

PHD RESEARCH PLAN IN HISTORICAL ARCHAEOLOGY  
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Peter d'Agnan

## THE BULWARKHOUSES

*-an archaeological study of early medieval wood building culture on Gotland.*

### Abstract

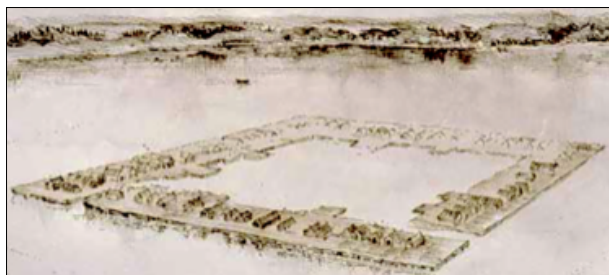
*The archaeological site "the Bulwark" (Bulverket), is a classical historical and archaeological problem in the Baltic Sea Region. The construction built in the 1130s, was a gigantic urban like wooden platform with a lot of different buildings, situated in the middle of a lake on Gotland in the Baltic Sea and therefore also in the middle of the Nordic politics. The mystery regarding why it was built is not yet solved. It has often been referenced to regarding building development within archaeology, history, architecture and ethnology. Still, more than 100 years of research and several published hypotheses of the purpose and use of it, the building material has not been analyzed thoroughly.*

*This project, with theoretical and methodological background in building archaeology and craft science, will systematically and technically analyze the building parts with a deepgoing and multidisciplinary approach. With my background as medieval archaeologist, building curator and craftsman within traditional building techniques, I will study hundreds of drawings of building parts from archaeological investigations conducted in the early 1900s, as well as 3D models from new underwater investigations within the project.*

*Through the different house constructions that are uniquely preserved in the sediments of the lake, normally not possible to study from land sites, the study aims to study the local building development in detail, by looking at building tradition versus different sociopolitical influences around the Baltic Sea Region. The project will fill knowledge gaps about detailed development in early medieval wood building culture on Gotland, connected to the society around the Baltic Sea Region.*

### Problematization, aims & questions

A space in time of great importance to the research of medieval wooden building development in the Nordics, is when all four different wooden building techniques existed at the same time (stave-, corner post, timber joint and wicker work construction). On Gotland this occurs when the frame constructions were at its technological peak and the sills began to be put on top of a stone foundation instead of the ground (see further on under positioning and relevance).



**Fig. 1.** Jon Adams's illustration of how the Bulwark might have looked like. The enormous dimensions illustrate the potential to study a large and diversified building material. Courtesy of Adams.

This was also an important period when Gotland had a strategic place in the early process of Europeanization. At this time, the island goes over from being a seafaring base and tax country under kingship, to a vital trade market with its urbanizations in Västergarn and Visby that gets its own coinage around 1140, gets connected to the diocese of Linköping and starts a major building phase getting a 500 year old wood building culture to start building more than hundred stone churches in the parishes and Visby. At the same time, the island probably had a special position in the crusades, on one hand selling slaves and weapons, and on the other embraced pilgrims and crusaders. Naturally, in some grade, all of this had to influence the building and style of the biggest wooden structure on the island -the Bulwark.<sup>1</sup>

Noticeable around the research about the Bulwark, is that the buildings, despite their scientific potential, haven't been problematized thoroughly. Still, the archaeological site is well referenced to regarding late viking age and early medieval wood construction and development.

<sup>1</sup> Berglund, 2013, Kilger, Elfver & Svedjemo 2015, Myrberg 2008, Roslund 2001, Westerdahl 2003, p. 33, Widerström 2021, Wienberg 2000, p. 69, 78, 81, Wyatt 2021, p. 18-24.

Regardless what the Bulwark was built for, it shows the detailed wood building culture that was influenced by the sociopolitical development in the area. The unique opportunities the site gives us are several and multifaceted. First of all, the building parts are remarkably well preserved in the sediments to a grade where it is still possible to make out individual axe marks on the wood from the building phase that creates a direct contact surface to the individual that once hold the axe. This means there are possibilities to study different tool use.

The site is also enormous, measuring 170 times 170 meters, where hundreds of houses would fit. We also know that the buildings had different sizes and all four building techniques are represented. Since the Bulwark houses mirror the wooden building culture, it also indirectly means there are possibilities to get more knowledge about detailed house construction in other environments, in example Visby and rural environments.

In a bigger perspective the Bulwark enables possibilities to study different aspects of building, like function and use, administrative organization, social status, rituals, cultural belonging, local variations in styles, rurality versus urbanism and so on. This projects aim is therefore to study the detailed wood building culture on Gotland and place it in the sociopolitical situation in the Baltic Sea Area.

The main research questions are:

*What does the collective building material from the Bulwark show in detail when it comes to ways of construction and where and how in the wood culture development can it be placed?*

*In what ways can the buildings or ways of construction, be placed in the development of the early medieval society on Gotland and the sociopolitical situation in the Baltic Sea Region in the late 11th - early 12th century?*

## Material, methods & delimitations

The starting point of this research will be based on extensive Nordic literature on building- and sociopolitical development.

The main material that will be analyzed is voluminous documentation from previous archaeological investigations of the Bulwark, supplemented with new investigations. The building analyzes are intended to be based on a contextual method and comparative analyzes of contemporary building materials around the Baltic Sea Region.

The analysis method of the building parts, will be based on a template with questions to be answered during observation of the building parts. This concerns, for example, measurements, cutting and chopping techniques, choice of material and joints. Both quantitative and qualitative methods will therefore be used. The building tech-



**Fig. 2-3.** Arvid Zetterling and his friend Lennart von Post with salvaged building parts which through craft science and building analyses, can provide new knowledge of importance to the understanding of the development of wood culture. Here we see Arvid (on top), with a gable in a timber joint construction that can tell us about the size of the house.

*On the bottom Lennart is holding a part of a corner post and a sill in a frame construction. This construction can also tell us a lot about the development since the sill starts far up on the corner post. This means that we are looking at a stage where the tradition still was to dig the post down in to the ground. The question is what purpose did this type of construction serve on top of a wooden platform in the middle of a lake? Photo in ATA, RAÄ.*

niques that were used will be put in sociopolitical context and discussed as a part of the political climate.

The time period of the prime material is limited to ca. 1050-1150. New dendrochronological analyzes on specifically selected building parts within this project, are intended to evaluate chronology and contribute to knowledge about timber selection, quality and growth place. The limitations in time when it comes to building and societal development, naturally have to go further back to make understanding.

## Theoretical background & theory frames

The theoretical basis of this research is partly based on building archeology and partly on craft science. The origins of building archeology lie in the 19th century's view of monuments and stone house restorations, where buildings were early studied in a restrictive manner as artefacts, taken out of their contexts. This despite often diversified purposes and multifaceted underlying causes.

Today, building development is considered as a result of human influences and actions that are explained by underlying causes. Recently, there has also been demand for a developed building archeology from a dwelling perspective.<sup>2</sup> Last decades, research has focused on social structures in dwelling through spatial analyzes and the meanings of individual building components. It has also been shown that construction also can be problematized in other building contexts, e.g. shipbuilding.<sup>3</sup> Furthermore, it has been shown that construction can be direct reflections of the action of individuals in micro format as



**Fig. 4.** Post hole in a stave construction chopped out with a special type of axe. Each cut mark is still visible, providing clues about the craft and the individual behind the axe. This timber was a part of a stave construction we know very little about. Underwater photo from the Bulwark: d'Agnan 2022.

<sup>2</sup> Eriksdotter & Anglert 2018, pp. 25, pp. 37, pp. 65, pp. 93.

<sup>3</sup> Eriksson 2014.

<sup>4</sup> Johnson 2010, p. 2-3, 42-44, Eriksdotter 2005, p. 14ff, 17, Andersson & Hildebrand 1988, p. 9, Morris 1994, Eriksdotter 1997, Jönsson K, & Sundnér B. 1999, Christophersen 2001, p. 52, Mårtensson 2001, p. 4, Eriksdotter 2005, p. 117-176, Ros 2007, p. 46, Johnson 2010, Almvik 2012, Eriksson 2016, Linscott 2017, Almevik & Westin 2017, Eriksen 2019, p. 3-10, Almevik, G, Pärnsten, B & Sjöholm 2020, Qviström 2020, Nilsen 2020, Johnson 2010, p. 20, Sjöholm 2012, Linscott & Nilsen 2018, Unwin 2020.

<sup>5</sup> Almevik 2017, p. 8, 237-264.

<sup>6</sup> Botwid 2022, p. 248-252.

well as traces of revolutionary sociopolitical societal changes. Undoubtedly, houses has always been more than just a roof over the head!

The core of the theory adapted in this research, originates from the fact that whatever you construct, there is always some sort of an idea or drawing, although it can be mental. The idea has an origin that comes from various influences. Johnson (2010) describes the matter in a simple way: "...houses are about human beings. Architecture is a human creation, the medium and outcome of people acting on their surroundings." and "The one true end of the study of old houses is to understand something of the ways of life and systems of thought of their builders...". Unwin develops this further by showing ways to analyze architecture<sup>4</sup>

Craft science also has a similar logical approach as building archaeology, where "Craft research seeks... inner logic that is formed in interaction between man and environment in specific practical situations." Decisive in the research context is by conservation science the so-called forensic perspective.<sup>5</sup>

Another important theoretical standpoint is the artisanal perspective that can be used as an interpretation method of silent knowledge, something you learn by doing. This is used e.g. within craft and pedagogic research, theoretical philosophy of knowledge and evolutionary biology. In this research, my own interdisciplinary combination of skills in crafts, building construction and archaeological building interpretation will play a crucial role.<sup>6</sup>

## Earlier research about the site

The site was first mentioned in 1868 by Montelius, one of the first modern Swedish archaeologists. Zetterling is the one who first carried out investigations from the end of the 1910s to the end of the 1930s. He salvaged almost 600 building parts that he documented with great precision and in an exemplary manner to then be redeposited on the site. Some parts still remain in the Swedish History Museums collections. The most important findings were the diversification of the houses.

In 1995 Rönby published his dissertation about the Bulwark. The aim was to discuss social needs and power structures behind the construction. The main question was who needed the Bulwark? The research resulted in better mapping, dendrochronological dating to the

mid-1130s, and the conclusion that the structure was built hastily and abandoned shortly after the construction phase when the structure began to sink into the bottom sediments. His conclusion suggested that the construction was both a symbolic and a physical resistance against the new medieval society and external threats. He also brought up the Bulwark as a parallel to medieval town planing in a article.

Many other researchers have also published research and presented various hypotheses about reasons to build the construction.<sup>7</sup>

## Positioning & relevance

Since the turn of the last century, extensive research has been conducted about northern Europe's wooden building traditions. The researchers have been ethnologists, architects, cultural geographers and archaeologists. On Gotland, regular wooden house structures arose around the second half of the 6th century, when farms began to undergo radical changes from the previous dominance of stone-foundation longhouses with many functions, to several smaller wooden houses with concrete functions. The main features of the new building techniques seem to have spread from the area northwest of the Black Sea and came to the Baltic Sea Region along the rivers.

The modernized way of building consisted of frameworks, a collective name for several techniques, derived from the principle where a wooden frame is filled in different ways. The framework techniques are called wicker work, stave-, corner post-, and also half timbered constructions, which were developed later during the middle ages. Wicker with horizontal and/or vertical bars or branches is the oldest type of wall material. Stave constructions are constructed with standing material, such as planks, but could previously also consist of half

logs. The Bulwark has Gotlands oldest evidence for a new technique, timber joint construction. It is characterized by horizontal timbers on top each other, joint together with different types of jointing techniques in the corners.

In terms of comparative material on Gotland, some construction parts from sacral buildings have been preserved. Examples are the roof in Garde church from the 1140s, and the Hemse stave church dated to the turn of the century 1100. Also parts from Eke, Spröge, Silte and Guldrupe are known. Walls of stave construction can be found in Alskog, Lye and Hablingbo church towers.

In Norway there are buildings with standing stave churches from the second half of the 12th century. From the High Middle Ages there are several preserved timber joint houses in Sweden, e.g. Zorn's Eldhus from the 1230s, Granhult's church from the 1220s in Småland, and a church vestry in Dalarna, dated 1285. Examples of core post construction can be found in an attic wall in Jäst church in Småland from the 1220s. In this context, we should not forget archaeological material from, above all, larger urban excavations from the second half of the 20th century, where entire blocks were investigated such as in Sigtuna and Lund.

The profane wooden house development on rural Gotland, has only been treated in rough schematics, where the 1970s Fjåle excavations provided the basis for knowledge of the development around 600-1300. Instead, research about the Middle Ages has traditionally concentrated on the construction of stone houses in Visby, parish churches and vicarages. In modern times, however, a handful excavations of farm houses have supplemented the knowledge somewhat about the design and continuity of the farms.



**Fig. 5.** 3D model of the top of a gable from a timber joint building, salvaged from the Bulwark by me in 2022. The roof angle here is 32 degrees. The building was thus built according to a traditional geometric formula, called 1/3-gable, where the height of the gable was 1/3 of the base width of the building. The formula was commonly used before the protractor was introduced. Note also the ax cut for the ridge in the middle, where a chop ax with a slightly convex edge of small dimensions was used. With the cut marks it is possible to reconstruct the ax. On the underside of the log there are recesses for the ends of the side beams, which can be used to interpret the roof construction. Model: Peter d'Agnan.

<sup>7</sup> Bendegard 1993, 1992, 1989, 1983, Blomkvist 2008, p.173-174, d'Agnan 2019, 2021, 2022, Hyenstrand 1989, p. 128-129, 133, Kyhlberg, 1991, p. 72, Montelius 1868, p. 23, Rausing 1990, Rönnby & Adams 2006, Rönnby 1995a, 1995b, Rönnby 1992, Rönnby 1990a, 1990b, 1990c, 1989a, 1989b, Varenius 1983, Westerdahl 1988, Zetterling 1927, 1928, 1929.

In summary, generally speaking, the oldest origins and development of framework constructions have been explored less in comparison to the timber joint constructions in the Nordics. Concerning Gotlandic research, the case is reversed, where we basically lack the introduction of the timber joint construction. Of the various framework techniques, we have the least knowledge of stave constructions.

The research overview shows that Gotlandic research focused on dwelling patterns and farm development in a long farm perspective, rather than detailed building development.<sup>8</sup> By answering the research questions, the project contributes to a more detailed picture of early medieval wood culture, connected to societal relevance, crucial for the understanding of building development. It also illuminates the complex Bulwark site from a building archaeological and crafts perspective, not yet discussed by previous researchers.

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<sup>8</sup> Haase mfl. 2005, p. 14-19, 2009:489, Henriksson 1996, pp. 32, Rausing 1968, Lagerlöf & Stolt, 1982 1974, 1972, 1969 p. 181-191, 1968, p. 184-185, 1965, p. 26-27, Hauglid 1976, Henriksson 1996, Zimmermann 1998, Boëthius 1927, Lundberg 1940, Erixon 1947, Clemmensen 1937, Werne 2017, p. 96, Rosander 1986, Herschend 1989, Augustsson 1992, Rosberg 2009, p. 13-19, 2019, Ekhoft 1914, p. 79-128, Ersson 1974, Sjömar 1988, Berg 1999, Pettersson 1990, p. 38, Christoffersen & Walaker Nordeide 1994, p. 113-212, Born 1942, p. 61-70, Trotzig 1972, p. 73-88, Carlsson & Pettersson 1979, p. 135, Thunmark-Nylén 1979, p. 111, Carlsson 1979, 1983, 1986, 2004, 2008, 2009, Horvath, A, Pilefelt, B & Carlsson, D. 2012, d'Agnan 2021, Gustafsson 1949, Svedjemo 2014, Östergren 1989, Carlsson 1988, Andersson 2016, p. 8-25, Axelsson & Israels 2008, Sjömar 1988.

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