go? Where did they get the stone, where did they make the inscription and how did they erect the stone (depending on the size of the stone)? All of these are questions that would be interesting to further explore.

The Viking Age is a period in our history that needs further exploration, especially in a region such as Västergötland, where there is little research, but much potential. Different locations have developed in different ways, and until further excavations and discoveries of Viking-settlements are made, the rune stones can provide us with further knowledge. In recent years the spatial approach towards rune stones has attracted more attention. Also, other aspects of the rune stones and similar monuments in Västergötland has been investigated and discussed actively. The introduction of various digital tools and methods can actually help us understand the material, without extensive excavations. But if we want to reach the Viking Age population in Västergötland, we need to excavate more. In order to do this we need to locate settlements, and that is where the rune stones are a great resource. This thesis has focused on rune stones from Late Viking Age. However, by using the rune stones as markers in the landscape, we can in some cases trace the human trail both back and forth in time. Continuity does not always exist, but when it does we can often see a fascinating development. Other regions in Scandinavia have gained much attention for its Viking-material, but a few sites cannot represent the whole region.

Digital tools and methods used within archaeology are not perfect. If they are used in the wrong way, the results may be catastrophic. There is always the possibility of different issues, as seen in my attempt to create a secondary Viewshed analysis. As I've mentioned previously concerning the traditional way of conducting Viewshed analysis, it has its flaws (see Lake and Woodman 2003) and there is the necessity to understand the material as well as the software. The same goes for the DEMs, since extended knowledge about the software is needed and the metadata should be used correctly (see Wheatley & Gillings 2000). A DEM is not a full representation of the landscape (see Rennell 2012) and therefore we need to use other sources in addition to these. There are still many things to explore concerning the subject of rune stones and the landscape. The development of various technological tools cannot just help us to understand the objects themselves, but also the landscape and how humans used it (see Kitzler Åhfeldt 2011, Paliou 2013 & 2014). Visualising and recreating the archaeological landscape through three-dimensional analysis methods is difficult, with the possibility that a specific area can't be fully recreated (Paliou 2014:109). One of the benefits working with three-dimensional GIS is the possibility to use independent x, y, and z-axes, allowing us to analyse more complex landscapes with the inclusion of more complex structures such as buildings and vegetation. However, depending on the distribution, shape and accuracy of the created obstacles within a three-dimensional visual analysis there are of course the possibility for flaws (Paliou 2013:2f). For the locations analysed in this thesis data concerning vegetation and human structures is scarce, and at this point a visual analysis with a reconstructed landscape would probably be incorrect for these locations. However, the future might hold new technologies and ways in which we are able to recreate the Viking Age landscape with better information concerning paleo-vegetation and human structures.

When using a landscape perspective on an archaeological material I think that some aspects of phenomenology can be useful. When you know what a place looks like and how

the monuments are placed in the landscape, it becomes easier to prevent a distorted image of the location. However, the personal aspect should not overshadow the scientific part of the analysis (for some criticisms to Tilley's phenomenology see for example Altenberg 2003 and Johnson 2012). Phenomenology can be incorporated into an analysis, but it should not be the dominant aspect for your research. Rune stones are an incredible material where in many cases we can read messages from the past, actual words formulated by past humans. There is the possibility of a relationship between the stone's message and the landscape, which should not be forgotten. The study of rune stones and their role in the landscape is not sufficient if we forget the people who created them.

## **7. – Reflections of the result: Final words**

I hope that this thesis has shown the possibilities of researching the Viking Age in Västergötland. The region holds an interesting history and I would like to see more extensive research concerning the topic. Rune stones can be approached from various angles, which can shed more light on their purpose and symbolism. This thesis is just a small part of the larger canvas that is our history. I aim to investigate this material further in the future with the hopes to find new aspects concerning rune stones in Västergötland.

My hopes are to follow up on this work and develop the two other Viewshed analyses that I wanted to do but could not execute. Three-dimensional reconstructions within a Viewshed could be really useful for the analysis of the local landscape and how humans choose to manifest themselves. Though there are of course disadvantages with this type of analysis. Even with historical maps and palaeo-ecological research it can be difficult to get a good enough recreation of the landscape. Viewshed analysis is an interesting method and can be of great use, however it might not be suitable for all types of landscapes. In some cases Historical Maps can be a great resource as well as palaeo-archaeology in order to recreate the previous landscapes. But often we need more information to be able to make reasonable and scientifically valid analysis. I will make further efforts to see if it is possible to create better Viewshed analyses for rune stones, and to see if perhaps certain types of landscapes are more suitable for this type of analyses on rune stone.

## 8. – References

### Literature

Altenberg, Karin (2003). *Experiencing landscapes: a study of space and identity in three marginal areas of medieval Britain and Scandinavia*. Stockholm: Almqvist & Wiksell International

Andersson, Hans (1994). Staden och runorna. *Runmärkt: från brev till klotter: runorna under medeltiden*. Benneth, Solbritt (Red.) Stockholm: Carlsson. S. 33-40

Andersson, Stina. Bengtsson, Kristina. Engström, Åsa. Karlsson, Håkan. (Red.) (2015) *Fynd: tidskrift för Göteborgs Stadsmuseum och Fornminnesföreningen i Göteborg. Göta Älvdalen, 2014*. Göteborg: Göteborgs Stadsmuseum

Benneth, Solbritt (Red.) (1994). *Runmärkt: från brev till klotter: runorna under medeltiden*. Stockholm: Carlsson

Bertelsen, Lise Gjedssø (2015). The Cross Motif on Late Viking Age Art Picture. Runestones in Västergötland. *Lund archaeological review 2014*. S. 55-78

Brink, Stefan (2002). Runstenar och gamla vägar i norra Småland. *Småländska kulturbilder - Om runstenar i Jönköpings län*. Jan Agertz och Linnéa Varenius (Red.). S. 103-118

Carlsson, Kristina (2001). Tidiga städer och kyrkor i Västergötland. *Från stad till land. Lund Studies in Medieval Archaeology*. Anders Andrén, Lars Ersgård och Jes Wienberg (Red.). S. 35-44

Carlsson, Kristina (2007). *Var går gränsen? Arkeologiska uttryck för religiösa och politiska aktörer i nuvarande Västsverige under perioden 1000-1300*. Diss. Lund: Lunds universitet, 2007

Claesson, Pia (2015). Forntida bosättning vid älven. *Fynd: tidskrift för Göteborgs Stadsmuseum och Fornminnesföreningen i Göteborg. Göta Älvdalen, 2014*. S. 1-7

Conolly, James & Lake, Mark (2006). *Geographical information systems in archaeology* Cambridge: Cambridge University Press

Cornell, Per & Fahlander, Fredrik (2002). *Social praktik och stumma monument: introduktion till mikroarkeologi*. Göteborg: Inst. för arkeologi, Univ.

Crutchley, Simon (2010). The Light Fantastic: Using Ariborne LiDAR in Archaeological Survy. *ISPRS TC VII Symposium – 100 Years ISPRS, APRS, Vol. XXXVIII, Part 7B*. (Red.) Wagner, W & Székely, B. Vienna, Austria, July 5–7, 2010. S.160-164

Dahlberg, Markus (1998). *Skaratraktens kyrkor under äldre medeltid*. Diss. Göteborg : Univ.

Dodgshon, R. A. (1998). *Society in time and space: a geographical perspective on change*. Cambridge, England: Cambridge University Press

- Enoksen, Lars Magnar (1998). *Runor: historia, tydning, tolkning*. Lund: Historiska media
- Fors, Tina & Gerdin, Anna-Lena (2009). *Vittene - en verkstadsplats från järnåldern*. Göteborg: Institutionen för arkeologi, Göteborgs universitet
- Gaffney, Vincent. Stancic, Zoran & Watson, Helen (1995). The impact of GIS on archaeology: a personal perspective. *Archaeology and Geographical Information Systems: A European Perspective*. Lock, G & Stancic, Z. Taylor and Francis (Red.). London. S. 211-230
- Gillings, Mark (2012). Landscape Phenomenology, GIS and the Role of Affordance. *Journal of Archaeological Method and Theory*. Vol. 19, Issue 4. McEwan, Dorothy Graves and Kirsty Millican (Red.). Springer US. S. 601-611
- Gustavson, Helmer (2002). Runor och bokstäver - tal och skrift. *Småländska kulturbilder - Om runstenar i Jönköpings län*. Jan Agertz och Linnéa Varenius (Red.). S. 17-34
- Guo, Li. Chehata, Nesrine. Mallet, Clément. Boukir, Samia (2011). Relevance of airborne lidar and multispectral image data for urban scene classification using Random Forests. *ISPRS Journal of Photogrammetry and Remote Sensing*, 66 (1), S. 56-66
- Gustin, Ingrid (2008). Glömda grupper? Om gemenskaper och grupptillhörighet under vikingatiden. *The Nordic TAG Conference. Arkeologi och identitet*. Bodil Petersson & Peter Skoglund (Red.). Lund: Institutionen för arkeologi och antikens historia, Lunds universitet
- Graham-Campbell, James (2013). *Viking art*. London: Thames & Hudson
- Gräslund, Ann Sofie (2015). The Late Viking Age Runestones of Västergötland. On Ornamentation and Chronology. *Lund archaeological review 2014*. S. 39-53
- Hadley, Dawn M. & Richards, Julian D. (Red.) (2000). *Cultures in contact: Scandinavian settlement in England in the ninth and tenth centuries*. Turnhout: Brepols
- Hagerman, Maja (1996). *Spåren av kungens män: om när Sverige blev ett kristet rike i skiftet mellan vikingatid och medeltid*. Stockholm: Rabén Prisma
- Hall, Richard, *Stora boken om vikingar*, Lind & Co, 2007
- Hall, Berit (Red.) (2007). *Vikingagravar vid Nordre älv*. Göteborg: Göteborgs stadsmuseum
- Hansson, Martin (2001). *Huvudgårdar och herravälden: en studie av småländsk medeltid*. Diss. Lund: Univ.
- Hansson, Martin (2011). Aristocratic Expressions in Landscape and Settlement from the Viking Age to the Middle Ages. *Settlement and lordship in Viking and early medieval Scandinavia*. Sindbæk, Søren Michael & Poulsen, B (Red.). S. 31-44
- Hansson, Martin (2014). Hur tänkte Tumme? Om runstenen i Tuna gårde. *HumaNetten Nr 32 Våren 2014. Festskrift till Per Stille: Specialutgåva av HumaNetten, Våren 2014*. S. 18-32

Harrison, Dick (2009). *Sveriges historia. 600-1350: båtgravar och hallar, runor, Birka och Uppåkra, härjare, köpmän och varingar, kristnandet, från bygdehövdingar till kungar, Birger jarl och riksformationen, landskapslagar*, Stockholm, riddare. Stockholm: Norstedt

Harrower, Michael J. & Comer, Douglas C. (2013) The History and Future of Geospatial and Space Technologies in Archaeology. *Mapping Archaeological Landscapes from Space*. Comer, Douglas C. & Harrower, Michael J (Red.). New York, NY: Springer New York. S. 1-8

Hillier, Bill & Hanson, Julienne (1984). *The social logic of space*. Cambridge: Cambridge Univ. Press

Hodder, Ian. (2012). *Entangled: an archaeology of the relationships between humans and things*. Malden, MA: Wiley-Blackwell

Jacobsson, Oscar (2014). *The River Flows Forever: Landscape Agency in South-Western Sweden, 550-1750 A.D.* Master thesis, Lund University.

Jakobsen, Johnny G. G. (2013). Viking Landscape Regionality An Interdisciplinary Model for Regional Classification of The Cultural Geography in Medieval Scandinavia, C. 800-1300. *3rd International Geography Symposium - GEOMED 2013. Istanbul*. Efe, Recep. Ataly, Ibrahim. Isa Cürebal (Red.). S. 89-100

Jesch, Judith (2011). Runic inscriptions and the vocabulary of land, lordship, and social power in the late Viking Age. *Settlement and lordship in Viking and early medieval Scandinavia*. Sindbæk, Søren Michael & Poulsen, B (Red.). S. 31-44

Johnson, Matthew (2007). *Ideas of landscape*. Malden, MA: Blackwell Pub.

Johnson, Matthew (2010). *Archaeological theory: an introduction*. 2. ed. Chichester: Wiley-Blackwell

Johnson, Matthew (2012) Phenomenological Approaches in Landscape Archaeology. *Annual Review of Anthropology Vol. 41*. S. 269-284

Klackenberg, Henrik (1992). *Moneta nostra: monetarisering i medeltidens Sverige*. Diss. Lund: Univ.

Kitzler Åhfeldt, Laila (2011). Runstenar och eskilstunakistor i Västergötland: Ett exempel på förändrad mobilitet. *Futhark: International Journal of Runic Studies, Vol. 2. 2011*. S. 145-176

Lake, Mark W & Woodman, Patricia E Visibility studies in archaeology: a review and case study (2003). *Environment and planning. B*. Volume 30, Issue 5 London: Pion

Larsson, Lars-Inge (2002). Integrera, tolka, presentera: Den historiska kartan som bas för breda landskapshistoriska studier - ett portalexempel. *Digitala historiska kartor: tillämpningar i GIS för kulturmiljövården*. Rentzhog, Sven (Red.). Stockholm: Riksantikvarieämbetets förl. S. 37-61

Leciejewicz, Lech & Valor, Magdalena (2007). Peoples and Environments. *The Archaeology of Medieval Europe. Vol. 1, Eighth to twelfth centuries AD.* Graham-Campbell, James & Valor, Magdalena (Red.). Aarhus: Aarhus University Press. S. 46-75

Lega, Johannan (2014). *Köpinge - en handelsplats från yngre järnålder. Fastigheten Torpa 3:3 och 3:11.* Arkeologisk efterundersökning, Lödöse museum 2014:2

Lihammer, Anna (2007). *Bortom riksbildningen: människor, landskap och makt i sydöstra Skandinavien.* Diss. Lund: Lunds universitet, 2007

Ljung, Cecilia, & Thedéen, Susanne, (2009), *Ritualer vid runstenar? En arkeologisk undersökning invid Ängbysten i Bromma.* Institutionen för arkeologi och antikens kultur. Stockholms universitet. Rapport.

Lock, Gary & Stancic, Zoran (Red.) (1995). The impact of GIS on archaeology: A personal perspective. *Archaeology and geographic information systems: a European perspective* S 211-238.

Lock, Gary (2003). *Using computers in archaeology: towards virtual pasts.* London: Routledge

Lundgren, Fredrik (2011). *Våtmarksoffer i södra Sverige under järnåldern: En jämförande studie av Finnestorp och Skedemosse.* Kandidatuppsats, Arkeologi, Göteborgs Universitet.

Lundqvist, Lars (2000). *Järnålderns centra: exempel från Halland och Västergötland.* Göteborg: Dept. of Archaeology. Institutionen för arkeologi, Univ.

McDonald, R. Andrew & Somerville, Angus A. (Red.) (2010). *The Viking age: a reader.* Toronto: University of Toronto Press

McEwan, Dorothy Graves and Kirsty Millican (2012). In Search of the Middle Ground: Quantitative Spatial Techniques and Experiential Theory in Archaeology. *Journal of Archaeological Method and Theory. Vol. 19, Issue 4.* McEwan, Dorothy Graves and Kirsty Millican (Red.). Springer US S. 491-494

Moström, Jerker (2002). Allas kartor och landskap: att förmedla kunskap om landskapets historia med hjälp av digitala historiska kartor och webb-teknik. *Digitala historiska kartor: tillämpningar i GIS för kulturmiljövården.* Rentzhog, Sven (Red.). Stockholm: Riksantikvarieämbetets förl. S. 82-91

Noonan, Thomas S. (1998). *The Islamic World, Russia and the Vikings, 750-900: the numismatic evidence.* Aldershot, Hampshire: Ashgate

Norburg, Gabriel B.N. (2015). The Spatial Order of the Scanian Runestones. Analysing Runestones and Pathways through GIS. *Lund archaeological review 2014.* S. 21-38

Nordqvist, Bengt (2015). Från Samarkand till Göta älv – aktuella arkeologiska nedslag från romersk järnålder till tidig vikingatid. *Fynd: tidskrift för Göteborgs Stadsmuseum och Fornminnesföreningen i Göteborg. Göta Älvdalen, 2014.* Göteborg: Göteborgs Stadsmuseum. S. 33 – 41

Olsen, Bjørnar (2003). *Från ting till text: teoretiska perspektiv i arkeologisk forskning*. Lund: Studentlitteratur

Paliou, E. 2013. Reconsidering the concept of visualsapes: Recent advances in three-dimensional visibility analysis. *Computational Approaches to Archaeological Spaces*. Bevan, A. and Lake M. (Red.) Walnut Creek: Left Coast Press. S. 243-264

Pailou, E. 2014 Visibility analysis in 3D built space: a new dimension to the understanding of social space. *Spatial analysis and social spaces: interdisciplinary approaches to the interpretation of prehistoric and historic built environments*. Paliou, E. Lieberwirth, U & Polla, S (Red.). Berlin: De Gruyter S. 91-113

Palm, Rune (1994). Vem kunde läsa och skriva runor under medeltiden? *Runmärkt: från brev till klotter: runorna under medeltiden*. Benneth, Solbritt (Red.) Stockholm: Carlssons. S. 63-74

Palm, Rune (2004). *Vikingarnas språk: 750-1100*. Stockholm: Norstedt

Parcak, Sarah H. (2009). *Satellite remote sensing for archaeology*. London: Routledge

Pedersen, Anne (2011). Military Organization and Office: The evidence of graves. *Settlement and lordship in Viking and early medieval Scandinavia*. Sindbæk, Søren Michael & Poulsen, B (Red.). S. 45-61

Peterson, Lena (1994). Runor som skriftsystem. *Runmärkt: från brev till klotter: runorna under medeltiden*. (Red.). Benneth, Solbritt. Stockholm: Carlssons. S. 53-62

Rennell, Rebecca 2012 Landscape, Experience and GIS: Exploring the Potential for Methodological Dialogue. *Journal of Archaeological Method and Theory*. Vol.19. S. 510-525.

Sasaki, Takaeshi. Imanishi, Junichi. Ioki, Keiko. Moirimoto, Yukihiro & Kitada, Katsunori (2012). *Object-based classification of land cover and tree species by integrating airborne LiDAR and high spatial resolution imagery data*. S.157-171

Sawyer, Birgit (1988). *Property and inheritance in Viking Scandinavia: the runic evidence*. Alingsås: Viktoria

Sawyer, Peter (1985). *Kungar och vikingar: Norden och Europa 700-1100*. Stockholm: Norstedt

Sawyer, Birgit (2000). *The Viking-age rune-stones: custom and commemoration in early medieval Scandinavia*. Oxford: Oxford Univ. Press

Snædal, Thorgunn (1994). Vardagsliv och visdomsord. Runorna i Norden från urtid till nutid. *Runmärkt: från brev till klotter: runorna under medeltiden*. Benneth, Solbritt (Red.). Stockholm: Carlssons. S. 9-32

Stille, Per (2007). Runstenarnas plats i det mentala och sociala landskapet i tiohundratalets Tiohärad: en skiss till ett forskningsprojekt. *Urminne*. 2007:6, S. 51-54

Svärdström, Elisabeth & Jungner, Hugo (Red.) (1970). Sveriges runinskrifter. Bd 5, *Västergötlands runinskrifter*. Stockholm: Almqvist & Wiksell international

Söderberg, Barbro (1994). Varför skriver vi inte med runor idag? Skrift och språk i medeltidens Sverige *Runmärkt: från brev till klotter: runorna under medeltiden*. Benneth, Solbritt (Red.) Stockholm: Carlssons. S. 41-52

Theliander, Claes (2004). *Det medeltida Västergötland: en arkeologisk guidebok*. Lund: Historiska media

Theliander, Claes (2005). *Västergötlands kristnande: religionsskifte och gravskicket förändring 700-1200*. Göteborg: Institutionen för arkeologi, Göteborgs universitet

Tilley, Christopher (1994). *A phenomenology of landscape: places, paths, and monuments*. Oxford: Berg

Tilley, Christopher Y. (2010). *Interpreting landscapes: geologies, topographies, identities*. Walnut Creek, Calif.: Left Coast Press

Vestbö-Franzén, Ådel (2002). Runstenarna och det äldre kartmaterialet. *Småländska kulturbilder - Om runstenar i Jönköpings län*. Jan Agertz och Linnéa Varenius (Red.). S. 211-230

Welinder, Stig (2009). *Sveriges historia. 13000 f.Kr.-600 e.Kr: vid isranden, röda älgar på bergen, hundar och harpuner, eld och träpålar, hallonflickan, hög och harg, sten, brons och järn, levande döda, livet i hallen, sköldborgarnas män, långt före Sverige*. Stockholm: Norstedt

Wheatley, D. and Gillings, M. 2000 'Vision, perception and GIS: developing enriched approaches to the study of archaeological visibility'. *Beyond the Map: Archaeology and Spatial Technologies*. Lock, G.R (Red.). NATO Science Series A: Life Sciences 321. Amsterdam. S 1-27.

Wheatley, David & Gillings, Mark (2002). *Spatial technology and archaeology: the archaeological applications of GIS*. London: Taylor & Francis

Wheatley, David (2012) Connecting landscapes with built environments: visibility analysis, scale and the senses. *Spatial Analysis and Social Spaces: Interdisciplinary Approaches to the Interpretation of Historic and Prehistoric Built Environments*. Paliou, E., Lieberwirth, U. and Polla, S. (Red.) Berlin, DE, De Gruyter. (Topoi Berlin Studies of the Ancient World. Berliner Studien der Alten Welt) S. 115-134

White, Devin Alan (2013) Lidar, Point Clouds, and Their Archaeological Application. *Mapping Archaeological Landscapes from Space*. Comer, Douglas C. & Harrower, Michael J. (Red.) New York, NY: Springer New York. S. 187-198

Wideen, Harald (1955). *Västsvenska vikingatidsstudier: arkeologiska källor till Vänerområdets kulturhistoria under yngre järnålder och äldsta medeltid*. Diss. Stockholm: 1955

Williams, Henrik (2013). Runstenarnas sociala dimension. *Futhark: International Journal of Runic Studies, Vol.4. 2013*.

Winroth, Anders (2012). *The conversion of Scandinavia: vikings, merchants, and missionaries in the remaking of Northern Europe*. New Haven: Yale University Press

Zubrow, Ezra B.W (2006). Digital archaeology: A historical context *Digital Archaeology: Bridging Method and Theory*. Evans, Thomas L., Daly, Patrick T. & Evans, Thomas Laurence (Red.). London: Routledge. S 10-31

## Digital sources

Oxford Dictionary  
(<http://www.oxforddictionaries.com>).

<http://www.oxforddictionaries.com/definition/english/landscape> 2015-05-18.

Nationalencyklopedin  
(<http://www.ne.se>).

<http://www.ne.se/uppslagsverk/encyklopedi/lång/utdikning> 2015-06-21

Riksantikvarieämbetes Bebyggelseregister  
(<http://www.bebyggelseregistret.raa.se>).

<http://www.bebyggelseregistret.raa.se/bbr2/byggnad/visaHistorik.raa?page=historik&visaHistorik=true&byggnadId=21400000443481> 2015-07-10

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## 10. – Appendix 1: Rune stone database

### *Rune stone database (in Swedish).*

(Based on information provided by Svärdström & Jungner 1970).

VG NR	RAÄ NR	KOMMUN	SOCKEN	KONTEXT 1	KONTEXT 2	IN SITU	NAMN
2	Berga 3:1	Mariestad	Berga	Bro		Nej	
3	Bällefors 3:1	Töreboda	Bällefors	Gärde		Ja Till viss del	Kungsbacken
4	Ek 1:1	Mariestad	Ek	Bro		Ja	
6	Fägre 9:1	Töreboda	Fägre	Osäker		Ja	
7	Götlunda 39:1	Skövde	Götlunda	Gravfält		Ja	
8	Hjälstad 10:1	Töreboda	Hjälstad	Kyrka/Kyrkogård		Nej	
9	Leksberg 14:1	Mariestad	Leksberg	Kyrka/Kyrkogård		Nej	
11	Leksberg 15:1	Mariestad	Leksberg	Väg		Ja	
12	Leksberg 20:1	Mariestad	Leksberg	Osäker		Nej	
13	Leksberg 30:1	Mariestad	Leksberg	Väg		Ja	
14	Lyrestad 69:1	Mariestad	Lyrestad	Vattendrag		Ja	
15	Mariestad 1:1	Mariestad	Mariestad	Väg		Ja	
16	Ekby 35:1	Mariestad	Ekby	Gärde		Ja	Kungahallen
18	Gösslunda 4:1	Lidköping	Gösslunda	Kyrka/Kyrkogård		Nej	
19	Gösslunda 4:2	Lidköping	Gösslunda	Kyrka/Kyrkogård		Nej	
20	Gösslunda 12:1	Lidköping	Gösslunda	Bro	Vattendrag	Nej	
25	Häggesled 50	Lidköping	Häggesled	Kyrka/Kyrkogård		Saknas	
28	Häggesled 49	Lidköping	Häggesled	Kyrka/Kyrkogård		Nej	
29	Häggesled 44	Lidköping	Häggesled	Osäker		Nej	
30	Järpås 21:1	Lidköping	Järpås	Bro	Kyrka/Kyrkogård	Nej	
32	Kållands-Åsaka 2:1	Lidköping	Åsaka	Kyrka/Kyrkogård		Nej	
33	Mellby 18:1	Lidköping	Mellby	Osäker		Nej	
34	Mellby 17:1	Lidköping	Mellby	Osäker		Nej	
35	Otterstad 29:1	Lidköping	Otterstad	Väg	Bro	Ja	Sigges sten
37	Rackeby 31:1	Lidköping	Rackeby	Kyrka/Kyrkogård		Nej	
39	Rackeby 71:1	Lidköping	Rackeby	Osäker		Nej	
40	Råda 11:1	Lidköping	Råda	Kyrka/Kyrkogård		Nej	
44	Skalunda 6:1	Lidköping	Skalunda	Kyrka/Kyrkogård		Nej	
45	Skalunda 6:2	Lidköping	Skalunda	Kyrka/Kyrkogård		Nej	
47	Strö 6:2	Lidköping	Strö	Kyrka/Kyrkogård		Nej	
48	Strö 6:1	Lidköping	Strö	Kyrka/Kyrkogård		Nej	
49	Hällum 12:1	Vara	Hällum	Bro		Saknas	
52	Husaby 45:1	Götene	Husaby	Kyrka/Kyrkogård		Nej	
55	Källby 23:3	Götene	Källby	Väg		Ja	Källby hallar
56	Källby 23:2	Götene	Källby	Vattendrag		Nej	Källby hallar
59	Bjärka 6:1	Skara	Bjärka	Osäker		Nej	Härenestenen
61	Edsvära 20:1	Vara	Edsvära	Vattendrag		Nej	
62	Edsvära 39:1	Vara	Edsvära	Vattendrag		Nej	
65	Norra Vånga 22:1	Vara	Norra Vånga	Kyrka/Kyrkogård		Nej	
66	Norra Vånga 1:1	Vara	Norra Vånga	Väg		Nej	
67	Bjärka 7:3	Skara	Bjärka	Kyrka/Kyrkogård		Nej	Salebystenen
73	Synnerby 1:1	Skara	Synnerby	Kyrka/Kyrkogård		Nej	
74	Vinköl 4:1	Skara	Vinköl	Kyrka/Kyrkogård		Nej	
75	Västra Gerum 2:1	Skara	Västra Gerum	Kyrka/Kyrkogård		Nej	
76	Bolum 77:1	Falköping	Bolum	Bro	Vattendrag	Nej	
77	Eggby 59:1	Skara	Eggby	Kyrka/Kyrkogård		Nej	
82	Bolum 78:1	Falköping	Bolum	Kyrka/Kyrkogård		Nej	
85	Dala 40:1	Falköping	Dala	Kyrka/Kyrkogård		Nej	
90	Håkantorps 42:1	Falköping	Håkantorps	Väg		Ja	Runshall
92	Högstena 22:1	Falköping	Högstena	Kyrka/Kyrkogård		Nej	
100	Flo 10:1	Grästorp	Flo	Kyrka/Kyrkogård		Nej	
101	Flo 3:1	Grästorp	Flo	Osäker		Nej	
102	Håle 14:3	Grästorp	Håle	Kyrka/Kyrkogård		Nej	
103	Håle 14:2	Grästorp	Håle	Kyrka/Kyrkogård		Nej	
104	Sal 1:1	Grästorp	Sal	Kyrka/Kyrkogård		Nej	
106	Leksberg 33:1	Mariestad	Leksberg	Osäker		Nej	
107	Tun 2:1	Lidköping	Tun	Kyrka/Kyrkogård		Nej	
108	Täng 1:4	Grästorp	Täng	Kyrka/Kyrkogård		Nej	
109	Täng 1:3	Grästorp	Täng	Kyrka/Kyrkogård		Nej	
110	Vänernäs 42:1	Vänernäs	Vänernäs	Osäker		Nej	

112	Ås 8:1	Grästorps	Ås	Kyrka/Kyrkogård		Nej	
113	Bjärby 16:1	Grästorps	Bjärby	Vattendrag		Nej	
114	Bjärby 3:1	Grästorps	Bjärby	Gärde		Nej	
						Till viss	
115	Grästorps 5:2	Grästorps	Grästorps	Gravfält		del	
116	Hyringa 17:1	Grästorps	Hyringa	Kyrka/Kyrkogård		Nej	
117	Levene 29:1	Vara	Levene	Kyrka/Kyrkogård		Nej	
118	Slädene 6:1	Vara	Slädene	Kyrka/Kyrkogård		Ja	
119	Sparlösa 13:1	Vara	Sparlösa	Osäker		Nej	Sparlösastenen
122	Bjärka 10:1	Skara	Bjärka	Osäker		Nej	Abrahamstorpsstenen
123	Barne-Åsaka 4:1	Essunga	Barne-Åsaka	Väg		Ja	Kung Rånes sten
126	Södra Kedum 12:1	Vara	Södra Kedum	Kyrka/Kyrkogård		Nej	
127	Larv 3:1	Vara	Larv	Väg	Bro	Ja	
128	Österbitterna 14:1	Vara	Österbitterna	By		Ja	
130	Grolanda 19:1	Falköping	Grolanda	Väg		Nej	
133	Marka 5:1	Falköping	Marka	Osäker		Nej	
136	Kinneved 43:1	Falköping	Kinneved	Moränholme		Nej	
137	Kinneved 39:1	Falköping	Kinneved	Osäker		Nej	
139	Värkumla 1:1	Falköping	Värkumla	Kyrka/Kyrkogård		Nej	
140	Velinga 48:1	Tidaholm	Velinga	Osäker		Nej	
147	Slöta 87:1	Falköping	Slöta	Osäker		Saknas	
148	Slöta 128	Falköping	Slöta	Kyrka/Kyrkogård		Saknas	
149	Väne-Åsaka 54:2	Falköping	Väne-Åsaka	Osäker		Nej	
150	Väne-Åsaka 8:1	Trollhättan	Väne-Åsaka	Osäker		Nej	
151	Eggvena 2:1	Herrljunga	Eggvena	Kyrka/Kyrkogård		Nej	
152	Eggvena 4:1	Herrljunga	Eggvena	Väg		Ja	
153	Fölene 3:2	Herrljunga	Fölene	Kyrka/Kyrkogård		Nej	
154	Fölene 3:1	Herrljunga	Fölene	Osäker		Nej	
155	Hol 1:1	Värgårda	Hol	Kyrka/Kyrkogård		Nej	
156	Remmene 6:1	Herrljunga	Remmene	Kyrka/Kyrkogård		Nej	
157	Hov 52:2	Herrljunga	Hov	Gravfält		Ja	
158	Fänneslunda 6:1	Ulricehamn	Fänneslunda	Gärde		Nej	
160	Hällstad 16:1	Ulricehamn	Hällstad	Väg		Nej	
161	Härna 3:2	Ulricehamn	Härna	Gravfält	Väg	Ja	Kungsstenen
162	Möne 12:1	Ulricehamn	Möne	Väg	Bro	Nej	
163	Rångedala 56:1	Borås	Rångedala	Kyrka/Kyrkogård		Nej	
166	Södra Ving 52:3	Ulricehamn	Södra Ving	Osäker		Nej	
168	Södra Ving 10:4	Ulricehamn	Södra Ving	Osäker		Nej	
169	Södra Ving 29:2	Ulricehamn	Södra Ving	Gravfält		Ja	
170	Blidsberg 33:2	Ulricehamn	Blidsberg	Osäker		Nej	
171	Blidsberg 33:1	Ulricehamn	Blidsberg	Kyrka/Kyrkogård		Nej	
172	Blidsberg 1:1	Ulricehamn	Blidsberg	Gravfält		Nej	
						Till viss	
173	Böne 2:2	Ulricehamn	Böne	Bro		del	
174	Dalum 53:1	Ulricehamn	Dalum	Väg		Ja	
175	Dalum 18:2	Ulricehamn	Dalum	Vatten	Gravfält	Osäker	
176	Blidsberg 33:3	Ulricehamn	Blidsberg	Osäker		Nej	
177	Humla 9:1	Ulricehamn	Humla	Kyrka/Kyrkogård		Nej	
179	Kölaby 30:2	Ulricehamn	Kölaby	Osäker		Nej	
180	Kölaby 38:2	Ulricehamn	Kölaby	Kyrka/Kyrkogård		Nej	
181	Norra Åsarp 40:1	Falköping	Norra Åsarp	Väg	Vattendrag	Ja	Olsbrostenen
182	Norra Åsarp 2:1	Falköping	Norra Åsarp	Bro	Väg	Ja	
184	Bjärka 7:2	Skara	Bjärka	Osäker		Nej	Smulastenen
186	Bjärka 7:1	Skara	Bjärka	Osäker		Ja	Timmelestenen
187	Ulricehamn 21:1	Ulricehamn	Ulricehamn	Kyrka/Kyrkogård		Ja	
189	Långhem 104:1	Tranemo	Långhem	Osäker		Osäker	
190	Månstad 6:1	Tranemo	Månstad	Osäker		Nej	
191	Nittorp 67:1	Tranemo	Nittorp	Kyrka/Kyrkogård		Nej	
192	Nittorp 35:1	Tranemo	Nittorp	Osäker		Osäker	
193	Svenljunga 5:2	Svenljunga	Svenljunga	Kyrka/Kyrkogård		Nej	
194	Svenljunga 1:1	Svenljunga	Svenljunga	Väg		Osäker	
						Till viss	
195	Tranemo 3:1	Tranemo	Tranemo	Väg		del	
197	Dalum 10:2	Ulricehamn	Dalum	Kyrka/Kyrkogård		Nej	
198	Dalum 10:1	Ulricehamn	Dalum	Kyrka/Kyrkogård		Nej	
199	Norra Lundby 5:1	Skara	Norra Lundby	Kyrka/Kyrkogård		Nej	
Saknas	Essunga 154:1	Essunga	Essunga	Osäker		Saknas	
Saknas	Häggesled 37:4	Lidköping	Häggesled	Väg		Saknas	
Saknas	Västra Frölunda 414:1	Göteborg	Göteborg	Osäker		Saknas	

Saknas	Långjum 1:1	Vara	Långjum	Osäker		Saknas
Saknas	Råda 90:1	Lidköping	Råda	Osäker		Osäker
Saknas	Bjärka 45:1	Skara	Bjärka	Osäker		Saknas
Saknas	Essunga 142:1	Essunga	Essunga	Osäker		Saknas
Saknas	Södra Ving 224:1	Ulricehamn	Södra Ving	Osäker		Saknas
Saknas	Häggesled 51	Lidköping	Häggesled	Osäker		Saknas
Saknas	Norra Härene 46:1	Lidköping	Norra Härene	Bro		Saknas
Saknas	Barne-Åsaka 89:1	Essunga	Barne-Åsaka	Kyrka/Kyrkogård		Saknas
Saknas	Härlunda 18:1	Skara	Härlunda	Kyrka/Kyrkogård		Saknas
Saknas	Marum 9:1	Skara	Marum	Kyrka/Kyrkogård		Osäker
Saknas	Starrkärr 61:1	Ale	Starrkärr	Osäker		Osäker
Saknas	Norra Ving 37:1	Skara	Norra Ving	Kyrka/Kyrkogård		Osäker
Saknas	Norra Åsarp 30:2	Falköping	Norra Åsarp	Gravfält		Nej
Saknas	Kölaby 38:1	Ulricehamn	Kölaby	Kyrka/Kyrkogård		Nej
Saknas	Barne-Åsaka 98:1	Essunga	Barne-Åsaka	Vattendrag		Nej
Saknas	Hol 151	Vårgårda	Hol	Kyrka/Kyrkogård		Nej
Saknas	Remmene 34:1	Herrljunga	Remmene	Bro	Vattendrag	Nej
Saknas	Sparlösa 25:1	Vara	Sparlösa	Osäker		Nej
Saknas	Södra Åsarp 24:2	Tranemo	Södra Åsarp	Osäker		Nej
Saknas	Vinköl 56:1	Skara	Vinköl	Bro		Nej
Saknas	Skalunda 50	Lidköping	Skalunda	Kyrka/Kyrkogård		Nej
Saknas	Norra Åsarp 224:1	Falköping	Norra Åsarp	Gravfält		Nej
Saknas	Husaby 44:1	Götene	Husaby	Kyrka/Kyrkogård		Nej
Saknas	Ryda 8:1	Vara	Ryda	Kyrka/Kyrkogård		Nej
Saknas	Lekåsa 81	Essunga	Lekåsa	Osäker		Saknas
Se Vg 180	Kölaby 38:5	Ulricehamn	Kölaby	Kyrka/Kyrkogård		Nej