



ARMED LIFE IN MEDIEVAL RASEBORG

Historical Sources and Archaeological Finds Related to Weapons and Armoury in and Around the Castle

ABSTRAKT

BEVÄPNAD VARDAG I RASEBORG – EN JÄMFÖRELSE AV HISTORISKA KÄLLOR OCH ARKEOLOGISKA VAPENFYND I SLOTTET OCH DESS OMGIVNING

Raseborgs slott, som var i bruk från 1300-talets slut till och med 1500-talets mitt, var ett administrativt centrum för västra Nyland vid östersjöns oroliga kust. Slottet var rustat för att stå emot dessa oroligheter, och militära inslag hörde till slottets vardag. De uppgifter som de skriftliga källorna ger om Raseborgs försvarsanläggningar och hot riktade mot slottet är fragmentariska, vilket ökar arkeologins betydelse vid forskning kring slottets historia. Även arkeologiska fynd visar en begränsad bild av det förflutna, men de kan ge synlighet åt fenomen som är osynliga i andra källor. Artikeln behandlar Raseborgs militära historia, så som den ter sig i ljust av samtida korrespondens och fogderäkenskaper, samt genom föremålsfynd, som samlats in på slottet alltsedan 1890-talet. I slottet och dess omgivning har ett flertal militära fynd hittats, de vanligaste fynden är olika typer av ammunition och pilspetsar, men även enstaka fynd eller fragment av såväl armborst, spjut, svärd, dolkar, och stridsklubbor, pansar och andra militära föremål har påträffats. En jämförelse av de historiska och arkeologiska källorna har en central roll i artikeln, och utmynnar i dels en tolkning av den militära vardagen på Raseborg, dels i en diskussion om den kontrasterade bild som de olika källtyperna förmedlar. Undersökningen har visat att en tvärvetenskaplig, jämförande forskning behövs för att få en nyanserad bild av det förflutna.

INTRODUCTION

From the end of the 14th century to the middle of the 16th century, the castle of Raseborg was the administrative centre of Western Nyland (*Fi. Uusimaa*, Fig. 1). Information on military action concerning Raseborg is scarce, and

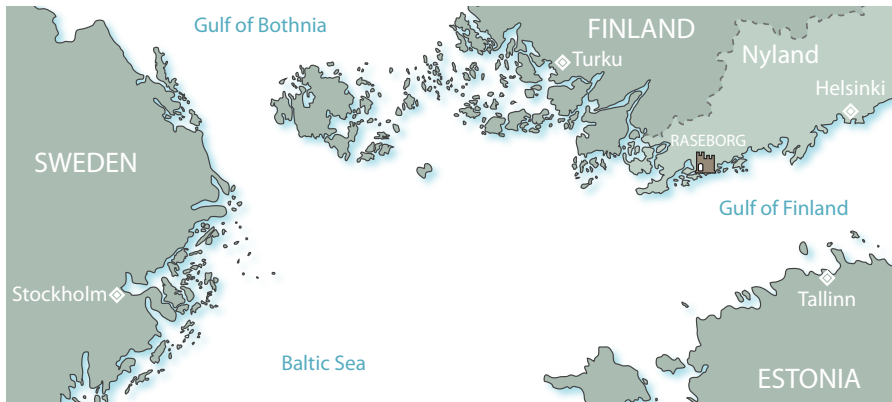


Fig. 1. Map of Western Nyland showing the shore of the Gulf of Finland and the location of Raseborg. Map by Maija Holappa.

the castle seems a bit remote from the trading routes of the Baltic Sea. Therefore an active military role of the castle can be questioned. However, the castle has had some significance in securing the shores of the Gulf of Finland.¹ The bond between the castle and military forces enabled controlling the local area and securing access to resources. In the Middle Ages, the ruling elite wanted to remain in control of the castles, as a result of which castles and their surroundings became areas where military action took place and conflicts turned to physical acts. Castles also represented the misery caused by taxation and duties, so the castellans needed to stay aware of uproar among the peasants.

The castle of Raseborg has been built in several phases, during which renovations related to the castle's defences were also made. The structures are very hard to interpret because of the poor condition of the ruins and because radical restoration works were carried out without proper documentation. At the first stage in the late 14th century, only the main castle on a cliff surrounded by water was built. Later, probably during the 15th century, three baileys surrounding the main castle in the east, southeast, and south were built, as well as a wooden palisade circling the islands of the castle and Stallholmen.² The road to the castle probably ran along its eastern side, passing Stallholmen and Slottsmalmen. Some remains of structures can be seen in Stallholmen, but not enough research has been done to resolve their function³. However, recent excavations⁴ have revealed traces of medieval human activities in Slottsmalmen (Fig. 2), and the findings are strongly connected to the life of the castle⁵.

Raseborg has been the subject of historical and archaeological research since the 1890s. Both historical sources and archaeological data related to the

construction history of the castle have been used extensively in writing the history of the castle⁶. Recent studies by Tarja Knuutinen⁷ concentrate on the surroundings of the castle, which were rather neglected in former studies. Historical sources have also been looked at from a fresh viewpoint. Combining the information from the castle accounts and the results of archaeological studies has produced new data on the last phase of the medieval castle⁸.

During the 20th century, the castle and its surroundings were restored and excavated by several teams⁹. These excavations provided finds of various kinds related to medieval life in the castle. Unfortunately, many of these finds were collected without properly documenting the find context, which makes interpreting the material more difficult¹⁰. The most recent research projects, *Raseborg through the ages* in 2008 and 2009 and excavations in the summer of 2014¹¹, have increased the amount of finds significantly. Slottsmalmen, in particular, has yielded a notable number of military finds. No one has thoroughly examined the find material collected during the last 124 years. Exceptions in recent years are Frida Ehrnsten, who has reanalysed the coin finds¹², and Hanna Kivikero, who has gone through the bone material from Slottsmalmen as a part of her doctoral thesis. In addition, the author researched all the military finds for her master's thesis¹³, on which this article is based.

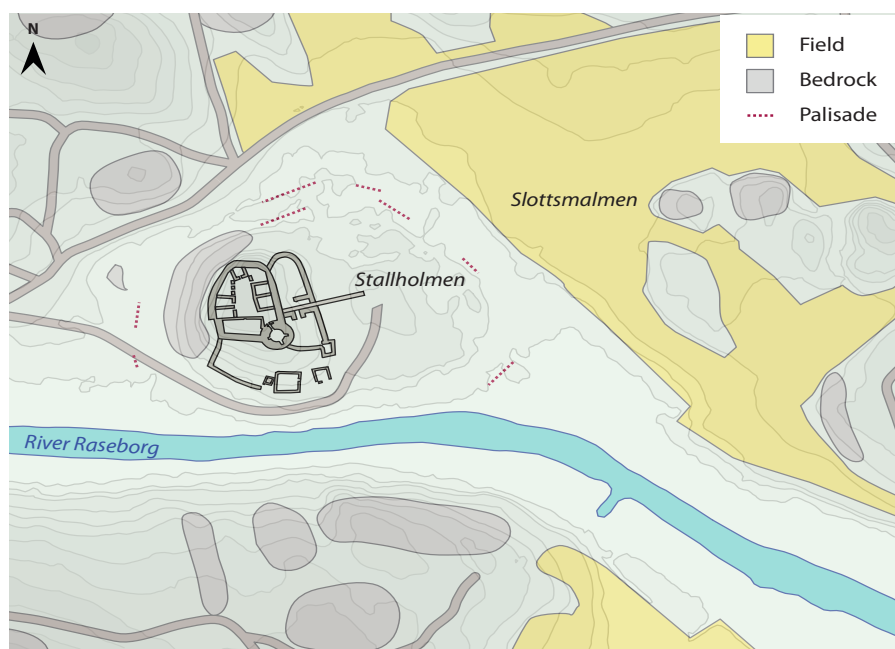


Fig. 2. Map of the castle of Raseborg with its surroundings. Map by Maija Holappa and Tarja Knuutinen.

The construction and use of the castle of Raseborg coincides with a bellicose period in Europe, a time when the evolution of medieval war and defence armaments reached its peak. For this reason, researching the armaments related to the castle is very interesting, as the weapons connect the castle with contemporary developments and the bigger political picture in Europe. As the historical records concerning the castle are fragmentary, the role of the archaeological material is crucial in researching the history of Raseborg.

This article introduces archaeological finds related to military life in Raseborg. It also includes a short presentation of the historical data related to the military aspects of the castle's history. The main point is discussing the information gleaned from historical sources and the finds themselves. As there are very few historical sources related directly to the military equipment of the castle, also other historical sources related to medieval armament are used, such as the *History of the Nordic Peoples*¹⁴ by Olaus Magnus. Historical sources have helped in the identification and dating of the archaeological finds, but this article also aims to discover connections and look for similarities and differences between the archaeological material and the historical sources. By means of comparison, the inadequacy of the historical sources, as well as that of the archaeological material, stands out. This emphasizes the need for source criticism whenever these source materials are used. Using both historical and archaeological data is a way to create a more holistic view of the past. It is a way to create contexts for both material and historical sources.¹⁵

HISTORICAL SOURCES – WHAT IS KNOWN ABOUT MILITARY ACTION RELATED TO THE CASTLE

It has been proposed that the castle of Raseborg was founded by Bo Jonsson (Grip) between the spring of 1373 and the summer of 1378.¹⁶ There is no mention of military action in Raseborg from the end of the 14th century or the beginning of the 15th century. However, it was a very restless time due to plundering and the activity of the Victual Brothers on the Baltic Sea. This activity also reached the shores of southern Finland¹⁷. It seems that in 1396 the Victual Brothers robbed rye and 18 armoured servants from Tord Bonde¹⁸, who was the castellan of Raseborg at the time.

The first source referring to the defence of the castle, as well as the first source referring to the use of firearms in the defence of any Finnish castle, is a letter from AD 1434. In it, Otto Pogwisch asks if the city council of Reval could lend two or three cannons (*twe edder tre kamerbussen*) and a man

who could use them to Raseborg¹⁹. The reason for this request is an uproar of peasants spreading from Dalarna, directed especially against the castles representing the ruling elite and the misery caused by taxation. According to sources, at least a gunner was sent to Raseborg, probably also the cannons²⁰.

The first mention of a possible attack on Raseborg dates from the 1430s. According to earlier research, four brothers of the Fleming family conquered the castle violently in 1437²¹. A letter dated 26 June 1437 mentions that the Flemings have gathered a troop of 200 soldiers at Raseborg, and Karl Kristersson also writes about plans of action against the Flemings²². Already in August, the castellan is known to have been Karl Tordsson (Bonde), indicating that the Flemings had left Raseborg by then.²³ Tapio Salminen has noted that according to the documents, the situation concerning the holders of the castle in 1436–1437 is very confusing and that the transition of power in the castle might have taken place without any actual fighting²⁴.

Restlessness continued in Raseborg after the Flemings were gone. It seems that Karl Tordsson was stressed by the power campaign between Karl Knutsson (Bonde) and Krister Nilsson²⁵. In the spring of 1439, he ordered a barrel of saltpetre to be brought to the castle and wanted to borrow a cannon (*eine busse*) from the city council of Reval until St. Michael's Day²⁶. It seems that firearms were adopted as a part of the defences of Raseborg and that gunpowder was made in the castle. Some researchers have also considered the possibility that cannons were made in the castle this early²⁷.

Even though there were some obscurities around the holder of the castle and situations arose when life in the castle might have been threatened²⁸, there is no direct evidence concerning military action in the decades following the 1430s. It is probable that during Karl Knutsson's residency at Raseborg and after Laurens Axelsson acquired the castle in 1468, improvements were made also to the defences. The power campaign between Sten Sture and the Axelssons culminated on the Baltic Sea at the end of the 15th century. The next time the documents mention military action concerning Raseborg is in 1487, when Sten Sture ordered Knut Posse to attack the castle, which was at that time ruled by Laurens' widow Katarina Eriksdotter (Nipertz). The castle was besieged, but Katarina surrendered quite soon after she received a letter promising some privileges to her and her children.²⁹

The political situation, which also concerned Raseborg, remained interesting at the turn of the 16th century. The troops of the Danish king Hans formed a new threat that, from 1507 onwards, also tormented the shores of southern Finland³⁰. No attacks were made on the castle, but in 1517, the Danish king Kristian II returned to Nyland, and in 1520, together with every other castle in Sweden and Finland, also Raseborg ended up in the hands of

Salaried persons and mercenaries in Raseborg 1540-1557

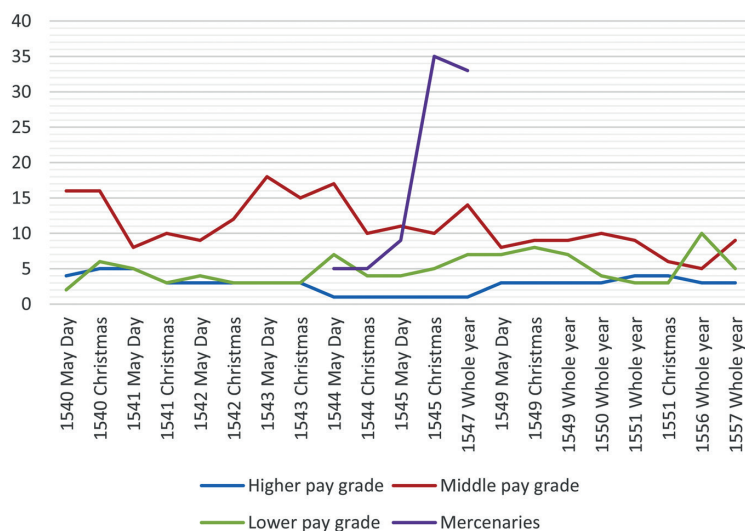


Fig. 3 Diagram of the number of salaried persons and mercenaries in Raseborg from 1540 to 1557. There are contradictions in some of the castle accounts regarding salaries, so the diagram shows the most probable options of the numbers of persons. The people belonging to the middle pay grade are most probably soldiers.⁴¹

the Danes³¹. Danish Tile Gislesson kept the castle and its surroundings under tight control probably until the autumn of 1523, when Gustaf Vasa conquered back all the Finnish castles. There are no documents related to fighting at or the surrender of Raseborg, but at the end of the year the castle was so badly destroyed that it could not be lived in before it was repaired³². According to folklore related to Raseborg, the castle was destroyed in a campaign between the Swedes and the Danes, which could refer to the events of 1523³³.

The destruction did not have a very positive effect on the political or military position of the castle. Shore displacement had also made the castle more difficult to access by ship and less sheltered against attack³⁴. Gustaf Vasa was already planning to build a new castle at Ekenäs (*Fi. Tammisaari*)³⁵, but probably because of economic reasons he decided instead that the old castle should be repaired³⁶. It seems that the castle was repaired by Erik Fleming during the 1530s, and at least in 1540 the castle was habitable. There is no direct evidence of military activity at the end of the 1520s or 1530s, but as Erik Fleming was an active military person, this might also have affected life at Raseborg. At least the castle accounts of the year 1540 show that Erik Fleming's firearms were kept in the castle as a pledge³⁷.

In January of 1540, Erik Fleming had to resign from the castle of Raseborg³⁸. After that, life in Raseborg can be studied by researching the castle accounts, which list some weapons and ammunition made and stored in the castle. There is also information on the powder mill³⁹ and the amounts of iron used to make weapons, as well as salaries paid to the staff of the castle, including any soldiers or mercenaries. These documents reveal that military life in the castle was no longer very active. The threat of the Russians, the restlessness of the peasants, and even problems caused by robbers on the Baltic Sea caused the weaponry and the number of soldiers in Raseborg to increase at times during these years (Fig. 3). However, this activity was only momentary and appeared in response to a threat: there is no sign of real conflict or significant military action related to the castle.⁴⁰ In the last phase of the castle, at the end of the 1550s, it seems that the castle was considered to be outdated for military purposes.

ARCHAEOLOGICAL FINDS RELATED TO WEAPONS AND ARMOUR

In Raseborg, most of the objects considered as military finds are pieces of projectiles belonging either to different types of firearms or to bows (Fig. 4). This is quite typical for a medieval site with a military nature, as projectiles are the objects that are most likely to end up in the ground, and they were not necessarily reused or recycled after use. Unfortunately, some finds, especially those related to firearms, are in such a bad shape or so fragmentary that identification cannot be definitive. A lot of material has also disappeared after discovery, so its identification depends on reports or statements and cannot be confirmed.

A total of 17 cannonballs made of stone have been catalogued in the collections of the National Board of Antiquities, but according to a newspaper from 1893⁴², older research reports⁴³, and a statement from Erik Fagerlund⁴⁴, who worked at the excavations of the castle in the 1930s, at least 50 more stone projectiles were found. Also catalogued are 18 bullets made of lead or with a lead covering. Of these, three are so big that they could belong to smaller breech loads (*föglare*), three could be used in harquebuses, and twelve are so small that they belong to some kind of handguns. There are two smaller iron bullets, perhaps used in harquebuses, and one heavy fragment of iron (KM 2009061: 45), which could originate from a cannonball, but the identification is very unsure and the fragment could also come from a cannon, for example. Finds related to firearms also include one chamber of a breech loader (KM

Military finds of Raseborg

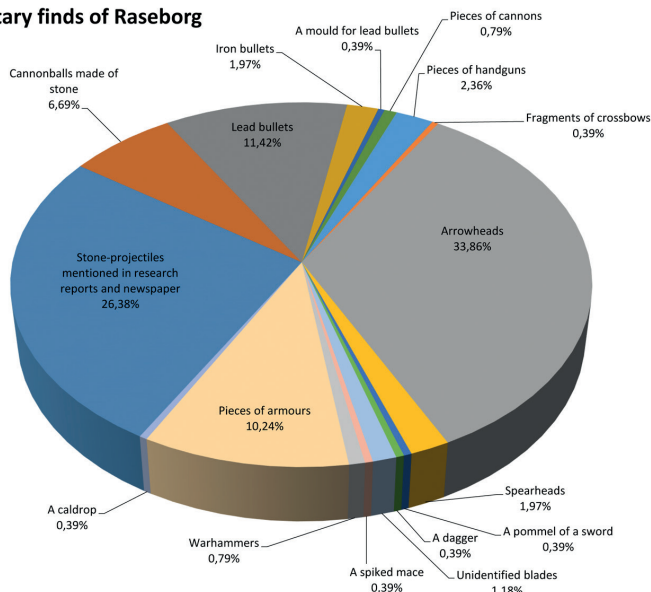


Fig. 4. Diagram of the military finds in Raseborg.

65079: 5), one fragment of a cast cannon, and three pieces of handguns (KM 2801: 1; KM 2944a: 7; KM 37154: 91)⁴⁵. From the ruins, a mould (KM 2944a: 58, Fig. 5) for casting lead bullets suitable for handguns has been found. A cup-like object made of copper alloy (KM 2944a: 59) might originate from the powder mill mentioned in the castle accounts in 1540–1553⁴⁶.

Altogether 86 arrowheads have been found, 41 of which have long blades and short tangs that were stuck into the shaft of the arrow. These arrowhead types are known in Nordic research⁴⁷ as the bolts of Dalarna (*Sw. Dalapil*). They have been found at several medieval sites in Scandinavia, but seem to be absent in the Baltic countries and in Central Europe, for example. Of all the

arrowheads, 38 are short arrowheads with a socket where the shaft has been thrust in. This is viewed in the literature⁴⁸ as an internation-

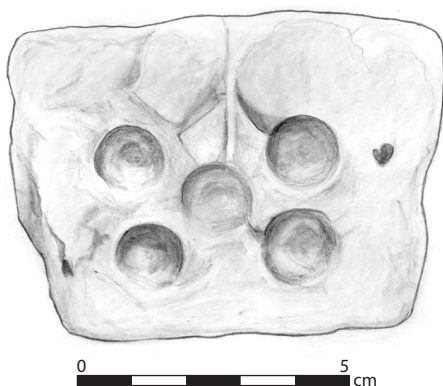


Fig. 5. A mould (KM 2944a: 58) made of stone, containing five places (diameter from 12 to 13.5 mm) for casting lead bullets suitable for handguns. Drawing by Elina Terävä.

al type and considered to be good for piercing armour⁴⁹. As well as these bolts, there are some individual arrowheads among the find material (Fig. 6). Most of these arrowheads are included in previous research related to crossbows, but in addition to crossbows, it is highly likely that hand bows were used in Raseborg⁵⁰. Fragments of bows do not seem to be preserved very well in Raseborg. There are only two finds that could be related to crossbows, and their identification is unsure. One of them (KM 2008063: 218) seems to be a part of the locking mechanism of a crossbow⁵¹, and the other decorated bone fragment (KM 2009069:1) could originate from a crossbow (Fig. 7).

As well as these finds related to shooting weapons, various weapons suitable for hand-to-hand-combat have been found at Raseborg. Some fragments of spears have been preserved, three of which are almost whole heads of military pikes with langets covering the shaft (KM 2944a: 3 and 4). On top of these, one small piece (KM 6821: 36) could be a blade of this type of pike. This type is known to have been used in the 16th century⁵⁴. There are also some other finds that could be interpreted as spearheads, but the identifi-

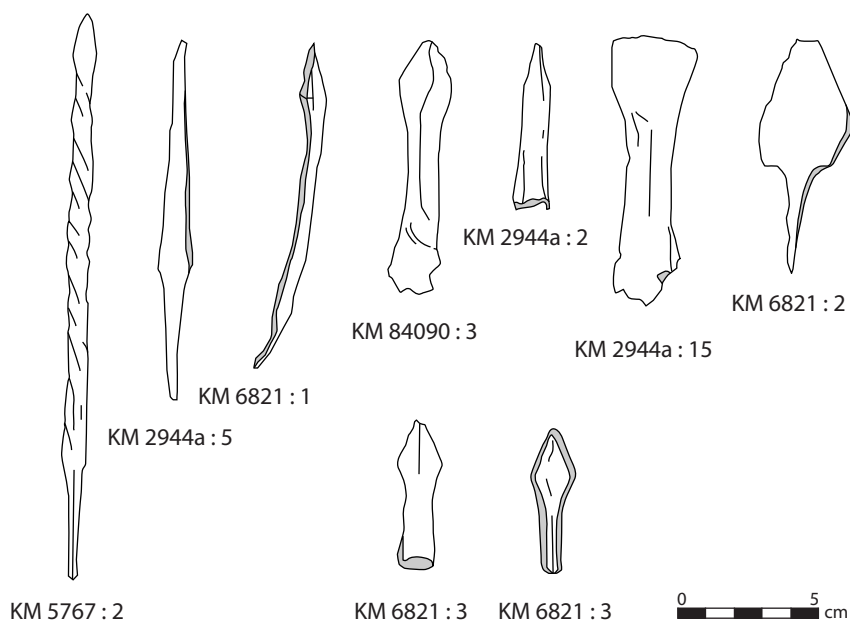


Fig. 6. Different kinds of arrowheads found at Raseborg. KM 6821: 1 is an example of the most common type of the so-called Dalapil. In the middle are four bolts of international type, one of which has a tang (KM 6821: 3). This seems to be a rare type in Scandinavia, but more common, for example, in Poland⁵². Three socketed arrowheads with broad blades have been found (KM 2944a: 15, KM 2009060: 353 and KM 40002: 154). The leaf-shaped arrowhead (KM 6821: 2) has equivalents in the castles of Junkarsborg, Kustö (Fi. Kuusisto), Åbo (Fi. Turku), and Vanhalinna in Lundo (Fi. Lieto)⁵³. Drawing by Elina Terävä.



Fig. 7. Finds that could originate from a cross-bow (KM 2008063: 218 and KM 2009069: 1). Photo by Elina Terävä, University of Helsinki.



Fig. 8. The fist-shaped head of a war hammer (KM 2008063: 91). The fist probably held an iron knife, as there are some iron remains preserved inside the fist. The closest equivalents to this object come from Estonia and Germany. An interesting question is how and with whom the object ended up in Raseborg. Photo by Elina Terävä, University of Helsinki.

cation is unsure, as no examples of similar objects can be found in the research literature.

Swords are also weapons typically associated with the Middle Ages, but they are quite hard to attain via the historical and archaeological material related to Raseborg. One pommel from the handle of a sword has been found, but nothing more. A piece from the point of a double-edged weapon (KM 37154: 66) could originate from a sword, but it might as well be a part of a dagger or even some other weapon. There is one dagger of the Rondel type (KM 37154: 61) from Raseborg, dated to the end of the 15th century or to the beginning of the 16th century⁵⁵.

There are some unique staff weapons among the find material. One of the most curious finds from Slottsmalmen is the fist-shaped head of a war hammer made of copper alloy (KM 2008063: 91, Fig. 8). This type of object is considered to have been used more as a status symbol by its owner, but because this object is very worn out, it might also have been used in conflict. Also a spiked club (KM 2944a: 8) was found, but unfortunately it vanished after its discovery, as well as the war hammer mentioned in a newspaper in 1893⁵⁶.

Among the find material are 25 pieces that seem to originate from different kinds of armour. All these finds are very fragmentary, which makes identifying the type of armour very difficult. Inside the castle, pieces of mail (KM 2944a: 10) have been found, but

they are so corroded that it is impossible to say which part of the mail they belong to. There are also plates from a suit of armour that are joined together (KM 2944a: 11). These could originate from the chest, neck or back covering and may represent a part of a suit of armour like brigantine or coat-of-plates. These types of armours appear in the historical sources, but the terms used for various armour types are not necessarily settled, so in reality, the difference might be marginal.⁵⁹ There is also a piece that could be from the finger covering of a gauntlet (KM 2009060: 235). Other finds considered as armour parts could also belong to these kinds of coverings, but the pieces are so small that identification is very difficult.

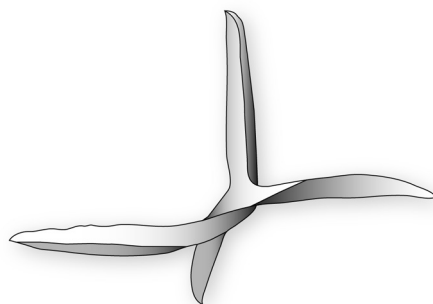


Fig. 9. An interesting find related to preventing attackers on horseback from getting too close to the castle is a caltrop (KM 5214: 2). According to Olaus Magnus, such objects could be hurled on the besiegers from the fortifications. Drawing by Elina Terävä.

OBJECTS IN THEIR HISTORICAL CONTEXT – COMPARING ARCHAEOLOGICAL MATERIAL AND HISTORICAL SOURCES

FIREARMS

Some of the weapons used or stored in Raseborg can be reached directly through both historical sources and archaeological finds. Most of the information acquired from both sources pertains to firearms. According to historical sources from the 15th century, breech loaders (*föglare*) were used in the defence of the castle⁶². The castle accounts from 1540 to 1546 mention different sizes of cannons with long pipes (*Fi. /Sw. slanga; German schlange*), falcons, one *Putthund*⁶³, and different sizes of harquebuses⁶⁴. Fragments of guns found in and around the castle confirm the use of at least one breech loader, a smaller cast cannon, and some handguns.

Analysis of the sizes of the cannonballs indicates the use of at least nine different cannons with calibres ranging from 5 to 23 centimetres⁶⁵. In principle, also the gun type used can be identified by measuring the weights and diameters of the projectiles and comparing those to the data on ammunition and calibres of different guns given in the historical sources⁶⁶. This method, used to identify cannon types, is quite problematic, not only because the orig-

inal size of the ammunition found in the archaeological material is sometimes hard to interpret due to the fragmentary nature of the finds. Another problem is that the names used for different types of guns were not settled in the mid-16th century, so we cannot necessarily know exactly what kind and size of guns are meant by, for example, falcons mentioned in the castle accounts. It seems that the same guns mentioned in the accounts of Raseborg in different years have been catalogued by using different names⁶⁷. Also the historical data on the projectiles used in different kinds of guns is not very exact. Before standards for firearms were established, every projectile was made individually for a particular gun⁶⁸. The ammunition found at Raseborg could then provide information about individual guns, but not so much about the types of firearms that were used. However, as the archaeological finds and historical data were compared, it turned out that the ammunition found at Raseborg was probably not used in the guns mentioned in the castle accounts, because the sizes of the cannonballs are mostly too small or the material is wrong.⁶⁹

There might be a good reason for why the archaeological material and the castle accounts do not meet. The castle accounts date from a time when military activity in Raseborg was minimal. A comparison between the castle accounts of Raseborg and other Finnish castles from the years 1543 and 1549 reveals that the armoury of Raseborg is much smaller than the armouries of the castles of Åbo, Kastelholm, Tavastehus, St. Olav, and Vyborg. Unlike the other castles, all projectiles made of iron or lead are also missing from the accounts at Raseborg.⁷⁰ It seems that firearms were not used at Raseborg but only stored there. The only time some ammunition belonging to the castle seems to have been used is in 1540, when the bailiff of the castle, Hans Jönsson, shot one quarter-barrel of gunpowder suitable for slanga cannons (*slangakrut*) and 1 ½ talents of lead. According to the castle accounts, he wasted them unnecessarily and was required to compensate the losses with money.⁷¹ Otherwise, the amount of lead for making bullets⁷² and gunpowder remains quite the same during these years. On top of that, all cannons mentioned in the Raseborg accounts are sent to Stockholm already in 1545⁷³. Perhaps the castle was only used as a place of weapon manufacture. This is supported by the mention in the castle accounts that some of the firearms were made there in 1543 and 1545⁷⁴. Some other firearms kept in the castle are mentioned as being without chambers or not in a condition suitable for shooting⁷⁵. Perhaps it was intended to have them repaired at the castle.

The marks of use in the finds related to cannons indicate that at least some of them are the remains of used weapons⁷⁶. Before the 1540s, some situations are known at Raseborg where cannons could have been utilized.⁷⁷ All the larger ammunition found is suitable for breech loaders common in the 15th

and 16th centuries, because the calibres of these types of guns are known to vary and stone ammunition was preferred to expensive metal projectiles⁷⁸. However, there is also the possibility that stone projectiles were used in mechanical artillery (such as trebuchets) like in some Swedish castles⁷⁹.

There is no direct evidence on using handguns in historical sources related to Raseborg. Information on what kinds of handguns were used is rare from the 14th to the mid-15th centuries. It seems that the development of handguns was not continuous and types of handguns were not defined: for example, the difference between early handguns, *skiverören*⁸⁰, and harquebuses is not clear. Since the 1530s, there were smiths specialized in making small firearms (*rörsmeder*) in the castles of Sweden⁸¹. They probably made individual guns, not necessarily following any special instructions related to types and sizes. Equipment used for making firearms is mentioned in the accounts of Raseborg from 1547 to 1553.⁸² This could refer to the manufacture of smaller guns in the castle, as cannons are no longer mentioned in the accounts and the equipment is not mentioned earlier, when the cannons were made. Interestingly, quite a lot of lead bullets used in handguns have been found especially at Slottsmalmen. These, as well as the fragments of handguns, date probably somewhere to the mid-16th century, when, according to the historical sources, the military use of the castle was minimal. Military groups could have passed the castle, for example, during the Russo-Swedish war in 1554–1556, and abandoned some weapons there, even though historical sources do not refer to this.



Fig. 10. Painting from the roof of the St. Lars (Fi. Pyhä Lauri) church in Lojo (Fi. Lohja), dated to the 1510s. St. Christopher is captured and shot with bows. The arrows turn back and one of them punctures the king's eye. Photo by Georg Haggrén.

ARROWS

Arrows are the second group of objects that can be connected with life at the castle directly through the archaeological finds and castle accounts. A total of 600 arrowheads were made in Raseborg in 1545⁸³. This was the result of the instruction to make weapons in castles that Gustaf Vasa gave in 1545 under threat from the Russians⁸⁴. The number of arrowheads mentioned in the castle accounts does not decrease in the following years, and these weapons seem to be intended for storage at the castle in the case of a situation in which the military would suddenly need weapons.

From the amount of iron used, it can be calculated that the arrowheads made in 1545 were probably quite light, about 23–30 g⁸⁵. Perhaps they were made for arrows used in hand bows, because lighter arrows were probably more suitable for hand bows than crossbows. Also, hand bows were easier to use and cheaper to make compared to crossbows, so perhaps the military preferred them. The question of the use of hand bows and crossbows is very interesting. In comparisons of archaeological material from different medieval sites, it seems that the difference between the shapes and sizes of arrowheads used in hand bows and crossbows can be minimal. Historical records refer to the use of both bow types in the northern countries (see Fig. 10), even though the use of the crossbow is sometimes overemphasized⁸⁶. It is impossible to know exactly what kinds of arrowheads were made at the castle, but they could have been the tanged, long-bladed arrowheads that are frequently found in the ruins of the castle, and some of these are quite light.

Even though the storage of pieces of arrows is confirmed by the castle accounts, the use of bows is confirmed only by the marks of shooting (bent points) in the arrowheads. These used arrowheads could be the remains of a conflict, but they can just as well be the remains of everyday life around the castle. For example, the practice of using weapons in different kinds of games and competitions is a very well documented activity in medieval times⁸⁷. There is also one arrowhead (KM 2008063: 35, Fig. 11) found at Slottsmalmen that could be a part of a training arrow⁸⁸. Weapons, especially bows, could also have been used in hunting.



Fig. 11 A bolt that could have been used in a training arrow (KM 2008063: 35). Photo by Elina Terävä, University of Helsinki.

SPEARS

Spears are also represented in the castle accounts, as well as in the archaeological material. According to historical sources, it seems that spears were common weapons during the Middle Ages. As archaeological finds, fragments of spears seem to be quite rare.⁸⁹ This can be explained, for example, by the reuse and recycling of spears rather than abandoning or losing them in places where they were used. Also, the identification of a spearhead might be difficult sometimes, as some types could look similar to arrowheads. It seems that medieval smiths did not necessarily follow any standards when making spearheads⁹⁰.

Parts of spears were made in Raseborg in 1545 and 1546⁹¹ for the same reason as the arrowheads mentioned earlier. As well as spearheads, 1 800 nails for spears were made in 1546⁹².

Three heads of military pikes (KM 2944a: 3 and 4, Fig. 12) discovered have langets that were joined to the shaft with small nails. Spears could also have been made like these examples found in the castle ruins. However, if the weights of finished spearheads in the castle accounts are compared to the weights of the spearheads in the archaeological context, the archaeological finds appear too light to be the same objects made in 1545 or 1546. The weights of the spearheads made in the castle also indicate that the spearheads made in 1545 differ from those made in 1546. The comparison is, however, difficult, because there are several problems in the interpretation of medieval weights⁹³ and the weight of the archaeological finds could have changed after the objects were made. It is therefore possible that the spearheads found at the castle were made there in 1545 or 1546.

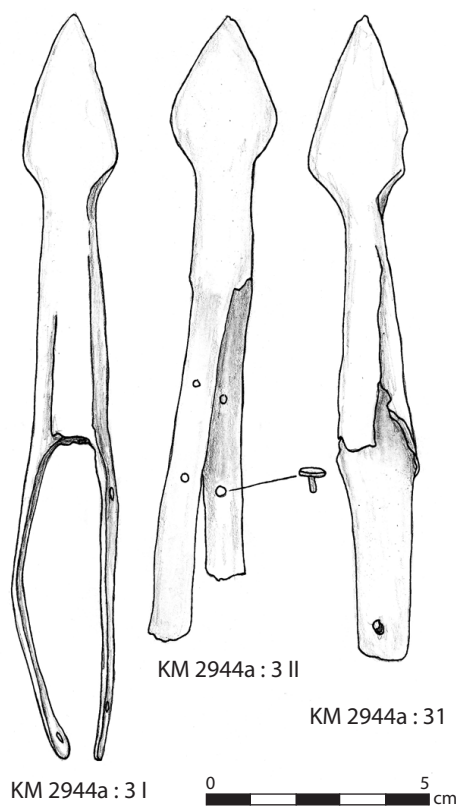


Fig. 12 Heads of military pikes found at Raseborg KM 2944a: 3 and 4. Drawing by Elina Terävä.

SOMETHING FOUND AND SOMTHING LOST?

Other weapons than firearms, bows and spears cannot be reached directly on the basis of the written sources related to Raseborg. Still, it is known from historical texts and pictorial sources that various kinds of staff weapons and mechanical artillery like trebuchets were used for defending and attacking castles. In defending a castle, also other equipment than weapons could be used, such as hot liquids and stones that could be poured on the attackers.⁹⁴

Archaeological material confirms the use of some types of staff weapons and armour in Raseborg that may have belonged to the soldiers of the castle. There is some historical data related to the equipment of the soldiers in the 16th century in Finland, but mostly these sources date from the time of the Russo-Swedish war in 1554–1556⁹⁵. Also some historical sources, like inventories of possessions from the 15th century, can provide information on the military equipment used⁹⁶. Some of the weapons and armour mentioned in these sources can be recognized also in the archaeological material from Raseborg, such as firearms, bows, spears, and swords. But some commonly used weapons, such as battle axes and halberds, are missing completely. Some weapons and coverings of soldiers might be missing from the archaeological material because they were made of organic material and thus have not been preserved⁹⁷.

CONCLUSIONS

Raseborg was definitely a stronghold that needed to be equipped in case of attacks or sieges. As well as indicating preparation for conflict, weapons and armour belonged to everyday life at Raseborg. For example, they were a part of military dress, so it is clear that in a place where soldiers lived and military culture was clearly visible, some remains of military culture would be found.

As was pointed out earlier, the historical records dealing with the military life of the castle are fragmentary. Direct information on military equipment before the 1540s is rare. After 1540, there is more information, but it should be kept in mind that even though there is certainly information on weapons made and stored in the castle, there is not really any information on weapons used in Raseborg. It is also reasonable to consider which things and why are listed in the castle accounts. For example, arrows and spears are not mentioned before 1545, when Gustaf Vasa required the making and storage of

these weapons in the castles. These weapons might very well have been in the castle armoury before this, but they were perhaps considered too unimportant to be included in the inventory before the instructions of Gustaf Vasa. Also, personal armament is something that is quite hard to access through historical sources before the mid-16th century.

During the excavations carried out at Raseborg, objects or fragments of objects have been found that tell about the military aspects of life in and around the castle. Unfortunately, it is hard to obtain any precise information on military activities in a certain period by researching these objects because of problems concerning the dating of fragmentary finds with no dated contexts. The use of firearms is clearly visible in the archaeological material in Raseborg. Also bows seem to have been an important part of the weaponry used in the castle. Most of the archaeological finds related to military life are projectiles, but there are also fragments of various weapons and suits of armour. Unfortunately, the find contexts are either not known or the interpretation is complicated, so it is hard to say whether these objects were left behind by the defenders of the castle or by the enemies threatening the castle.

The archaeological material is also fragmentary and represents only some of the weapons that were used, stored, or carried in Raseborg and that accidentally ended up in the ground. It is probable that already during the Middle Ages, most of the armaments drifted away from the castle or were recycled for making new objects. The preservation of objects made of organic material, as well as the fact that not all objects found at the castle have been saved, are factors that have had an effect on the archaeological material collected at Raseborg. For these reasons, the find material should be looked at critically and it should be kept in mind that some things may be highlighted and others totally absent. If the archaeological materials from different medieval castles are compared, it can be seen that there are no exactly similar sets of find material. Every castle has its specialties and is missing some things in its archaeological material related to weapons and armour.

As the research conducted at Raseborg proves, a comparison of the data gleaned from both historical sources and archaeological material reveals the problems of both sources. Thus, the interpretation of military life at the castle could be carried out more critically. Historical sources gave the archaeological material the context they needed so that the people behind the objects could be reached more closely. There are still many open questions concerning the military life of the castle and especially the castle's role as a military centre. However, with this research, a step towards a more comprehensive view of the history of Raseborg has been taken!

NOTES

- ¹ E.g. Drake 1991, Hartman 1896, Rask 1991; Suhonen 2006
- ² Alopaeus 1984: 88; Drake 1991: 114–115, 133; Uotila 1998: 125–127
- ³ Drake 1991: 121
- ⁴ In this article, the fields of Grönborg (the northern part of Slottsmalmen), as well as small islet called Häggkullen to the east of the fields of Slottsmalmen, are considered as belonging to the area of Slottsmalmen.
- ⁵ Haggrén & Jansson 2012; Knuutinen 2014
- ⁶ E.g. Cardberg 1993; Drake 1991; Hartman 1896; Rask 1991
- ⁷ Knuutinen 2010 and 2012
- ⁸ Haggren 2014
- ⁹ E. g. Rissanen 1978
- ¹⁰ Terävä 2015
- ¹¹ Knuutinen & al. 2008, 2009 and 2014
- ¹² Ehrnsten 2013
- ¹³ Terävä 2014
- ¹⁴ Olaus Magnus 2002 [1539, 1555, 1567]
- ¹⁵ See e.g. Andrén 1997: 158–181, Haggrén 2015; Wilkie 2009: 337–338
- ¹⁶ In 1373, bishop Johannes Westfal had a meeting with the commonalty of Nyland in the church of Karis. No mention is made in the sources of the presence of advocates from the castle of Raseborg. This is interpreted to mean that the castle did not yet exist at that time (Drake 1991: 91). The first historical source mentioning Raseborg is dated to 8 September 1378. This is a letter sent by Tord Bonde from Raseborg (SDHK 11301/ RA 0101, Nationel Arkiv Databas).
- ¹⁷ E.g. FMU 1031; FMU 1032; FMU 1033; FMU 1034
- ¹⁸ FMU 1063
- ¹⁹ FMU III, no 2102
- ²⁰ Hartman 1896: 31; Rask 1991: 59
- ²¹ Hartman 1896: 35–37; Rask 1991: 59
- ²² FMU 2226, see also FMU 2220
- ²³ FMU 2234; see also Suhonen 2006: 30
- ²⁴ Salminen 1993: 91–94
- ²⁵ See Salminen 1993: 94–95, 100; Suvanto 1985: 146–147
- ²⁶ FMU 2285
- ²⁷ Hartman 1896: 38–39; Paulaharju 1992: 24
- ²⁸ See Salminen 1993: 95–96, 98, 101; Retsö 2009: 330–332; FMU 2897; Rask 1991: 61; FMU 3333, Grönblad 1857: 61–63; Hartman 1896: 52
- ²⁹ FMU 4156; Hartman 1896: 54–56; Rask 1991: 67–68
- ³⁰ FMU 5403; Grönblad 1857: 371; Hartman 1896: 61–62; Rask 1991: 68

- 31 Pohjolan-Pirhonen 1953: 206–211; Rask 1991: 70
- 32 Hartman 1896: 71; Rask 1991: 71
- 33 Haggrén 2014: 22; Wefvar 1879: 24
- 34 Knuutinen 2011: 73; Knuutinen & al. 2015
- 35 FMU 6225
- 36 Hartman 1896: 77; Rask 1991: 71–72
- 37 KA 2919: 77–78; KA 2921: 24–25; KA 2925: 3
- 38 GFR XIII 1891: 8–9
- 39 This was probably some kind of a stamping mill where the ingredients of the powder were crushed and mixed, but information about the mill in the castle accounts is very scarce.
- 40 Castle accounts from 1540 to 1559, see also GFR XVII 1896: 92–93, 102; Tavastsjerna 1905: 163
- 41 Terävä 2014, chapter 2.2
- 42 HBL 8.11.1893
- 43 Anttila 1936; Lindblad 1938
- 44 Conversation with Georg Haggrén, 5 September 2008
- 45 There are also three pieces that could equally well originate from handguns, but the identification is very uncertain.
- 46 KA 2918 etc.; Terävä 2014, appendix 7
- 47 E.g. Alm 1956b & 1982 [1927] & 1994 [1947]; Taavitsainen 1979
- 48 E.g. Alm 1956b & 1982 [1927] & 1994 [1947]
- 49 This is why, in the Finnish literature, these arrowheads are called *panssarinuolenkärki*, “armour arrowheads”.
- 50 Terävä 2014: 80–86
- 51 See picture 37 in Alm 1994 [1947]: 57.
- 52 Dahlén 1993: 20–21; Szpunar & Glinianowicz 2006: 143, 188
- 53 Rinne 1930: 64–65; Suha 2004: 19; Taavitsainen 1979: 19–20
- 54 Hedberg 1975: 216; Scott 2001: 203–204; Viljanti 1957: 228
- 55 Harjula & Taavitsainen 2008: 46–48, 57
- 56 HBL 8.11.1893
- 57 See Forrer 1911: 79
- 58 Forrer 1911; Mandel 1990: 413–414
- 59 Blair 1958: 55 ja 58–59; Marek 2008: 87; Taavitsainen 2002
- 60 Alm 1956a: 154; Lidén 1997: 188–189; Sandsted 1998: 208
- 61 Olaus Magnus 2002 [1539, 1555, 1567]: 140, 197
- 62 FMU 2102, 2285, the terms used are *busse* and *kammarbusse*.
- 63 *Putthund* belonged to the category of assault guns (*stormstycken*), and the name originates from a dog guarding the gate of the fortification. It was mostly used aboard a ship, but also in fortifications. Metal scrap and small shots were

used as ammunition, and the calibre of the gun was a couple of centimetres. (Hedberg 1975: 204.)

64 KA 2918 etc.; Terävä 2014, appendix 4

65 Terävä 2014: 53

66 See e.g. Marsden 2003: 126–129; Scott 2001: 189–193

67 Terävä 2014: 50

68 Bradbury 1992: 282

69 The firearms mentioned in the castle accounts, according to historical records, required rather big projectiles made of lead or iron, not stone (e.g. DeVries 1994: 152–154; Hedberg 1975: 68–69; Paulaharju 1992: 34–35; Scott 2001: 191–194).

70 KA 3682 etc.; Terävä 2014, see appendix 3

71 Hartman 1896: 85–86; KA 2921: 20, 32

72 Some bullets might have been made during the years 1540–1542, but because of the obscurities in the accounts, this is very hard to verify.

73 KA 2946: 6; KA 2946: 39–40, KA 2953: 82

74 E.g. KA 2934: 8, 43; KA 2945: 28

75 E.g. KA 2919: 77–78; KA 2921: 24–25

76 Terävä 2014: 49–58

77 E.g. Haggrén 2014: 22; Hartman 1896: 71; Rask 1991: 71

78 DeVries 1992: 157; Hedberg 1972: 29–33, 54–55, 101, 130, 219–220; Paulaharju 1992: 124–138

79 Flöög 1987: 55–56; Sandsted 1998: 198–199

80 *Skiverören* is a type of handgun mentioned in historical sources, such as the castle account from St. Olav's castle from 1549 (KA 6148: 36–37). In the literature (Alm 1953: 53; Hedberg 1978: 213, 471), there are small differences in the dating of these guns, but they are thought to have been rifled guns with a calibre of about 11–14 mm, used approximately from the 1530s to the 1570s. Handguns found in Raseborg have same calibre, but the pipes of these guns have not been rifled.

81 Viljanti 1957: 239

82 KA 2955: 33–34 etc.; Terävä 2014, appendix 6

83 KA 2944: 15; KA 2946: 33; Terävä 2014, appendices 8 and 10

84 GFR XVII 1896: 92–93, 102; Tavasjerna 1905: 163

85 Terävä 2014, appendix 2

86 E.g. Olaus Magnus 2002 [1539, 1555, 1567]

87 E.g. Olaus Magnus 2002 [1539, 1555, 1567]: 92

88 Terävä 2014: 77–78, see also Jessop 1997: 2–3

89 Unfortunately there are very few publications about archaeological sites where spears have been found, and the research on medieval spears is almost totally based on historical sources.

- ⁹⁰ DeVries 1992: 10
- ⁹¹ KA 2944, KA 2946 etc. Terävä 2014, appendixes 9 and 10
- ⁹² KA 2951: 18, 24; KA 2952: 52
- ⁹³ See Terävä 2014, appendix 2 and the literature mentioned.
- ⁹⁴ E.g. Alm 1982 [1927; DeVries 1992; Hedberg 1975; Olaus Magnus 2002 [1539, 1555, 1567]: 128
- ⁹⁵ E.g. Viljanti 1957: 231–232
- ⁹⁶ See e.g. FMU IV 1924, no. 3001: 95
- ⁹⁷ In the wetlands around the castle, some wooden objects have been found (Suha 2003: 10), but no weapons. Also bone material seems to be quite well preserved in and around the castle, but for example in the 1960s, bone finds were not saved (Mikkola 1967; Rautavaara-Brax 1967). Among the bone material of Slottsmalmen, no pieces of weapons have been found, but there are some feathers of corvids and eagles, which according to Hanna Kivikero could indicate the manufacture of arrows (Kivikero 2013).

ABBREVIATIONS

- FMU Finlands Medeltidsurkunder
- GFR Konung Gustaf Den Förstes Registatur
- HBL Hufvudstadsbladet
- KA Kansallisarkisto (National Archives)
- KM Kansallismuseo (National Museum)

REFERENCES

ORAL INFORMATION

- Fagerlund, Erik (b. 1925): oral information to Georg Haggrén, 15 September 2008.
- Kivikero, Hanna: oral information, 26 October 2013.

UNPUBLISHED SOURCES

- Accounts of Åland (*Fi. Ahvenanmaa*), National Archives:**
KA 2602, KA 2621, KA 2023
- Accounts of Tavastland (*Fi. Häme*), National Archives:**
KA 3682, KA 3700, KA 3714
- Accounts of Karelen (*Fi. Karjala*), National Archives:**
KA 4999, KA 5021

Accounts of Savolax (Fi. Savo), National Archives:

KA 6135, KA 6148

Accounts of Nyland (Fi. Uusimaa), National Archives:

Castle accounts of Raseborg from 1540 to 1559

KA 2918, KA 2919, KA 2921, KA 2922, KA 2923, KA 2925, KA 2928, KA 2929, KA 2933, KA 2934, KA 2937, KA 2938, KA 2944, KA 2945, KA 2946, KA 2947, KA 2951, KA 2952, KA 2953, KA 2954, KA 2955, KA 2962, KA 2970, KA 2971, KA 2972, KA 2973, KA 2979, KA 2980, KA 2981, KA 2989, KA 2990, KA 2991, KA 3000, KA 3001, KA 3010, KA 3011, KA 3012, KA 3013, KA 3023, KA 3024, KA 3025, KA 3031, KA 3032, KA 3033, KA 3043, KA 3044, KA 3047, KA 3048, KA 3055, KA 3056, KA 3057, KA 3078, KA 3081, KA 3082, KA 3083, KA 3084, KA 3085, KA 3086, KA 3121, KA 3122, KA 3123, KA 3124, KA 3125, KA 3126, KA 3127, KA 3129, KA 3130, KA 3160, KA 3161, KA 3162, KA 3163, KA 3164

Archives of the National Board of Antiquities in Finland

Diaries of archaeological finds (*Esinediaarit*) KM 2469, KM 2801, KM 2944a, KM 5767, KM 6821, KM 37154, KM 60071, KM 65079, KM 84091, KM 2003048, KM 2008063, KM 2009060, KM 2009061, KM 2009069

UNPUBLISHED RESEARCH REPORTS

Anttila, Toivo 1936: Raaseporin linnan mittaus- ja korjaustyöt v. 1936. Archive of the National Board of Antiquities in Finland.

Drake, Kunut & Stenström, Ture 1964: Rapport över arbeten vid Raseborg, sommaren 1964. Archive of the National Board of Antiquities in Finland.

Lindblad, Boris 1938: Redogörelse för grävningarna å Raseborgs slott i 15juni-15juli 1938. Archive of the National Board of Antiquities in Finland.

Knuutinen, Tarja & Haggrén, Georg & Heinonen, Tuuli & Kivikero, Hanna & Terävä, Elina 2008: Raasepori Slottsmalmen 2008, kaivauskertomus. Archive of the National Board of Antiquities in Finland.

Knuutinen, Tarja & Haggrén, Georg & Heinonen, Tuuli & Kivikero, Hanna & Kunnas, Olli & Terävä, Elina & Åkerblom, Rasmus 2009: Raasepori Slottsmalmen 2009, kaivauskertomus. Archive of the National Board of Antiquities in Finland.

Knuutinen, Tarja & Haggrén, Georg & Holappa, Maija & Terävä, Elina 2014: Raasepori Slottsmalmen. Kaivauskertomus 2014. Unpublished Research report. Archive of the National Board of Antiquities in Finland.

Mikkola, Rauni 1967: Kaivauskertomus heinä- ja syyskuulta 1967 Raaseporista. Archive of the National Board of Antiquities in Finland.

Rautavaara, Tuula 1964: Selvitys kaivauksesta itäisen esilinnan ulkopuolella. Archive of the National Board of Antiquities in Finland.

Rautavaara-Brax, Tuula 1965: Kertomus Raaseporin tutkimustöistä kesällä 1965. Archive of the National Board of Antiquities in Finland.

UNPUBLISHED THESES

Dahlén, Johan 1993: Armborst på Lindholmen. En studie av ett medeltida vapenslag med utgångspunkt i fyndmaterialet från Lindholmens borg, Skåne. ARK 103 Ht 1993. Arkeologiska institutionen Lunds universitet.

Flöög, Stefan 1987: Senmedeltida vapenfynd från biskopsborgen i Husaby. Uppsats AK 203 framlagt hösten 1987. Lunds Universitetet.

Knuutinen, Tarja 2011: Monimenetelmäinen prospektointi kohdetason arkeologisesa tutkimuksessa. Yhdistetty ilmakuva- ja maatumkaus Raaseporin Slottsmalmenin tutkimuksissa 2008–2009. Arkeologian pro gradu -tutkielma. Joulukuu 2011. Helsingin Yliopisto.

Rissanen, Kaarina 1978: Raaseporin linnan korjaus- ja restaurointityöt vuosina 1890–1972. Suomen ja Skandinavian historian laudatur-työ 1978. Helsingin Yliopisto.

Salminen, Tapio 1993: Suomen linnojen ja voutikuntien hallinto vuosina 1412–1448. Tutkimus Suomen linnojen suhteesta keskushallintoon vanhemmalla unioniajalla. Suomen historian pro gradu -tutkielma 1993. Tampereen Yliopisto.

Suha, Mikko 2003: Linnatutkimusta arkeologisesta näkökulmasta–Kohteina Raasepori ja Junkarsborg. Arkeologian seminaarityö Helsingin Yliopiston seminaarissa 1.12.2003

Suha, Mikko 2004: Varsijousen nuolenkärjet Raaseporin ja Junkarsborgin keskiaikaisissa linnoissa. Arkeologian seminaarityö Helsingin Yliopiston seminaarissa 27.4.2004.

Terävä, Elina 2014: Aseistettu arki Raaseporissa. Aset ja suojavaarusteet linnalla ja sen ympäristössä. Arkeologian pro gradu -tutkielma. Huhtikuu 2014. Helsingin Yliopisto.

PUBLISHED SOURCES

Alm, Josef 1953: *Arméns eldhandvapen förr och nu*. Stockholm.

Alm, Josef 1956a: Annalklingshinder. *Kulturhistoriskt lexikon för nordisk medeltid från vikingatid till reformationstid*. Band I. 154. Helsingfors.

Alm, Josef 1956b: Armborstpilar. *Kulturhistoriskt lexikon för nordisk medeltid från vikingatid till reformationstid*. Band I. 236–238. Helsingfors.

Alm, Josef 1982 [1927]: *Vapnens historia*. Stockholm.

Alm, Josef 1994 [1947]: *European Crossbows: a Survey by Josef Alm*. Translated by H Bartlett Wells, Edited by G M Wilson. Dorchester, Dorset.

Aloapeus, Harry 1984: Raaseporin linnan uloimmat puolustusvarustukset sekä mui-

ta viimeaikaisia huomioita vastaavanlaisista paalutuksista. *Historiallisen ajan arkeologia Suomessa. Turun maakuntamuseon Raportteja* 6. 84–89. Turku.

Andrén, Anders 1997: *Mellan ting och text. En introduktion till de historiska arkeologierna*. Stockholm.

Blair, Claude 1958: *European Armour*. London.

Bradbury, Jim 1992: *The Medieval Siege*. Suffolk.

Gardberg, Carl Jacob 1993: *Suomen keskiaikaiset linnat*. Keuruu.

DeVries, Kelly 1992: *Medieval Military Technology*. Ontario.

Drake, Knut. 1991: *Raseborg – gråstenmurar berättar sin historia. Särtryck ur Snapertuna, en kustbygds hävder* I. 87–140. Ekenäs.

Drake, Knut 2007 [1994]: *Raasepori*. Opaskirja. Tammissaari.

Ehrnsten, Frida 2013: Rahalöytöjä Suomen pienemmistä linnoista. *Numismaattinen aikakauslehti*. Marraskuu 4/2013. 116–120.

FMU III 1921, nro 2102: *Finlands Medeltidsurkunder III*. Utg. av Rein. Hausen. Helsingfors.

FMU IV 1924, nro 3001: *Finlands Medeltidsurkunder IV*. Utg. av Rein. Hausen. Helsingfors.

FMU 1031, 1032, 1033, 1034, 1063, 2220, 2226, 2234, 2285, 2897, 3333, 4156, 5403, 6225. Digitized from: Hausen, Reinhold 1910–1935: *Finlands medeltidsurkunder I–VIII*. Helsingfors Diplomatarium Fennicum-database. <<http://extranet.narc.fi/DF>> Read 11–24.3.2011.

Forrer, Robert 1911: Die Frühgotischen Dolchstreitkolben. *Zeitschrift für historische Waffenkunde* I–VIII. 79–83. Dresden 1897–1920.

GFR XIII, 1891: *Konung Gustaf Den Förstes Registatur med understöd af stadsmedel I tryck utgifvet af Kongl. Riksarkivet genom Victor Granlund. XIII 1540 och 1541*. Stockholm.

GFR XVII, 1896: *Konung Gustaf Den Förstes Registatur med understöd af stadsmedel I tryck utgifvet af Kongl. Riksarkivet genom Victor Granlund. 1545*. Stockholm.

Grönblad, Edward. 1857: *Nya källor till Finlands medeltidshistoria* I. Köpenhamn.

Jessop, Oliver 1997: *Medieval Arrowheads. Finds Research Group 700–1700. Data-sheet* 22.

HBL 8.11.1983: Historiallinen sanomalehtikirjasto: Hufvudstadsbaldet (HBL) nro 262 8.11.1983. http://digi.lib.helsinki.fi/sanomalehti/secure/showPage.html?action=page&type=lq&conversationId=1&id=725189&pageFrame_currPage=2 Read 17.1.2013.

Haggrén, Georg & Jansson, Henrik 2012: Raseborg through the Age, *Castella Maris Baltici* X. 61–70. Saarijärvi.

- Haggrén, Georg 2014. Kun linnan olutkellari sortui Raaseporin onnettomuus Anno Domini 1558. *SKAS* 4/2013. 14–36.
- Haggrén, Georg 2015: Archaeology and History. Two different views of the past. *META Historiskarkeologisk tidskrift* 2015. Uppsala.
- Harjula, Janne & Taavitsainen, J.-P. 2008: Suomen arkeologiset tikarilöydöt 1200-luvulta 1500-luvulle. *Suomen museo* 2007. 39–63. Vaasa.
- Hartman, Torsten 1896: Raseborgs slotts historia. *Skrifter utgifna af Svenska Litteratursällskapet i Finland XXXIII*. Helsingfors.
- Hedberg, Jonas 1975: *Kungl. Artilleriet. Medeltid och äldre vasatid*. Östersund.
- Knuutinen, Tarja 2010: Varhaisten tutkimus- ja restaurointitöiden vaikutus Raaseporin linnan lähiympäristön topografiaan ja maisemaan. *SKAS* 3/2010. 15–25. Turku.
- Knuutinen, Tarja 2012: Überlegungen zur Reikonstruktion von Umgebung und Infrastruktur der spätmittelalterlichen Burg Raseborg. *Burgen och Slösser vol 53*, issue 3/2012. 163–168. Braubach.
- Knuutinen, Tarja 2014: Raaseporin Slottsmalmenin tutkimukset kesällä 2014. *SKAS* 1/2014. 42–46. Turku.
- Knuutinen, Tarja & Kivikero, Hanna & Terävä, Elina & Holappa, Maija 2016: Changing coastal landscape: Shore displacement and the strategies on defence and subsistence in medieval The castle of Raseborg. *Landscapes of Past and Present*. Ed. by Kouki, Paula & Kirkinen, Tuija. The book will be published later in *Monographs of Finnish Archaeological Society*.
- Lidén, Hans A. 1997: On Weapons and Warfare. *Margarete I Regent of the North, Essays and Catalogue 1997*. 188–191. Copenhagen.
- Mandel, Mati 1990: Über die Ausgrabungen in Lihula und Maidla. *Eesti Teaduste Akadeemia Toimetised* 39/1990. 413–415.
- Marek, Lech 2008: Medieval Armour from Szczerba Castle. *Acta Militaria Mediaevalia* tom IV. Kraków.
- Marsden, Peter 2003: Sealed by Time. The Loss and Recovery of the Mary Rose. *The Archaeology of Mary Rose. Volume 1*. Trowbridge.
- Olaus Magnus, Gothus 2002 [1539, 1555, 1567]: *Suomalaiset Pohjoisten kansojen historiassa, osa 1*. Jyväskylä.
- Paulaharju, Jyri 1992: *Vanhat tykit – Rautaruukusta Helvigiin*. Lappenranta.
- Pohjolan-Pirhonen, Helge 1953: *Suomen poliittinen asema pohjoismaisen unionin loppuvaiheessa 1512–1523*. Forssa.
- Pohjolan-Pirhonen, Helge 1960: *Suomen historia 1523–1617*. Porvoo.
- Rask, Henry 1991: *Snappertuna – En kustbygds hävder. Del I. Forntid–1809*. Ekenäs.
- Retsö, Dag 2009: Landsförvaltningen i Sverige 1434–1520. *Stockholm Studies in Economic History* 56. Stockholm.

Rinne, Sigrid 1930: Jordfynd i Åbo slott. *Finskt Museum XXXVII*. 63–80. Helsingfors

Sandsted, Fred 1998: Vapen. *Eketorp-III. Den medeltida befästningen på Öland*. Artefakterna. 190–211. Motala.

Scott, Ian 2001: The Military Artefacts and Horse Gear. *Henry VIII's Coastal Artillery Fort at Camber Castle, Rye, East Sussex*. 198–212. Oxford.

SDHK (Svenskt Diplomatariums huvudkartotek över medeltidsbrev) no 11301/orin. pergament RA 0101. Nationel Arkiv Databa Digital Bild <http://www3.ra.se/sdhk/bild/11301.jpg>. Read 10.4.2013.

Suhonen, V.-P. 2006: Reunamerkitöjä Suomen keskiaikaisten linnojen lyhyestä sotahistoriasta. *SKAS 3/2006*. 22–38. Turku.

Suvanto, Seppo 1985: Keskiaika. *Suomen historia 2*. 11–224. Espoo.

Szpunar, Andrzej & Glinianowicz, Marcin 2006: Uzbrojenie późnosredniowieczne z zamku w Czchowie w Malopolsce. *Acta Militaria Mediaevalia, tom II*. 137–188. Krakow-Sanok.

Taavitsainen, J.-P. 1979: Kuusiston linnan kaivauslöydöt. *Turun kaupungin historiallinen museo. Raportteja 3*. Turku.

Taavitsainen, J.-P. 2002: Brigantiinin levyjä Kuusiston linnasta. *SKAS 4/2002*. 68–73. Turku.

Tavaststerna, Werner 1905: Suomen maasotaväki Kustaa Vaasan ja Eerikki XIV:n aikana. *Historiallinen Arkisto XIX*. 121–177. Helsinki.

Terävä, Elina 2015: 124 vuotta tutkimuksia ja kasa sotilaallisia löytöjä. *SKAS 2/2014*. Turku.

Uotila, Kari 1998: Medieval Outer Baileys in Finland. With Special Reference to Turku Castle. *Archaeologia Medii Aevi Finlandiae III*. Kaarina.

Wefvar, J. E. 1879. *Berättelse öfver Finlands Fornlemningar utgifna av Finska Fornminnesföreningen. IV. Raseborgs Vestra Härad*. Öfvertryck ur Finska Fornminnesföreningens Tidskrift IV. Suomen muinaismuistoyhdistys, Helsinki. 1–119.

Viljanti, Arvo. 1957. *Gustav Vasas Ryska Krig 1554–1557 I–II*. Åbo.

Wilkie, L. A. 2009: Interpretive Historical Archaeology. *International Handbook of Historical Archaeology*.