Glimmingehus
A Building-Archaeological Investigation of the Interior

BY SARA LIND & TINA WESTERGREN

Abstract

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An interior building-archaeological investigation of parts of Glimmingehus castle has been conducted. One of the aims was to document the two large rooms, today called "the Banqueting Hall" and "the Archers' Loft". Another was to answer some questions about the original functions of the rooms. The two rooms are connected by a simple wooden staircase. One of the questions concerned the original look of this connection.

The results show that "the Banqueting Hall" was divided into five rooms, separated by a half-timbered structure. The same kind of structure once probably framed the staircase. No traces of interior walls were found in "the Archers' Loft", making this the largest room in the castle. Earlier investigations of the truss showed the possibility of it being open, lending a grand impression to "the Archers' Loft" beneath it. This, along with traces of now removed flooring, window fittings and an overall more coherent design than today's, shows that this room might have been the real banqueting hall.

Sara Lind, Skånes hembygdsförbund, Valdemars väg 47, SE-224 74 Lund, Sweden. sara.lind@mail.com.

Tina Westergren, Burlövs kommun, Järnåkravägen 13 B, SE-222 25 Lund, Sweden. tina.westergren@gmail.com.

Introduction

In a period of three weeks, in the autumn of 2011, a building-archaeological investigation was carried out in one of the most famous castles in Sweden – Glimmingehus. The investigation was financed by Anders Althins Stiftelse, and was carried out by the authors of this article. Many researchers have taken an interest in the building over the years and already in the 19th century theories were formed to explain the functions of the house related to the owner Jens Holgersen and his place in society. Above all the military values were emphasized.

The combination of the position taken by the National Heritage Board, that this is the best-preserved medieval castle in the Nordic countries, and that it is explained mainly from a military point of view, made a survey important for a broader perspective. Our intention in this investigation was to show that building archaeology could give a more complex understanding of the function of the building.

Within the project a thorough interior survey of parts of Glimmingehus was conducted with the main aim of gaining a better understanding of the stratigraphy of the layers of plaster. The aim was partly justified by the fact that a stratigraphical analysis of the interior walls is an important piece of research

Fig. 1. Glimmingehus at the beginning of the 19th century, shown in a lithograph by F. Richardt (Ljunggren 1852–63).

missing in an otherwise well-investigated building, but also by the fact that a survey of the interior walls could give answers to our objects of research:

- What did the rooms called "the Banqueting Hall", on the second floor, and "the Archers' Loft", on the third floor, look like originally and what does this say about the function of the rooms?
- How was the connection between the floors constructed, and was it located at the same place as today's staircase?
- What can the stratigraphical analysis tell us about the usage of the castle over time, and the continuous changes made to it?

In the rooms traditionally called "the Banqueting Hall" and "the Archers' Loft", within the investigation named "Room 1" and "Room 2", a coordinate system was placed on the walls, marking every 1 m. Each coordinate was named according to direction, distance to origin (one for each wall) and a letter showing the level of the coordinate. For example: N 9 D, N standing for north, 9 meaning the point is 9 m from origin and D standing for the lowest of four levels on the wall, A being the level at the top of the wall.

The walls were photographed, and the different contexts documented on separate context forms. The overall method has been comparison, since all the contexts have been compared and placed within the stratigraphical analysis. In the attic a minor ocular survey was conducted, and photography used as a documentary method.

Throughout this article the rooms are correlated to their given numbers in Fig. 3. "Room 1" is named 301, "Room 2" is 401 and so on.

Glimmingehus

The late medieval castle of Glimmingehus is located in south-east Scania in the parish of Vallby. It is approximately 10 km from the nearest town, Simrishamn, and 25 km from Ystad. The stone house is 29.5 m long, 13 m wide and 26 m high. The height of the building gives a good view of the surroundings in every direction. Beyond the coastline, about 5 km to the east, the Baltic Sea and the island of Bornholm can be seen in clear weather conditions. The surroundings consist nowadays of dry plains, but the castle is situated on a natural mound in the middle of a former wetland. About 1 km west of the location there is still some wetland preserved along a low ridge that leads in a north–south direction (Regnell 1994).

Today the courtyard is enclosed by the castle to the south and smaller houses to the east, north and west, dating from the 16th century up until the late 20th century. The castle is presumed to have been the only building originally, partly placed upon the foundations of an earlier stone house, possibly built in the 14th or 15th century. The square courtyard is surrounded by a moat. South of the moat is a farmstead which once belonged to Glimmingehus, being the farm buildings of the castle. In the north there is a grove which has long been referred to as "the Park" (Nilén 2008, pp. 31 ff.).

The building

Glimmingehus belongs to a certain kind of building where different functions are gathered in a single stone house, a combined upper-class household and keep. It contains a basement, three floors and an attic. The basement holds a kitchen (102) and working areas (103) as well as storerooms (104, 105).

On the first floor there is a square hall in the east (202), which in modern time has been

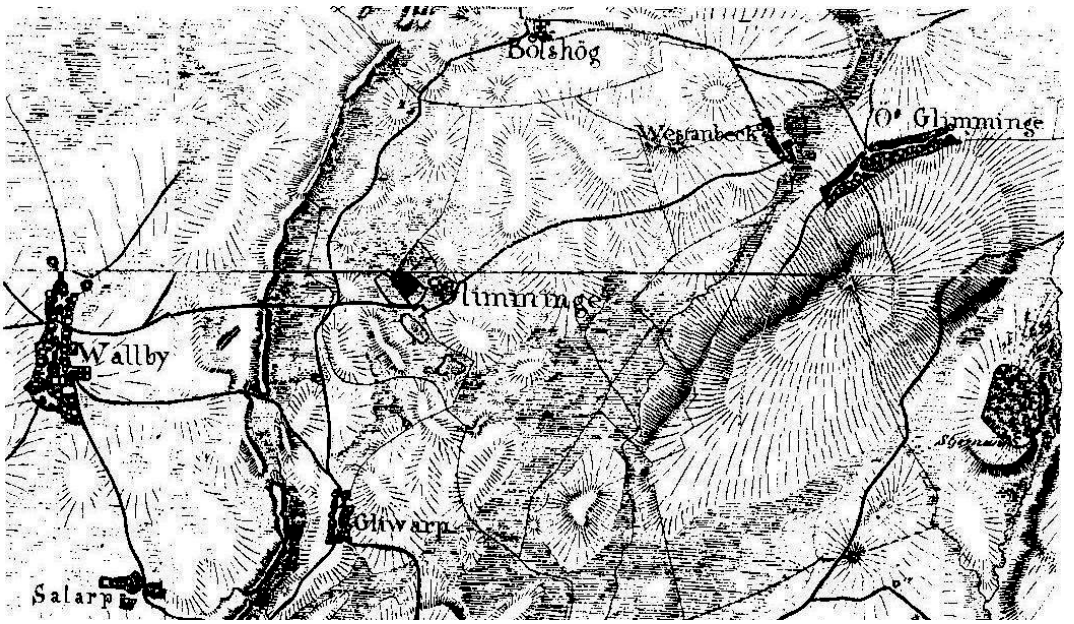

Fig. 2. The site as it looked in 1812. Notice the wetlands surrounding the castle. *Skånska rekogniseringskartan.*

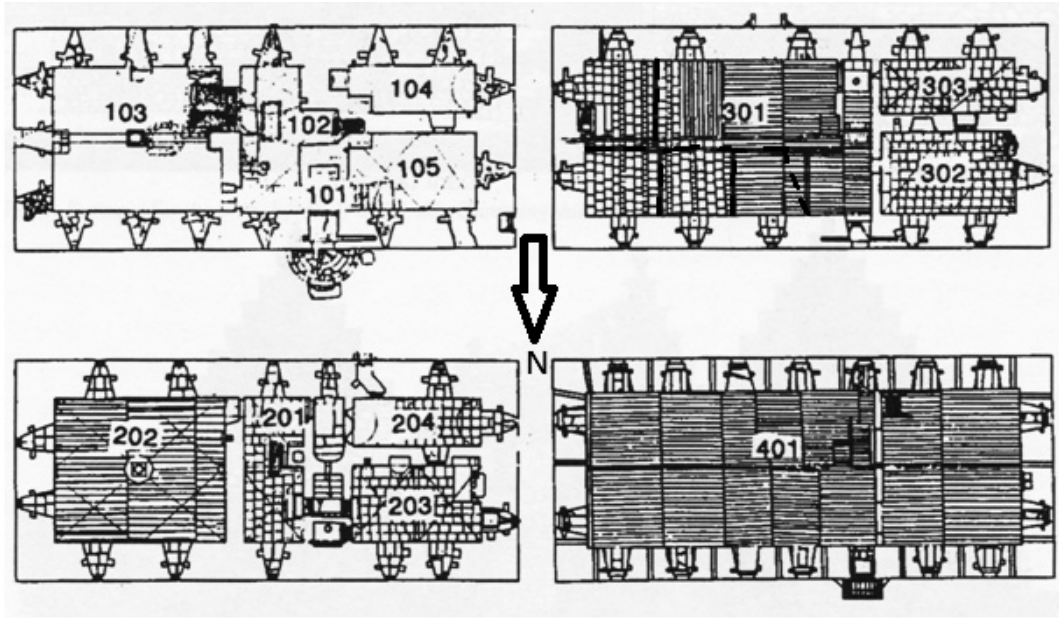

Fig. 3. Floor plans of the building made by Sten Anjou, with numbers added by Gardelin (Gardelin 1997, Fig. 7). North is marked by the authors of this article. The numbers are used in brackets throughout this article. In Room 1 (301) our interpretation of the interior walls is shown by the darker dashed line which corresponds well with the interpretation made by Anjou – the exception being the westernmost of these interior walls.

named "the Castle Hall". Outside this is an antechamber (201) and in the western parts of the floor there are living quarters (203, 204). A small chamber, which can be reached from the main room of the living quarters, was the place where a portcullis could be lowered to block the entrance underneath.

On the second floor a larger hall (301) is located in the eastern part. It is one of the largest rooms in the house today, and with the coat of arms of Ulfstand on the mantelpiece of the fireplace and a stone plaque on the southern wall in the south-east corner, bearing the coat of arms of Jens Holgersen's mother. This is presented today as "the Banqueting Hall". In the western part there is a walled up exit to a privy. In the western part of this floor there are living quarters similar to the ones on the first floor (302, 303). The walls are decorated with several stone plaques, and this is considered the most beautiful room of the castle. The two living areas on first and second floors are often thought to have been used by the lord and lady of the house (Nilsson 1999, pp. 16 ff.).

Up to this level the staircases are made of stone and vaulted ceilings, but from the great hall a simple wooden staircase leads up to the third floor. In 2010 it was enhanced by a new wooden staircase built upon the old one.

The third floor consists of a single room (401) with 17 windows and an oriel in the north, right above the entrance to the castle. In the middle of the room a wooden structure running from east to west supports the ceiling. It has traditionally been suggested that this floor is "the Archers' Loft".

In 2010 new wooden flooring was placed

upon the old one. The floor has two levels – the western part right above the living quarters on the second floor forms a dais to cover the vaulted ceiling underneath, making it about 15 cm higher than the eastern part.

Finally the fourth floor, called "the Attic", is constructed at the base of the truss on loose beams and boards seemingly secondarily placed upon the top of the walls. It has a wooden frame, about 30 cm high, along the north and south sides of the building and according to the traditional notion it was added in the 18th century for drying and storing grain in the period when the building was used as a storehouse.

History of the castle

Glimmingehus is assumed to have been built on the command of the nobleman Jens Holgersen Ulfstand in the year 1499, according to a stone plaque placed above the only entrance. Today there is a small village about 5 km north of Glimmingehus, Östra Tommarp, but in the late Middle Ages this was a town, called Thumathorp, with a monastery and two churches (Carelli 2007, p. 172). Halfway to Östra Tommarp is the church of Bolshög, but the closest church is the one in Vallby where Jens Holgersen and his father were buried, a couple of kilometres west of the site (Skansjö 1999, pp. 28 ff.). It is assumed that the castle was in residential use only for a short period of time, and that new, more comfortable houses were built quite soon after Jens Holgersen's death in 1523 (Nilén 2008, p. 32).

In 1658 Denmark lost Scania to Sweden and because of this the Swedish king, Karl XI, sent his quartermaster-general Johan Hintzke to compile an inventory of the landscape. In 1676 he sent a report on Glimmingehus and was ordered to tear it down since it could still be used as a keep in the ongoing war between Sweden and Denmark. Hintzke's written report is still preserved and gives some details of the building at the time. It seems as if the house was damaged at this point. The three chimneys were ruined, as were an iron and copper enhanced door at the entrance and the portcullis. According to a story which partly correlates with the report, even the roof was destroyed (Wallin 1979, pp. 154 ff.) (Fig. 4).

In the early 18th century some major renovations took place on the upper floors. At this point the ceiling in Room 1 was given new timber beams. The truss was also repaired, as dendrochronological samples have shown (Gardelin 1997, p. 3).

The estate has been continuously owned by nobility until the early 1920s. When the last private owner, Lady Adele Rosenkrantz, died in 1924 the National Heritage Board took over the management of the castle. After the change of ownership extensive restorations were carried out to bring Glimmingehus back to the medieval era; amongst other things the moat which had been filled was restored (see below). Ever since then it has been a popular destination for tourists. It is marketed as the bestpreserved medieval castle in the Nordic countries.

Previous research

Of course the best preserved medieval castle in the Nordic countries has been subject to several investigations, and lots of books and articles have been written about it – both of an academic and of a more popular scientific nature. The oldest extant description of the castle was made by the Swedish officer, quartermaster-general Hintzke, in 1676 (see above).

In the 19th century Hans Hildebrand, director of the National Heritage Board, and Carl Georg Brunius, Professor of Greek and an art historian, both visited and described Glimmingehus. While Brunius in his essay mainly focused on the architectural details,

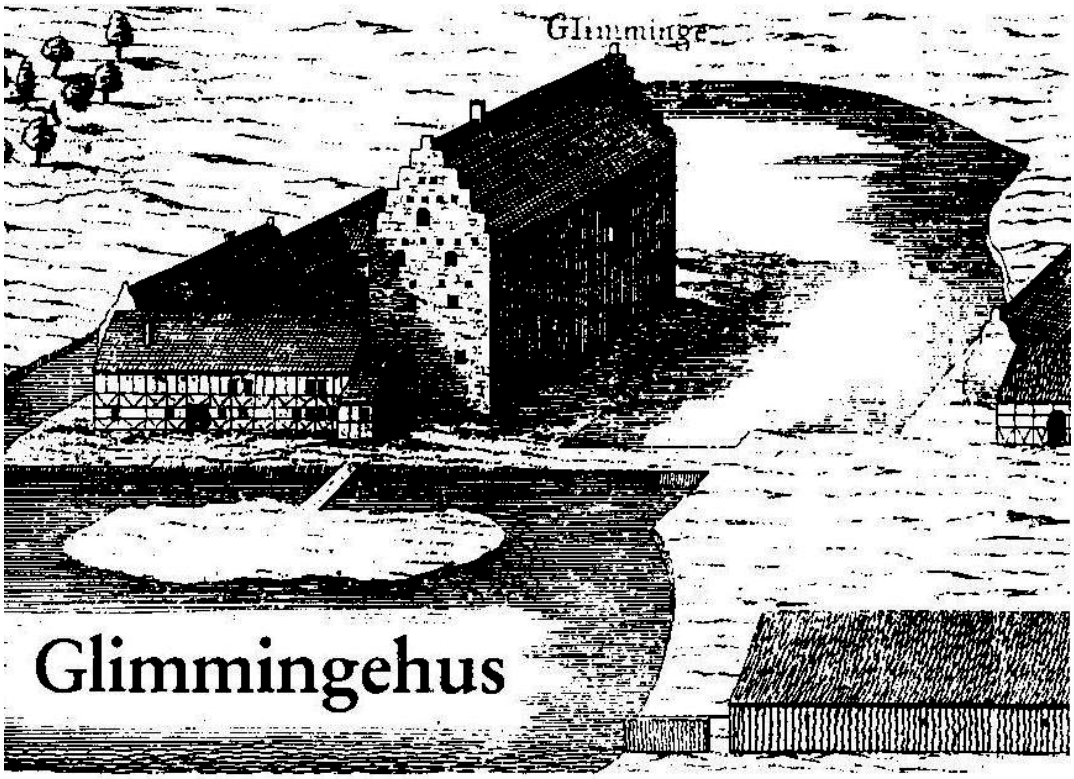

Fig. 4. The castle as it may have looked in the late 17th century. A copperplate made in the 18th century by Abraham Fischer, after drawings made in the 1680s by Gerhard von Burman.

Hildebrand chose to highlight the residential aspects of the castle (Brunius 1850, pp. 433 ff.; Hildebrand 1884–1898, pp. 226 ff.).

The castle is also described in *Skånska herrgårdar under renässanen,* written by Gustaf Upmark in 1894. In the early 20th century Otto Rydbeck wrote a booklet about Glimmingehus, published by the National Heritage Board, and sold to tourists at the site up until 1986 when a new booklet with information about the castle was written by Gustaf Åberg (Rydbeck 1980; Åberg 1986).

August Hahr analysed the castle in the book *Skånska borgar*, and was the first to present the idea that the master builder could have been an anonymous builder from the province of Gotland, instead of the known stonemason Adam van Düren. Hahr also emphasized that fortification was the main function of the castle (Hahr 1917).

When the National Heritage Board took over management of the castle in 1924 a restoration of Glimmingehus began. An excavation of the kitchen took place in 1925, led by Sten Anjou, and the results were published in the article *Köksavdelningen å Glimmingehus* 1926. Anjou also conducted surveys of the building – elevations, floor plans and a cross-section were made. The restoration led to some major changes of the castle – for example several openings through the wall were closed and new windows fitted (Anjou 1926; ATA d. nr. 892/26, 3847/26).

In the years 1935–37 the moat was

excavated and restored. Since the 18th century it had been filled more or less systematically, but under archaeological supervision conscientious objectors reopened it. Even though the records of the excavations are not up to modern standards, the finds dating from the late Middle Ages indicate a luxurious way of life (Ödman 1999, pp. 115 f.). Minor excavations were carried out in the courtyard and around the moat, in several places showing a cobbled area (Jönsson 1995, pp. 7 ff.).

In 1937 excavations were carried out in front of the entrance of the castle. Beneath the 19th-century stairs leading up to the entrance, walls of a square building, measuring 6.70 × 4.50 m, were found (Fig. 5). The walls were joined to the exterior of the castle up to a height of approximately 2 m above the buildings floor, just beneath the entrance to the castle. The archaeologist in charge, Gunnar Svahnström, interpreted the building as contemporaneous with Glimmingehus. Later researchers have interpreted the walls both as part of a tower for an exterior staircase, leading up to the second floor, and as a part of a stairway, leading up to the entrance, with a landing in front of the entrance door (Andersson 1999; Ödman 1999).

Fig. 5. The foundation found in front of the entrance in 1937, photographed from above. Photo by G. Svahnström 1937.

Aside from some minor excavations carried out in the courtyard in 1966 due to plumbing, no investigations were carried out until the 1990s. At this point a number of different surveys and excavations were made as part of the castle's 500th anniversary celebration. Parts of the courtyard and the area around Glimmingehus were excavated in 1993–94, and samples for plant macrofossil analysis were taken. The analysis showed that the castle had been built on a natural height in a marshy wetland (Regnell 1994).

In 1996 a survey of the truss was carried out by two students of building conservation and restoration, as part of a master's dissertation, and in 1997 the buildings archaeologist Gunilla Gardelin conducted a survey of the exterior walls of Glimmingehus. By following the butt joints and the differences in the walls she was able to make out five phases in the walls. Her conclusion was that the construction of the castle had taken five years, probably pausing during the winters. Besides the exterior survey Gardelin carried out an investigation of the well-dressed stones found in, for example, the portals, windows and fireplaces of the castle. The investigation showed that many of the portals and well-dressed stone details had a secondary placement at Glimmingehus. Since the material of the details is limestone from the island Gotland, her conclusion was that they had been parts of older buildings on Gotland before being brought to Glimmingehus (Ahlquist & Lassen 1996; Gardelin 1997).

The newly gained knowledge was presented in reports as well as in a book released in connection with the 500th anniversary celebration in 1999, *Glimmingehus 500 år.*

Since then, little new knowledge has been presented about Glimmingehus apart from an article in *Bygningsarkælogiske studier* for 2004 where Ebbe Hædersdal published a building-archaeological investigation of the truss.

The present survey

As shown in the previous section, there has been no interior building-archaeological survey of Glimmingehus except for the truss. Since many of the unanswered questions of the building originate from the upper floors of the castle, this is where the survey was conducted, the focus being on Room 1 (301) and Room 2 (401).

Observations in Room 1, "The Banqueting Hall"

As shown in the description above, Room 1 (301) is a large hall with a fireplace at the eastern wall (Fig. 6). It covers about two thirds of the second floor and "The Banqueting Hall" is a modern name for the room, given by its grandeur. The question is whether this was the original design of the room – in several places there are remains of interior walls, consisting of vertical strips made of mortar and bricks. The interpretations of these walls have varied – Brunius thought them to be original, and thus dividing the big room into five smaller ones, perhaps used as guestrooms (Brunius 1850, pp. 444 f.), while Hildebrand in 1884 interpreted the walls as secondary. Gunilla Gardelin came to the same conclusion in her investigation in 1997, although she interprets the plaster in the room as contemporaneous with the remains of the interior walls. In her interpretation the plaster was added some time after the building was finished (Gardelin 1997, p. 18).

Even though interpretations of the interior walls have been presented, there has been no stratigraphical analysis of the remains and their relation to surrounding plaster. And there has never been any analysis of the plaster itself – whether it is the original plaster or not. Hence, one of the main aims

Fig. 6. Room 1 (301) photographed from the western part of the room. Notice the fireplace and the vertical stripes of mortar and bricks. Photo by S. Lind 2012.

of our investigation in Room 1 (301) was to establish the stratigraphy of the relation between the plaster and the vertical mortar stripes (Fig. 7). The stripes can be found at five places in the room, and on several of them there are traces of a wooden structure, visible in the mortar. Apart from the stripes, there are traces of a removed structure on the western wall close to the entrance to the "Lady's Chamber" (302). Although no trace except the negative impression of a structure remains here, it is likely to have been the same kind of construction as the remaining mortar stripes. Since the stripes have impressions of a wooden structure, and are all vertical on the surface facing the room – unlike the exterior wall which they are attached to – we interpret them as a vertical course, built between the uneven exterior wall and the timber in the interior wall to equalize and connect the walls (Fig. 7). The interior walls were probably half-timber work, like the remaining interior wall located at the staircase (see below). Parts of the plaster can at some places be found covering the vertical courses, dating them as older than the plaster. The plaster itself seems to be original, the first layer of plaster in the room – nowhere have we found any traces of an earlier layer. Instead the same plaster covering parts of the remains of the interior walls sits directly on the exterior walls. Since it is unlikely that the room was used without a layer of plaster – all the "finer" rooms of the castle are plastered – this most likely dates the plaster as original and therefore the interior walls are original as well. It is also possible to date the plaster after 1503, since it covers the edges of the stone plaque bearing the coat of arms of Jens Holgersen's mother marked with the year – the plaque being an original part of the exterior wall (Fig. 8).

The original plaster is remarkably well preserved throughout the room. It is a light brownish pink lime mortar, with crude sand as ballast and occasionally holding

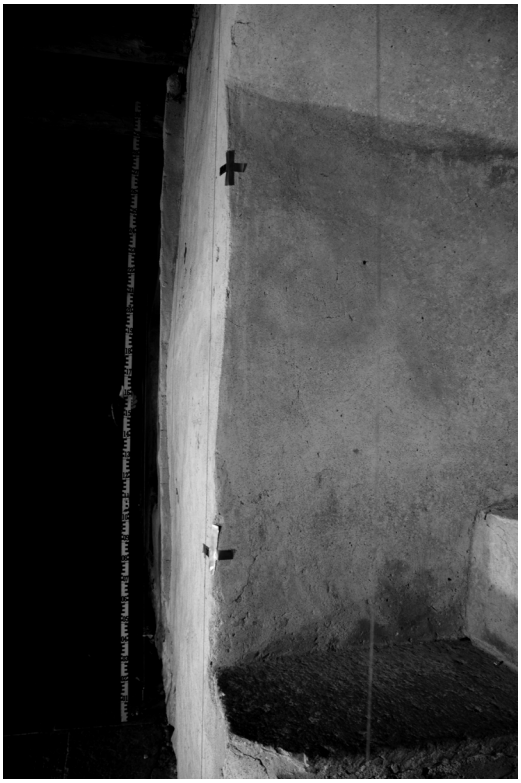

Fig. 7. The easternmost of the vertical courses on the north wall of Room 1 (301) photographed from the east. Photo by T. Westergren 2011.

Fig. 8. The stone plaque located in the south wall, south-eastern corner of Room 1 (301). Marked with the year 1503. Photo by S. Lind 2011.

some bristles. It remains on all of the walls of Room 1 (301), and appears to have been applied with a trowel. The colouring seems to originate from the mortar itself – no traces of pulverized bricks could be found. As part of the project "Scanian Lime – Local Lime from Komstad and Site-mixed Mortar" the mason Henrik Nilsson is conducting research about the local limes in Scania and their properties. According to Nilsson alum can give the mortar a pinkish colour – the colour being a side effect of adding alum shale to the process of lime burning. The reason for adding the shale is to increase hydraulic properties. Within his project Nilsson produced this kind of mortar, and added the renowned ballast sand from Tobisvik, just north of the town Simrishamn. The result was almost identical to the original plaster in Room 1 (301) (Nilsson, personal communication 2011).

All the windows appears to be unchanged as well as the door openings in the room. In each of the windows a pair of stone benches is built-in, the windows being approximately 175 cm deep. In the southern window on the east wall there is a niche which holds a stonemason's mark. The mark is placed on one of the dressed local stones, Komstad lime. The same stonemason's mark was found on several of the dressed limestones from Gotland, used as flagstones in the living-quarters on first and second floor. In the same places, other stonemasons' marks were found as well (Westergren & Lind 2012, p. 28) (Fig. 9).

The floor of Room 1 (301) is composed of dressed limestones and wood, the stone floor covering the eastern half of the room. Since the flagstones are still positioned in a precise pattern, these are likely to originally have covered the entire floor of Room 1 (301). This would also fit with the construction of the smaller rooms – it is easier to lay out one big stone floor and build the interior walls upon it, compared to the opposite, to first build the interior walls and afterwards construct a stone floor for each of the rooms.

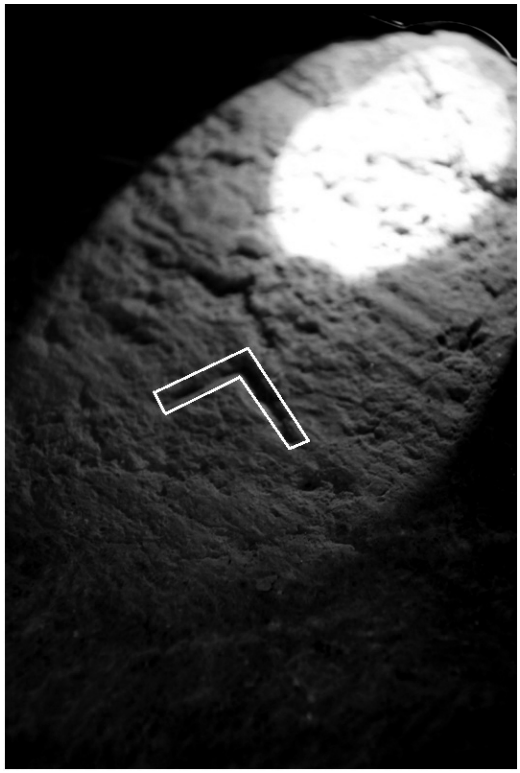

Fig. 9. The stonemason's mark found in the niche, in this picture marked with white lines. Photo by T. Westergren 2011.

There are also some traces of paint in Room 1 (301), traces that give some additional understanding of the shape of the room and the changes that have taken place. The wooden beams holding the ceiling are mostly dated to 1717–1720 (Edström 1997, p. 16), but there are still two seemingly original, well-cut beams (one at each end of the room) and also some remains of other similar beams having been cut off. The easternmost beam has dark grey paint with yellow stars, probably carbon black and yellow ochre. This painted ceiling was limited to the room with the fireplace and the stone plaque which bears the date 1503, since it ends right where the interior wall once ran.

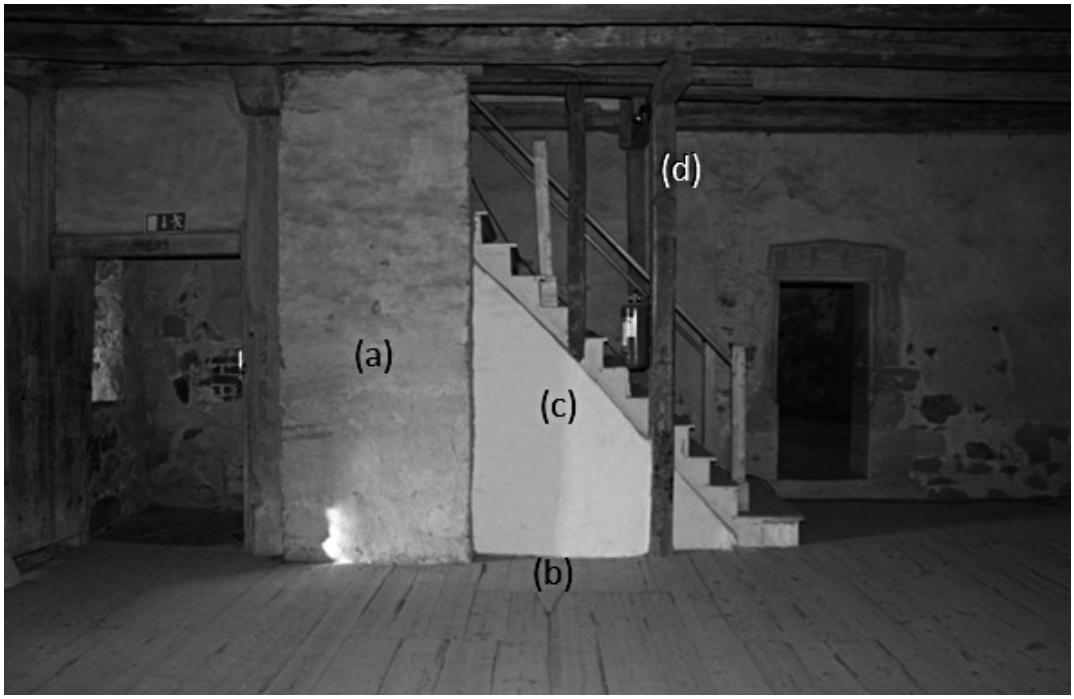

Fig. 10. The staircase photographed from the eastern part of Room 1 (301). The chimney has continued up through the floor just north of the supporting pilaster (a) – a square in the wooden floor (b) can be seen where it once went up. Notice the new plaster and stairs (c) leading up to Room 2 (401), and the remains of the supporting wooden structure (d) at the base of the stairs. Photo by S. Lind 2012.

In this room there are also traces of green paint on the lower part of the walls and on the stone floor. On a closer look with bright lamps we discovered green paint on all of the flagstones, but none on the wooden floor at the western part of the room. The stone floor was painted after the interior walls were torn down and also after the wooden supporting structure was built (see below), since there is no paint where it stood. This gives the conclusion that this paint belongs to a period when the house was no longer a residence. Since the house was used for drying and storing grain in the 18th and 19th centuries (Nilén 2008, p. 32), this might be paint deliberately containing arsenic to keep pests away.

The staircase

Another focus of the investigation has been on the appearance of the connection between the second and third floors, if it originally was a simple wooden stairway, as today, and whether the location always was the same or not.

Right at the base of the wooden stairway, south of the door leading into the so-called "Lady's Chamber" (302), there is a negative mark on the wall, the traces of an interior wall going in an east–west direction. Since a wall here would have made it impossible for a stairway to start at the same place, it was necessary to investigate the possibility of the stairs having been placed elsewhere, or the presumed wall to be something else. The aim was to answer some of the questions in this

part of the room since the common opinion is that it has been changed and is hard to understand (Nilsson 1999, p. 23). The chimney from the kitchen in the basement once lined the stair but is now cut underneath the wooden floor in Room 1 (301). Next to the chimney a piece of wall, 128 cm wide and 55 cm deep, is preserved. On its northern side there are still clear marks of the bricks and joints of the chimney, and it could possibly be a supporting pilaster built secondarily to the chimney – the chimney at that point in time going all way up to the ridge of the roof (Fig. 10).

Like the supporting wooden structure on the third floor (described above), a similar structure kept the ceiling of Room 1 (301) stable once the interior walls were removed. It can still be seen on pictures from the early 20th century (Hahr 1917, p. 29) and still today a small part of it is preserved, forming a somewhat confusing frame at the bottom of the stairs. For some reason it was not removed along with the rest of the structure. This structure has mistakenly been interpreted as the remains of the interior walls and therefore it has in those cases been concluded that the walls were still partly standing in the early 20th century (see for example Gardelin 1997, p.18). A closer look makes it clear both in the picture and by studying Room 1 (301) that the interior walls and the supporting structure are two different things. For example, the supporting structure left a mark still visible on the ceiling, going in an east–west direction parallel to, but not in the exactly same place as, where the interior wall must have stood.

In an attempt to decide whether the stairs to the third floor are still in their original position, the staircase was examined from below, the result showing that this could be the case. The steps of the stairway are supported by two leaning beams, placed upon a base made of two large limestones. The west side of the above-mentioned supporting pilaster is covered with plaster added secondarily to the stairs between second and third floor, since the plaster does not continue up under the supporting joists (Fig. 11).

Fig. 11. The stairs leading from Room 1 (301) to Room 2 (401) photographed from underneath, the plaster of the supporting pilaster not reaching up under the supporting beams in the stairway. Notice the substantial beam which the staircase rests upon at its upper end, and how it is joined with the half-timber structure above the doorway. Photo by T. Westergren 2011.

The ceiling of the upper landing for the staircase between the first and the second floor consists of short, closely placed beams going in an east–west direction and drawn tight together by wooden pegs. The above-mentioned supporting beams of the stairs between second and third floor rest at the top upon another substantial beam, going in

the same direction, which is anchored in the western wall and placed just above the edge of the landing. In the east it is joined with a half-timber structure that makes the doorframe between the staircase and Room 1 (301) – a half-timber structure which is attached to the exterior wall by an equalizing vertical course, where the mortar in some places covers the wood of the doorframe. Since all the parts are linked together and the beams are very similar in looks and dimensions, it is very likely the entire part is original, meaning the position of the staircase between the second and the third floor is the same today as it was originally. It also makes it quite possible that one of the half-timbered interior walls of Room 1 (301) is still standing.

Looking at the staircase between the second and the third floor, we see that the possibility of a now lost half-timber structure here as well is likely – the negative mark on the wall next to the portal to "the Lady's Chamber" (302) could be the traces of a now removed vertical course, built to equalize and connect the walls. There is a crack in this wall, starting at the top of the negative mark and showing where something has been removed – possibly a substantial beam similar to the one anchored in the wall at the top of the still standing staircase, leading up from the first floor – making the negative mark a trace of a wall, although not one which blocks the stairs but one which frames it. Finally, it is not easy to tell whether the original steps of this stairs were of wood or stone. Some of the benches by the windows on the third floor are made of limestone steps, but these are not long enough to fit.

Fig. 12. Room 2 (401) photographed from the eastern part of the room, showing the northern half of "the Archers' Loft". Notice the holes between the windows, placed in pairs, and the posts of the truss ending with a faced side, a little beneath the top of the wall – the beams going across the ceiling lying loose on top of the wall and supporting the secondarily built attic. Photo by S. Lind 2010.

Observations of Room 2

As with "the Banqueting Hall", "the Archers' Loft" is a modern name for the room, based on the assumption that there were cannons and fire-arms placed in its seventeen windows and sometimes on the idea of an outer, wooden loft as well, supposedly supported by beams going out through holes in the walls that exists at several places around the room (an idea presented on the castle's information sign). The possibility of placing cannons on the floor was suggested back in the 17th century, by Hintzke (Reisnert 1999, p. 104).

Room 2 (401) is the only room in the building to cover an entire floor (Fig. 12). The oldest plaster in this room, according to the stratigraphy, appears to be the same kind of plaster as the original layer in room 1 (301). No traces of any earlier plaster could be found in Room 2 (401) either.

No traces of now lost interior walls could be found in our investigation, and the windows, a door opening in the northern exterior wall and the holes mentioned above – going through the exterior walls at 44 places throughout the room – all seem to be original. The stones surrounding every opening were dressed to fit the edges, and there is no visible damage to the exterior walls – although some modifications have been made to the windows and the door opening.

The holes are placed in pairs between the windows around the room, in some places almost in a vertical line but at most places in somewhat more random fashion. All of them were originally clad with wood, and are leaning outwards at a small angle. The precise angles are hard to calculate since there was no way to measure the depths of the holes accurately, but directing a horizontal laser line on to the upper edge of the outer opening showed a difference between the inner and outer upper edge of about 10 cm.

The bricks framing the windows today appear to have been added secondarily, with butt joints visible in some places against the original exterior wall – observations made by Gardelin in 1997 as well (Gardelin 1997, p. 21). In many of the windows the stones used for benches and embrasures seem to be secondary as well. Some of them are reused, with holes for iron bars identifying them as originally being parts of window frames. The windows in the eastern and western walls are different, though – here the embrasures and benches are mainly made of the almost black local limestone, Komstad lime, and appear to be primary (Fig. 13).

The opening in the northern wall, which leads out to an oriel, appears to be original

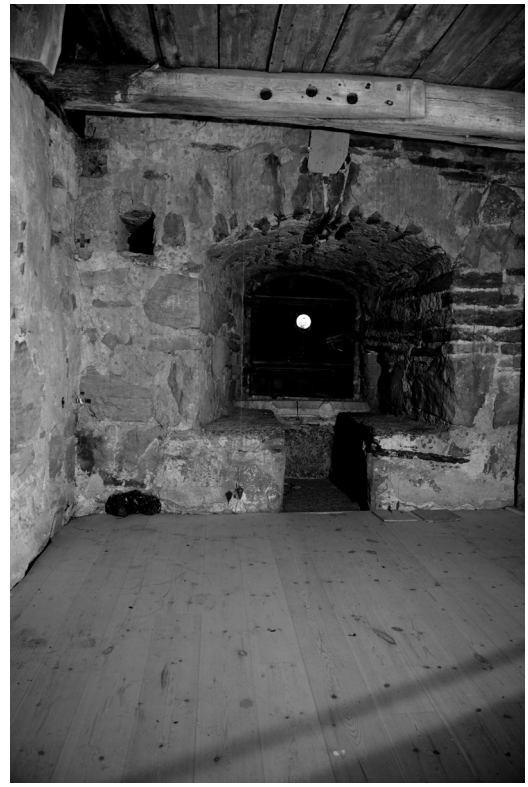

Fig. 13. One of the windows in the west gable of Room 2 (401), with the local limestone in the embrasure, photographed from the east. Photo by T. Westergren 2011.

since the original plaster goes into it, and on each side of the opening there is a big stone slab half-walled into the exterior wall, and half-walled into the oriel. The door opening has an entirely different angle of the embrasure than the windows, differing between a width of about 100 cm at the window frame and about 150 cm at the interior opening. Meanwhile, the door opening is 5 cm wider in the interior facade than in the exterior facade. The oriel itself appears to be secondary, however – the mortar in it is the original mortar, found in the exterior walls. There is also damage under the big stone slabs in the wall, filled with the bricks of the oriel.

Around the entire room damage to the walls can be found just above the wooden floor, following the level of the floor and higher up in the western part, at the dais. The damage appears to continue into the wall, even though its extent is hard to judge, due to a new wooden floor having been built on top of an older one in 2010. At some places repairs can be seen in the form of mortar.

Finally, the ceiling of Room 2 is the attic. Made of wood, it rests on loose beams, lying on the top of the castle wall. In the entire truss there are only six tie beams at the base, three at each gable. At these parts of the truss, the standing posts ends on the tie beam. The rest of the posts end just below the top of the wall with a faced surface – indicating there have never been tie beams at the middle of the truss and that the attic is secondary. The truss itself is a king post truss, where the king posts today rest on supporting structures of a later date but originally would have been standing on a tie beam going along the length of the building, east to west, lying on a floor or on tie beams going north to south (Hædersdal 2004) (Fig. 14).

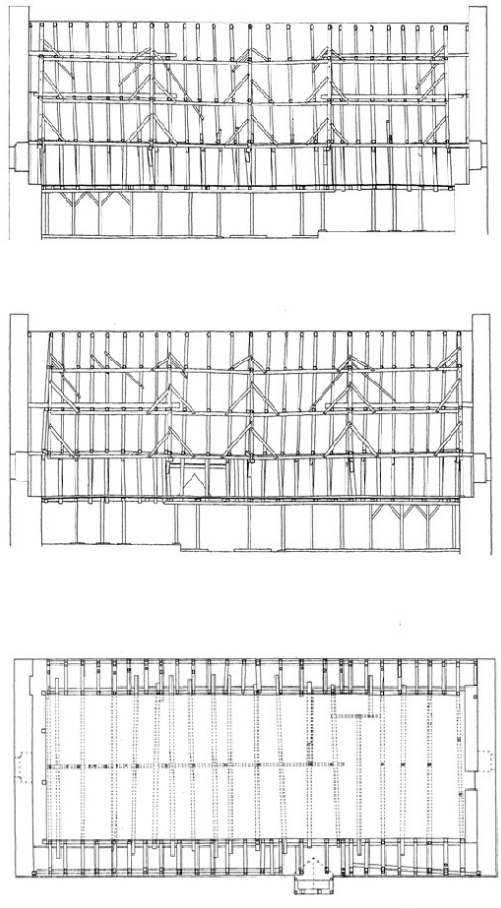

Fig. 14. Ebbe Hædersdal, Johan Iacobi and Martin Seitzberg investigated and documented the truss in 1995. From above: cross-section of the truss and Room 2 (401) from the north, cross-section of the truss and Room 2 (401) from the south and floor plan showing the tie beams of the truss. In this version no scale. (Hædersdal 2004).

Results

One of the aims of the investigation was to show the stratigraphy of the traces of interior walls in Room 1 (301), and thereby get an idea of the original appearance and functions of the room. Since the interior walls turned out to be original, half-timbered walls dividing Room 1 (301) into smaller rooms, this

altered the function of the room altogether. The great banqueting hall disappeared, and in its place we found four smaller rooms and one that was slightly bigger than the others, where the door opening to the privy was located. One of these smaller rooms would have had a fireplace with a coat of arms on the mantelpiece, another coat of arms on a stone plaque in the wall (see Fig. 8) and possibly a painted ceiling, decorated with yellow stars – possibly a smaller, luxurious chamber for meeting the most important guests? But even though it was small, this was still an important room as shown by the coat of arms – an arrangement that fits nicely with the layout of other castles from the late Middle Ages (Johnson 2002, pp. 80 f.). A question frequently asked by visitors to Glimmingehus is where the guestrooms were located – perhaps we have found them in the other three small rooms.

The changed function leaves us with the question of where the banqueting hall was located. An idea for its location could be the room on the first floor, called "the Castle Hall" (202) – a beautiful room with a vaulted ceiling and a great column in the middle of the room, supporting the vaults. This could possibly be the banqueting hall, even though it only covers half the floor – living quarters covering the other half. In the entire castle there is only one room covering an entire floor, Room 2 (401).

Today Room 2 (401) may look rather crude to be the banqueting hall, but our survey showed that all seventeen window openings are original – and these are the biggest windows in the castle. It also indicated that the stones in the benches and embrasures have been changed, except in four of the windows, two on each gable, where some of the original stones are still in place. Here the stones are made of almost black local limestone, Komstad lime, and nicely fitted. In the excavation carried out in the kitchen in 1925 Sten Anjou found about twenty well-dressed Komstad limestones. Put together the stones formed window frames, about 65 cm wide and 80 cm high. Anjou dismissed the idea that these could be the missing window frames in Room 2 (401), mainly on basis that the window frames have a fully evolved Renaissance style, but also on the observation that the window openings are too small to fit the window frames found by Anjou (Anjou 1926, pp. 156 f.). When we measured the window openings for ourselves we came to another conclusion – the window frames could certainly have fitted. It is possible that Anjou forgot to "remove" the secondarily walled-in brick frame and just measured the opening. The window frames themselves, being "lost" since the investigation, were found in the attic when we conducted the investigation.

The ceiling of Room 2 (401) is today the attic, a wooden floor placed on loose beams. Since there are no tie beams at all but three at each gable, the question of the truss being open originally arose. Hædersdal concludes in his report on the building-archaeological investigation that the king posts originally must have stood on tie beams, or on a long tie beam lying on a floor and going in an east–west direction. He also suggests that the king posts may have gone all the way down to the floor of Room 2 (401), without an attic in between (Hædersdal 2004). The height of such an open truss must have been very impressive – about 13 m from the floor to the ridge of the roof! And all the way up to the ridge stood the chimney – an extremely modern feature at a time when most chimneys were still built into the exterior walls (Andersson & Hildebrand 2002, p. 167).

The floor might likewise have been something other than the simple wooden floor we see today – the damage at floor level around the room might be the traces of another floor being removed at some point in history. It could also be the traces of the damage done when the beams of the ceiling

in Room 1 (301) were removed and replaced, but the damage is extensive, and goes quite far up in some places – perhaps too far to be just the damage from the beams being removed, but it is impossible to measure how extensive it is since the new wooden floor covers an unknown part of it. However, it is likely that the original beams in the ceiling of Room 1 (301) were arranged closely together, like the still remaining beams in the ceiling of the staircase, and thereby able to carry a great weight – either just the weight of the king posts, or the weight of a brick or stone floor as well.

These hypotheses and ideas put together indicate a remarkable room, which easily fits the criteria of a banqueting hall. Further investigations would need to be made of the truss, to compare the results of the dendrochronological tests that have been made with carpenter's markings and construction theory to evaluate the possibility of the open truss – but it seems to be a very plausible construction.

When it comes to the question of how the guests reached this grand banqueting hall, it seems the staircase was located at the same place as today. It is hard to tell what the steps were made of, but the staircase itself was most likely made of half-timbered walls, like the staircase leading up from the first floor. Much like the chimney the staircase itself was a modern feature in its time – most stairs in the Middle Ages being built into walls (Andersson & Hildebrand 2002, pp. 162 f.). A straight staircase situated in the middle of the house, like the one in Glimmingehus, can be seen as the first steps towards the grandiose staircases that appeared later in history.

The question of an external stair tower has been considered in the survey, but dismissed on the same grounds as Karin Andersson presents in her article: no traces of a tower can be seen in the facade and the stone plaque above the entrance seems to be in its original location (Andersson 1999, p. 132). Besides, a tower the size of the foundations found beneath the entrance would have completely covered the northern window of the antechamber on the first floor. The foundations are more likely the base of a landing in front of the entrance, and since the opening in the north wall of Room 2 (401) seems to be original, this could have been a platform to use together with an oriel. That way heavy goods could have been lifted up to the opening on the second floor.

The idea of an external balcony has been dismissed as well, partly because of the downward-pointing angle of the 44 holes in Room 2 (401), but also because these holes are awkwardly placed to hold supporting beams – the distance horizontally between them being approximately 3 m without any holes in position to hold a supporting beam at the corners of the building. Also, the vertical distance between the holes are no more than approximately 1.5 m, making a room in such an external balcony very small. Since the investigation also showed that the window openings are original, and probably were the grandest in the building, it seems unlikely that they would have been obscured. So the idea of a balcony was dismissed – but we have not been able to figure out the use of the holes. This could be an interesting question for future research, preferably in a cross-disciplinary project.

A building worth documenting and investigating

Thanks to the investigation of the staircase we discovered that more of the castle is original than is traditionally believed – the half-timber wall at the top of the staircase in Room 1 (301) gives us a good idea of what the rest of the interior walls in the room may have looked like. The same goes for the layers of plaster – more than expected is original, and

a lot of information could be drawn from the stratigraphical analysis. Now we know exactly where we would like to take samples of mortar and plaster for analysis and dating. Apart from the original plaster, we also found clay mortar at several places in the castle where it was used for repairs. One of these places is in "the Lady's Chamber" (302) where it holds one of the stone plaques, sometimes referred to as "Kämpetavlan". An analysis of this mortar could give a date for when the stone plaque was placed here, and would also be a good dating point in the stratigraphy of the plasters.

Overall, the survey shows the importance of documenting and the fact that there will always be new questions to ask, and new answers to get – even at a well-investigated place like Glimmingehus. Sadly the castle is not protected by law from changes today, even though applications to change this have been sent to the Swedish Government. This means that changes are still made to the castle without any documentation being done. All the modern changes described in this article – new floors and stairs – have been made without any antiquarian supervisor. And in the spring of 2013 renovations of the lower parts of the staircase were begun, a new layer of plaster being added in the entrance hall and stairs, without any documentation being done (Fig. 15).

Glimmingehus is a very well preserved medieval castle, perhaps even better preserved than we have believed. With our investigation we hope to have raised some new questions, and since each time has its questions to ask, we hope that the future will be able to do the same.

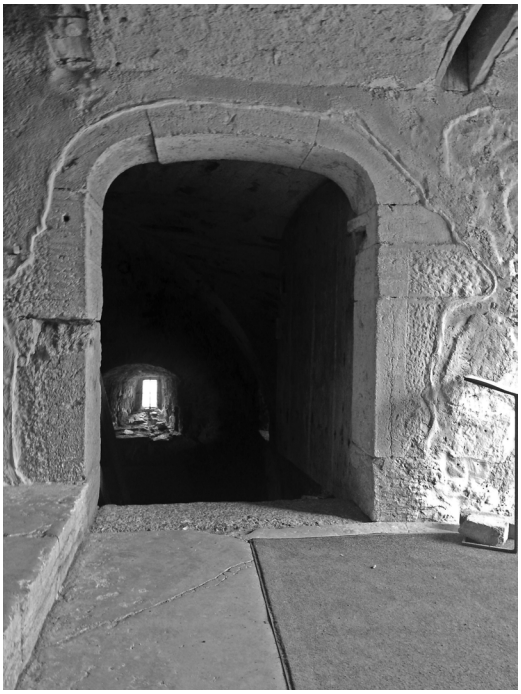

Fig. 15. The latest changes made at Glimmingehus – a new layer of plaster in the entrance hall was applied in spring 2013 without any documentation being done. Photo by S. Lind 2013.

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