Naust

– the boathouses of Nyköping and the echoes of power

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This article presents and discusses a construction phenomenon during the Iron Age (500 B.C.-1100 A.D.) in Scandinavia called naust. The article discusses the naust phenomenon from structural, social and spatial perspectives concomitant with the late Iron Age and the emergence of semi-centralized societies in Scandinavia. Particular focus is given evidence which dates to the Vendel (ca. 550-800 A.D.) and Viking (ca. 800-1100 A.D.) periods and come from the Åkroken excavations conducted 2010 and 2011 in the town of Nyköping in eastern middle Sweden. Not only is the more well-preserved building here the largest known excavated example of a naust in eastern Scandinavia from this period, both buildings also had impressively long periods of use of up to 400 years. They have most likely defined this locality over numerous generations and are succeeded by the town of Nyköping which needs to be re-evaluated as a part of a greater whole.

Etymology

The etymology of the word naust is intricate and can be the matter of debate. This is, however, not the main question addressed in this article. The etymology is merely presented so as to demonstrate that the origins of the nomenclature regarding nautical terms and phenomena is ancient and that it still has recognizable elements having been in use for at least the last two millennia. It is suggested that the word naust is construed by the Proto Indo European (PIE) root **neh2u-* "ship" (cf. Greek: ναῦς (*naus*), Old Norse: *nor*, Old Irish: *nau*, Welsh: *noe*) and the suffix *-steh2* "to stand", i.e. stall/stable (cf. Old High German: *awist, ewist* "sheep-pen/stable"), i.e. literally meaning "Ship-stable" (Lubotsky 2012-03-14). The more commonly used word for ship in Old Norse however, *skib*, is of more obscure Germanic origin, possibly derived from the PIE **skei-* "to split", also meaning "tree cut or hollowed out" (cf. Greek: σκαάφος (*skaphos*) "hull", Proto Germanic: **skipam*). Boat can be educed from the PIE **bheid-* also meaning "to split/bite" (cf. Old Norse batr). In Old Norse there was obviously clear-cut distinctions between the words (and hence the vessels) *nor,*

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skip and *batr*, derived from various parameters such as function, size, crew and manner of manufacture to name a few. This is, however, a separate debate. Nevertheless, the etymology of *naust* is explicative due to two factors;

1. is denoted by PIE elements and has thus been introduced after a time when an archaic form of Proto-Norse already had settled in Scandinavia, i.e. it is certain that this word can be dated back to at least the Pre-Roman Iron Age period (Kroonen 2013-05-22) and this is also when it starts to occur in the archaeological record.

2. *Naust* is used consistently for the same type of structure through time. Even if we cannot know this for certain, it is implausible that the word would designate another type of structure today than it did in prehistory.

Definition and research history

The naust has primarily been understood and interpreted from the aspect of storing ships . However, this was not their only purpose, the need of a protective structure when constructing and repairing ships was of equal, if not greater, importance. Constructing these types of structures is surely as old as the use of ships and boats themselves (Rolfsen 1974, p.12[1]). However, the *naust* structure discussed in this article is defined by:

- A sedentary pole and/or partially stone built building-like structure with an opening facing the water, a roof, walls, and trenches or banks consisting of stone and/or soil on both sides of the building.
- A trench in the middle of the structure where the ships were pulled up and stored, repaired or constructed.
- It being situated in an area close to where land and water intersect/has intersected.
- Located in what one can call the Scandinavian culture-sphere during the Iron Age and later.

The appearance of the above defined *naust* in the archaeological record is concomitant with the beginning of the Iron Age in Scandinavia, a period defined by the emergence of semi-centralized societies, political power connected to pre-urban central sites and a differentiation of spatial use in coastal areas. These factors are in a reciprocal relationship with the *naust*, e.g. through organized labour and that it was a common structure in the sense that it held shared interests and/or obligations through for example travels/ *ledung*[2]. In addition, the necessity of defence, trade and communications renders that ships were valuable commodities in need of protection and maintenance and consequently, so were these buildings. In relation

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to the common aspects of the naust it is probable that they had both a private, personal sphere (since it was most likely owned by a chieftain or its equivalent, cf. halls and other common structures) but was also shared/used by several others, such as workers and shipwrights etc. The development of shipbuilding techniques is likely to have propelled the developments of naust construction. When the ships grew in size and number, the naust did likewise. As indicated above, there is no reason to believe that similar structures have not existed throughout prehistory, but here we face a source problem. There are few or no[3] examples of such structures that have been excavated in Scandinavia, and few remaining ships from the periods predating the Iron Age are known (excepting log-boats and canoes, which, in any case, are not ships). Some unique examples of older boats exist, such as the Hjortspringboat (Kaul 1988) from Denmark dated to 3-400 BC and the Ferriby-boats from England dated to 2000-1680 BC (http://www.ferribyboats.co.uk/). Additionally, even if some of the larger Norwegian examples of naust are dated to the first centuries AD (Stylegar & Grimm 2005, p.256) there are no complete surviving ships from this particular period. Yet depictions of large maritime vessels in the well-known Bronze Age rock carvings from Scandinavia suggest that also during this period some form of shelter must have been in use. Perhaps these were of simpler nature and have therefore not survived in the archaeological record (Stylegar & Grimm 2005, p. 256). It needs to be pointed out that the inventory in Scandinavia of land-built maritime connected structures prior to the Iron Age is similarly to older ships scarce at best. Still, the naust type of structure discussed here coincides with the social, economic and organizational aspects of Iron Age society and is thus a phenomenon specific to this time. There are a wide range of evidences of both simpler and more advanced storage structures throughout history, e.g. Greek examples from the 5th century BC (Stylegar & Grimm 2005, p. 253), large complexes of structures deemed some of the most expensive of antiquity (Blackman & Rankov 2014), but also examples from ethnographical studies used throughout to modern times. These are, for instance, branch built sheds used by the Sami population in northern Norway (Rolfsen 1974, p. 12). Functionally speaking, these are as any type of construction dependant on the type of vessel stored, meaning that the properties of the structures are determined by the vessels and not vice versa. However, the naust type of construction discussed in this article incorporates more than just storage capacities. One must bear in mind the great value of ships and consequently also of these structures (both monetary and symbolic) which is given from their reciprocity to the importance

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of seafaring, trade and war, viz. factors of power. Given these properties it is also likely that many naust were situated in the vicinity of places of power, constructed under the auspice of kings (Stylegar & Grimm 2005, p.253). One of Sweden's oldest towns, Birka, located on the island of Björkö in lake Mälaren, had a protected harbour with several pile barricades constructed in the water closest to the town area (Hedenstierna-Jonson 2006, p. 48). This functioned primarily as a defence for the town and the trade conducted there, but it is also reasonable to assume that merchantmen were moored securely behind these barricades. Furthermore, outside of the regulated town area adjacent below the garrison of Birka, there are remains of what appears to be jetties and other constructions and this location is the most likely to have harboured a naval base (Hedenstierna-Jonson et. al. 1998, Stålberg 2000). However, there are two[4] naust located on the neighbouring island of Adelsö, where also the royal demesne was, i.e. the naust were situated in direct connection to the king. Also, several so called *båtlänningar*[5] have been located on Björkö (Hermodsson 1997) but these appear scattered over the island and do not in any case qualify as naust.

A thorough examination of the archaeological and historical material and surrounding landscape (topography, land rise calculations) can produce fairly secure indications of where one can expect to find naust structures[6]. Such investigations have to a certain degree been conducted in Sweden, and in particular on the island of Gotland. As a result, some 20 large plausible buildings of this kind have been identified (Stylegar & Grimm 2005, p.255, Westerdahl 1989, p. 252-6 & 2002, p. 77-9).

There are, however, several hundred examples of naust throughout what one can call the Scandinavian culture-sphere, where Norway is overrepresented with the greater bulk of the material (ca 800, Stylegar & Grimm 2005, p. 254). This is due to several factors as we shall see below. Naust do indeed occur in all of the Scandinavian countries (and a few others surrounding the Baltic sea) including Sweden and Iceland, but also on the Orkney Islands, the Hebrides, the Faeroe Islands, Greenland and even as far away as Newfoundland (Rolfsen 1974, p.13, Stylegar & Grimm 2005). They are generally dated to periods ranging from pre-history[7] to early modern times. One can reconstruct a period of use for most naust if one takes land-rise (or -sinking for that matter) into account, since most naust were erected close to a zone where land and water intersected at its time of construction (taking approximations of tides into account as well.). Many of the naust in Norway also incorporate secondary use, such as burials (predominantly from the late Iron Age), but also medieval house-constructions. The reuse of a

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site can provide valuable information of when the site changed in function and therefore help to chronologically seal the naust (Rolfsen 1974, p.18-28). That the Norwegian material is overrepresented in the archaeological material depends on the fact that there is a long tradition of examining naust in Norway. It also seems that most naust in Norway are generally more robust in construction, having banks of stone and soil on both sides for supporting the roof, leaving traces still clearly visible today. The fjord landscape provided an abundance of rocks as construction material, but wood would have had to be transported from the inland, thus making the Norwegian naust sturdier partly because of direct access to, but also lack of, these different raw materials. There was also an actual need of stronger constructions which could withstand the Atlantic weather and tides.

Case study - Nyköping

During two seasons in 2010 and 2011 extensive excavations in the central area of the town of Nyköping in eastern middle Sweden were undertaken. Two sites were excavated, Åkroken 3 and 4, 2010 and 2011 respectively. During the excavations strict single context methodology was employed. This means that every individual stratigraphic object was documented equally according to set principles on a specially developed form. The stratigraphic and contextual analysis serves to arrange the excavated features in a relative chronological order and also to assimilate the course of events or actions which have produced the archaeological material. The construction represents all events and actions that have created and organized a social space or a locality within a defined space. The material remains of actions that have taken place within this locality represent its usage. Lastly, the destruction is represented by remnants deposited either post-usage or when the usage has changed. Intentions and values can be interpreted from the construction of social spaces, whereas social relations and significations on an everyday basis are encountered in the usage.

Beneath the earliest urban layer, which consisted of a cultivation soil, the remains of two large post-built buildings emerged. The first (henceforth A) and best preserved one stretched from southeast to northwest, centered in both the Åkroken 3 and 4 sites. The other building (henceforth B), of which only a small portion was found, was situated in the southwest corner of Åkroken 3. This structure was of similar character as A and was laid out approximately in the same direction (fig. 1), perpendicular towards the Nyköping river. During a survey conducted in January 2014 an additional part of building B was found further to the southwest.

I am suggesting that these two buildings are to be understood as the remains of two naust.

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This causes extraordinary implications for the spatial interpretation of the latter Nyköping and its hinterland but also for a much larger catchment area and the county of Södermanland as a whole. The more well-preserved building (A) is furthermore the largest known naust from the Vendel and Viking period in eastern Scandinavia.

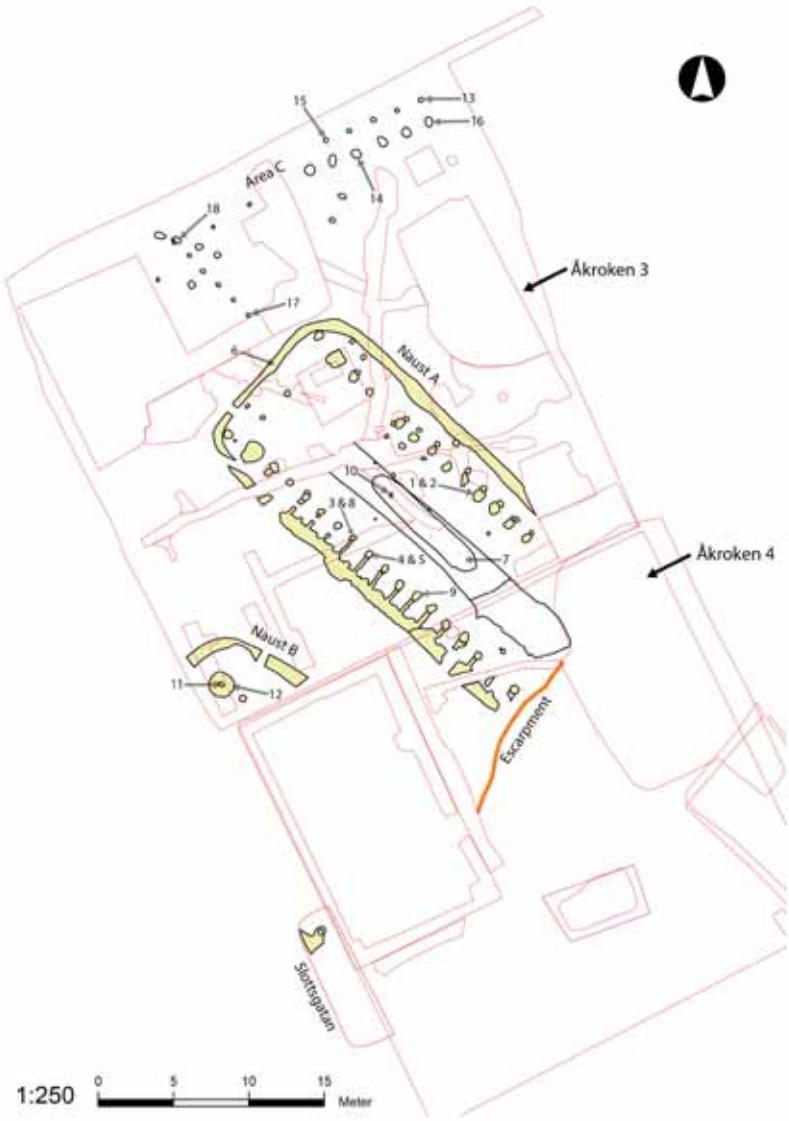


Fig. 1. Overview. Opaque lines represent excavation areas, disturbances, test trenches and modern buildings. The numbers display features sampled for radiocarbon dating (cf. tab. 1). Graufelds & Westberg 2013.

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An additional area with clusters of postholes (henceforth Area C, fig. 1), contemporary with naust A, was encountered in the north and northeast corner of Åkroken 3 and is consequently included in the discussion.

The littoral-sand, in which both naust were constructed, lay as a decimeter-thick course over the two excavation areas. It sloped slightly from the northwest to the southeast down towards the Nyköping river and a landslide scar in Åkroken 4, which had left a significantly steep escarpment generated by erosion (fig. 1). The landslide had annihilated the southeast short side of naust A and the modern building directly to the south of naust B had erased the major part of this structure within Åkroken 4.

Both naust consisted of similar constructional-elements: an enclosing roof-drip/drainage ditch comprised by a shallow trench with concave sides and uneven bottom. The trenches themselves did not contain any visible constructional-elements, and primary deposits in the trench belonging to naust A clearly indicated through macrofossil and stratigraphic analysis that it had been kept open. The organic material at the bottom of the trench had accumulated there during a long period of time since it, as opposed to the material in the surrounding soil, was completely decomposed. Thus, the trench cannot have contained any now removed constructional-elements, meaning that it was in use simultaneously with the usage-phase of naust A. These facts furthermore contradict the possibility of it being a wall-trench or remains of a bank for supporting the roof. However, without protecting walls the buildings would not have served their purpose (more about this further down). The drainage trenches were consistently 0,4-1 meters wide and 0,15-0,2 meters deep. They signal long-term planning in the sense that they were kept neat and diverted water from the structures. The buildings were meant to last.

At the northwestern short sides of both buildings large gable-postholes were encountered, two in naust A and one in naust B. These were rounded in shape, 1,3-1,8 meters in diameter and 1,15-1,5 meters in depth. With regards to stratigraphic and macrofossil evidence (i.e. the cultivation soil) these depth-measurements are considered to be the original depths of the postholes. They contained 0,8-1,2 m^3 of neatly packed 0,1-0,5 meter large, partly rounded, partly hewn stones. These had a supporting function because the soil beneath the littoral-sand consisted of varved silt, which may have been slightly unstable. All of the features of both naust A and B had been dug down at their construction-phase into this stratum, which, together with the buildings sheer size and weight explicates these substantial postholes and stone

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constructions. Even though some of the stone constructions had partially collapsed, their inner diameter, and thus the approximate size of the posts could be determined to 0,5-0,6 meters in diameter after the removal of loose stones. The base of an intact post was found in situ in the gable posthole belonging to naust B and could through wood-analysis be classified as oak.

In naust A there were, parallel to the northeastern long side and from the trench 1,2-1,5 meters indented, a double row of features separated by 0,6-1 meters in distance (fig. 1). The inner or farther row seen from the trench was the postholes belonging to the roof supporting/wall posts, and the outer row closest to the trench (consisting of smaller features) was the ground fastened supports for the former. The wall postholes consisted generally of features sized 0,6-0,9 meters in diameter, 0,3-0,7 meters in depth and they contained 0,02-0,1 m^3 of rounded stone material as support. The variations in depth depend on damage done by modern disturbances. Several results from the wood-analysis conducted on wall posts found in situ proved that they also were of oak. The southwestern long side of naust A had, compared to the opposing one, a slightly different constitution. Here, only a single row of wall postholes was encountered. However, at the majority of the postholes there were, from the enclosing trench to the former perpendicularly running smaller furrows. The furrows were 0,5-1,2 meters in length, 0,2-0,3 meters wide and 0,1-0,2 meters in depth. These have been interpreted as being imprints or cut furrows for hosting horizontally placed logs on which angled supports similar to buttresses were erected and fastened on the outer side of the roof supporting wall



Figure 2. Merged photographs of naust A. The building was excavated in two sections in Åkroken 3 due to dump-management. The southeastern part of the building was situated underneath the wall to the left in the picture within Åkroken 4. Photo from the northeast. 2010 RAÄ Uv Mitt.

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posts in order to achieve the same stability as the opposing long side[8]. As mentioned above, a small continuation of naust B was examined and excavated during a survey in the street Slottsgatan in January 2014. The features found proved that the southwest wall of naust B consisted of similar constructional elements as the corresponding wall in naust A, at least in the section examined.

As mentioned above, it is unlikely that the structures did not have closed surrounding walls (excepting the side facing the water). One possibility is that the roof was conjoined with the wall construction, following the angle and fastened to the supposed buttress-like/support post construction down towards the ground, albeit placing the drainage-trench on the outer side of the buildings (possibly similar to the reconstructed naust at Avaldsnes, fig. 4).

It is improbable that the buildings, due to their properties and use, had transversal beams under the inner roof, which indicates the need of solidly stabilized wall constructions. In relation to the properties of the varved silt subsoil yet another engineering function of the horizontal logs in the southwestern long sides may have been to at some extent allocate the weight of the wall and roof over a larger surface and thus preventing it from subsiding. It is remarkable that the two long sides of naust A differs in construction technique, perhaps the southwestern wall had started to subside causing these constructional elements to be used here. On the other hand, the southwestern long-side of naust B proved to have been constructed in the same manner. This could be explained by the fact that these long sides are facing the Nyköpingbay and the sea, therefore requiring sturdier constructions in order to withstand autumn storms etc. In all, this clearly displays that the walls were carrying the entire weight of the constructions which is also the most commonly occurring in the Norwegian examples, even if these often have bank constructions consisting of stone and soil on both long sides, upon which the roof rested and simultaneously functioned as support for the walls (Rolfsen 1974, Stylegar & Grimm 2005).

Additional solitary postholes were encountered just inside the corners of the enclosing trench in the northwest in naust A on each side (fig. 1, 2). These have been interpreted as constituting additional support for the gable but can also have functioned as anchoring for a construction of some sort of larger doors or gateway (cf. fig. 3, 4). No postholes or other features that could constitute wall constructions for solid or closed short sides were found, which proves that they were free from grounded constructions. However, with regards to the fact that the drainage trench was intact in this section of both buildings, some sort of overhang probably ex-

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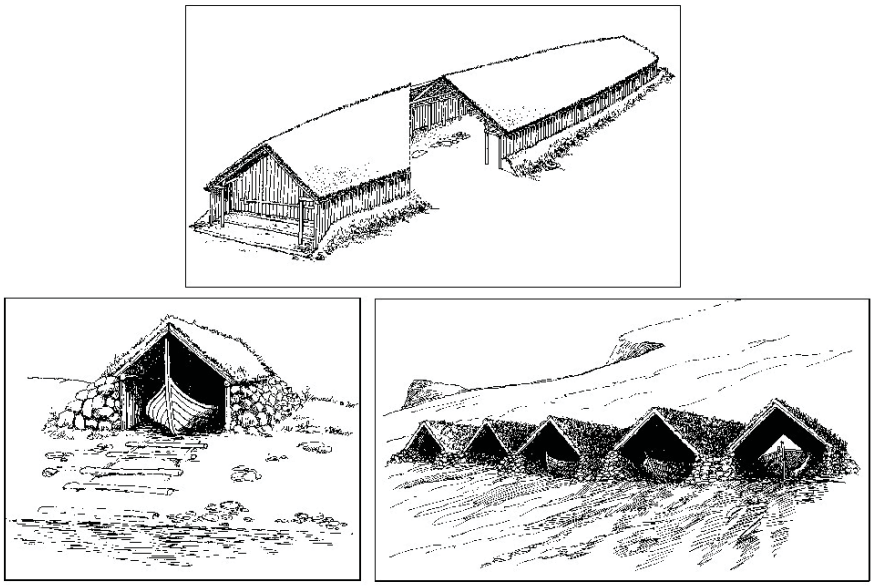


Figure 3. From Stylegar & Grimm 2005, with permission. Note especially the top building.

isted here. Nevertheless, the short sides facing the water must obviously have been open or at least open-able. Yet, since all traces of these have been destroyed, there is no information on their construction available. Furthermore, centrically in naust A there was a 19,6 meters long, 2,5-3 meters wide and 0,5-0,7 meters deep sloping depression, which was slightly displaced towards the southeast, i.e. to the direction of the water. This feature has been interpreted as being the draw-trench where the keel and hull of a pulled up ship rested. At the bottom of the draw-trench a heterogenic charcoal-rich layer was examined which proved to be from the phase when the trench was in use. It is possible that the layer represents the residue from construction-, prevention and repair activities requiring heating or fire. Processing timber in order to acquire certain shapes is called bending (basning). Today it usually is achieved using steam (hence it also being called steam-bending) but in older times it was done over open fire, this method also prevents rot and fouling (Woods Hole Oceanographic Institute 1952).

Naust B had only a small part of the enclosing trench preserved and two wall postholes, one within Åkroken 3 and one in Slottsgatan. The one in Åkroken 3 was a rounded posthole with a diameter of 0,45 meters and 0,85 meters in depth and contained a significant support-construction of rounded stones, measuring approximately 0,05 m^3. The enclosing trench in Slottsgatan was ca 1,75 meters long and 1 meter wide. The smaller perpendicular furrow run-

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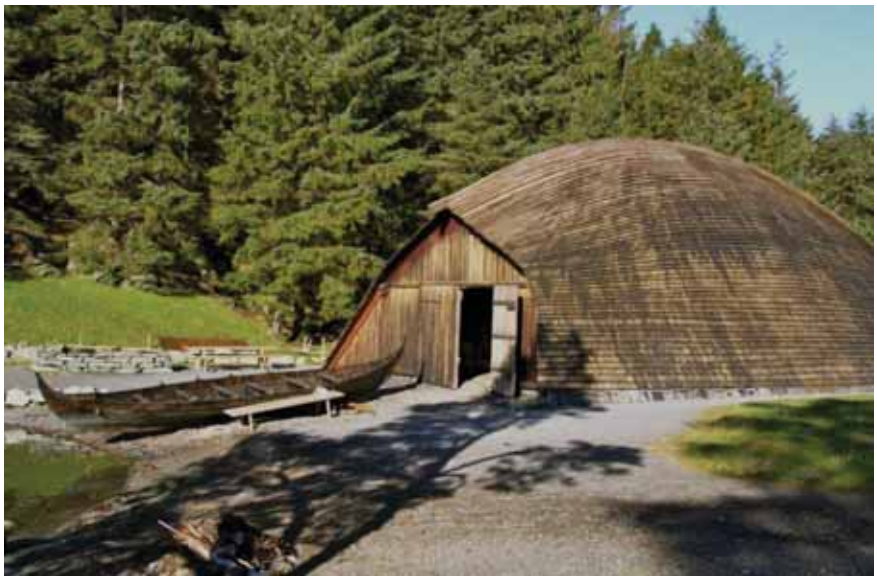


Figure 4. Reconstructed naust at Avaldsnes, Nordvegen Historiesenter. Used with permission.

ning from the trench to the posthole was 0,9 meters long and 0,6 meters wide. The posthole was 0,3 meters in diameter and ca 0,7 meters deep. To render the measurements of naust B, an extrapolated line from its short side in Åkroken 3 to the trench encountered in Slottsgatan was drawn resulting in a measurement of 17,5 meters in length and an outer width of ca 15 meters. The interior measurement between the roof supporting/wall posts was 7,5 meters. The total length of naust A, from the trench at the gable-end in the northwest to the tip of the draw-trench/landslide scar in the southeast, was 27,2 meters. Even if the southern part of the building was destroyed it is not likely that it originally was much longer, since this would place it too close to the water (see further down). It had an outer width of 12,5-13 meters and an interior measurement between the roof supporting/wall posts of 7-7,2 meters.

The exact height of the buildings is evidently unknown and in order to approximate a height, numerous amounts of parameters needs to be considered. Since many of these are unsure or simply not known the following assumption must be considered a speculation. An approximate height of the large gable posts can be estimated through dimensions, proportions, a design calculation of strength and by assessing how much of the posts that was buried in the ground (1/3 – 1/5 is a commonly assumed proportion, depending on construction, cf. Komber 1989). This would render a height of the gable posts to 2,3-6

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meters, but given this range and as stated above these results are withal too unsure. Nonetheless, taking into account the height of contemporary ships (Larsson 2007, Varenius 1992), it can be assumed that the height to the upper part of the gable-end/transition to the roof was at least 3-4 meters, but probably somewhat higher. Thereto a height from the transition to the roof up to the ridge beam must be added in order to estimate the total height of each building. It is assumed that both buildings had angled roofs similar to those in fig. 3 and 4 above. An angled roof evidently adds a few meters to the buildings height from the gable-end. How much it adds however, depends on the width of the buildings and presumed angle of the roof.

The roof-drip/drainage trench, which enclosed naust A, measured at its highest point in the northwestern corner (within Åkroken 3) 8,2 meters above sea-level and 7,75 meters at its southern tip within Åkroken 4. The bottom of the draw-trench in naust A measured 7,45 meters above sea-level in its southernmost part, i.e. closest to the water, within Åkroken 4. In naust B, the enclosing trench measured 8,05 meters above sea-level in the northwest and 7,2 meters in the southwest at the Slottsgatan trench. This data is relevant for the chronology and modelling of the shoreline displacement during the phases of construction and use of both buildings. It gives a near-shore location during the Vendel and Viking periods when the sea-level in the area was between 6-4 meters higher respectively than it is today. In connection, it should be mentioned that naust B was situated approximately 8 meters farther down towards the Nyköping-river in relation to naust A, which partially probably depends on its slightly later dating. As opposed to Norwegian examples the naust in Nyköping could be placed in a proximity to the shoreline since the problem with tides is non-existent.

Furthermore, a few smaller scattered features and postholes occurred within naust A. These have been interpreted as traces of temporary constructional- and reparation phases and/or supports for ships because they do not constitute any proper structures.

The area of postholes (C) north of naust A consisted of several clusters, both linear rows and solitary features. In the northeastern corner of the excavation area in Åkroken 3 there were two parallel rows of postholes, which ran in a west-southwest and east-northeast direction. They have been interpreted as belonging to a building although no additional row of postholes was encountered further south. It is possible that the rest of the presumed building is situated outside of the excavation area to the north. Yet, this would imply that the southern row consisting of larger features would be part of

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Table 1. Radiocarbon dating. Cf. fig 1 for sampled features.

Building	Sample fig. 1.	Context/Lab.no.	Action	Material	Dating (Cal AD)	Phase
Naust A	1	77425/Ua-30015	Construction	Juniper	650-780	2A
Naust A	2	77425/Ua-30016	Construction	Oak	600-685	2A
Naust A	3	74571/Ua-30017	Construction	Oak	430-610	2A
Naust A	4	74639/Ua-30019	Construction	Juniper	650-780	2A
Naust A	5	74639/Ua-30020	Construction	Oak	530-650	2A
-	-	-	-	-	-	-
Naust A	6	536357/Ua-29558	Use	Bone	600-675	2A
Naust A	7	77162/Ua-29997	Use	Hazel	760-900	2A
-	-	-	-	-	-	-
Naust A	8	74571/Ua-30018	Destruction	Straw	860-1020	2B
Naust A	9	77528/Ua-29979	Destruction	Herb-seeds	890-1040	2B
Naust A	10	76966/Ua-29981	Destruction	Herb-seeds	1020-1080	2B
-	-	-	-	-	-	-
Naust B	11	77750/Ua-29996 Dendro-sample CATRAS-ID 72535	Construction	Oak	670-870 (790-810)	2B
-	-	-	-	-	-	-
Naust B	12	72514/Ua-29980	Destruction	Hazel	980-1160	2B
-	-	-	-	-	-	-
Area C	13	538133/Ua-30677	Destruction	Bark	650-780	2A
Area C	14	538555/Ua-30678	Destruction	Maple	430-640	2A
Area C	15	538765/Ua-30679	Destruction	Juniper	640-780	2A
Area C	16	538144/Ua-30681	Destruction	Cerealia	660-870	2A
Area C	17	539535/Ua-30682	Destruction	Cerealia	660-870	2A
-	-	-	-	-	-	-
Area C	18	538955/Ua-30680	Destruction	Birch	1020-1190	2B

its outer construction (see further down). Furthermore, just northwest of naust A, there were additional clusters of postholes forming linear and perpendicular structures. The first and older unit consisted of nine smaller postholes forming a cross shaped structure where one row ran in the same direction as the length-axis of naust A and the other perpendicular to the former. The second unit, consisting of five somewhat larger postholes, ran in a direction from west-northwest to east-southeast and hade the shape of a backward L (fig. 1). The functions of these constructions are somewhat unclear. It is however apparent that it is not a question of buildings per se (except perhaps the first one). They are merely included in this discussion since they are contempora-

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ry with both naust A and B. The two latter structures, which lay in an extrapolated central line of naust A, are interpreted as being possible winch/mooring arrangements for ships.

All radiocarbon-dates displayed in table 1 lay within the greater probability-spectrum of 2σ and are derived from carefully sampled closed stratigraphic sequences and posts found in situ.

As the table shows, the construction phase of naust A is placed in the Vendel-period, in the middle of the 7th century AD. From the conducted wood-analysis it was determined that the timbers originated from core-wood of oak with an estimated age of 50-75 years. In order to secure reasonable chronological intervals, several samples from the same features were analyzed (samples 1-5 and sample 8). The phase of use of naust A is very long-term; this is based partly on analyses of contextually secured samples from the period when it was in operation (sample 6 from the enclosing trench and sample 7 from the draw-trench) but is also of course given in the interval between its construction and destruction. The demolition of naust A is dated by parts of plants and seeds extracted from macrofossil samples from various postholes (tab. 1). These were deposited in connection with the exchanging of posts or the ultimate destruction of the building. It is not possible that the plant parts ended up in the postholes long after this event, the location where naust A is situated was cultivated within one or a few decades after its destruction and as a consequence the features in the cultivation soil have been erased. This suggests that the postholes were backfilled immediately after the building had been demolished. It follows that it is the youngest result of the analysed samples which determines when the destruction of naust A occurred, i.e. sample 10 which was radiocarbon dated to the period between 1020-1080 AD. From this it can be inferred that the result from the dating of the plant parts in sample 9 (890-1040 AD) is derived either from the same moment or more probably when the building was repaired and the posts were exchanged. The same moment is probably also dated by sample 8 (860-1020 AD). The conclusion is that naust A was probably repaired sometime during the 10th century and ultimately demolished sometime between 1020-1080 AD, yielding an impressively long period of use of approximately 400 years. Directly following the destruction, an intermediate period of use of the area can be detected, namely a few decades of small-scale cultivation and traces of metalworking after which the regulated town of Nyköping emerges. Nyköping is therefore, according to what we know today, the second oldest still extant regulated town in Sweden, only surpassed by Sigtuna.Sample 11 was taken from the intact oak-log in the

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bottom of the gable posthole belonging to naust B and was supplemented with dendrochronology (in parenthesis) which gave a felling-year between 790-810 AD. This result is astonishing to say the least; it establishes that the two buildings were contemporary (although naust A was erected some 150 years before naust B). The argumentation for the destruction of naust A is also validly applicable for the destruction of naust B. Since there evidently existed a nascent urban settlement in this location during the late 11th century, the interval in sample 12 (980-1160 AD) can be forcibly adjusted. Naust B must thus have had a slightly shorter phase of use than naust A. Nevertheless, it amounts to approximately 250 years.

Samples 13-16 represent the destruction of the supposed building in the northeast corner of Åkroken 3, placing it roughly in the period of when naust A is erected, meaning that the building itself must have preceded naust A.

Sample 17 represents the moments when the postholes of the cross shaped structure northwest of the central axis of naust A was backfilled, dating its period of use to the building's early phase. The last sample, number 18 dates the backfilling of the other structure in this area (the backward L) whose upper spectrum can be modified due to the fact that we know that a regulated town is already in place in the last decades of the 11th century (Bäck, Hållans Stenholm, Nordström et. al 2015 - in press).

During the excavations of the two naust, one hypothesis was that they were hall-buildings. However, there are several facts that disprove this assumption: for instance, the composition of the constructions and lack of finds associated with such buildings. Only two actual finds were encountered in all excavated features. They were found in the enclosing trench near where sample 6 was taken (fig. 1) and consisted of two small fragments of blue beaker-glass, typologically dated to the Vendel/Viking-periods. As a consequence, substantial amounts of the backfills in a majority of the features were water-sifted, though only with meager results. The only findings from this process were fragments of burnt animal bones. The glass is thus secondary but indicates high status in the vicinity.

Furthermore, at naust A, three soil-samples were analyzed so as to evaluate the occurrence of diatoms (Bergman, Heimdahl in: Bäck, Hållans Stenholm, Nordström et. al 2015 - in press). One sample was taken close to the southwestern wall, one outside the building underneath the presumed shoreline of the Viking period (as a reference sample) and one additional sample was taken in the central draw-trench. The two first samples contained very few diatoms, but the one sample from

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the draw-trench contained greater amounts of assorted planktonic freshwater diatoms and benthic (or attaching) brackish water diatoms. The latter must have been introduced and deposited in the draw-trench by something that has been submerged in salt/brackish water, e.g. a ship's hull. Additionally, the presence of diatoms in the central draw-trench indicates that there has not been any covering overgrowth here, silicate diatoms are dissolved in developed rhizome- or rootlet zones (Bergman, Heimdahl in: Bäck, Hållans Stenholm, Nordström et. al 2015 - in press).

Conclusion

In conclusion, the suggested interpretation of these two buildings demands a re-evaluation of the latter Nyköping which only emerged less than a few decades after the naust, surely still with these constructions in living memory. Consequently, several premises and questions arise. There are 23 rune-stones upstream in the Nyköping-river valley that accounts for travels abroad and approximately half/half mention travels east and west respectively (Brate & Wessén 1924-1936). It is suggested that parts of a "Södermanlandic" ledung (cf. Varenius 1992, 1998) departed from Nyköping. The length/width ratio of naust A corresponds to hosting of a war-ship (1:4,5-1:7,5 as opposed to merchantmen which seldom exceeded 1:3-1:4, cf. Larsson 2007, p.71f.). The well-preserved Osebergs-ship, even though it is a ceremonial burial ship, measures 21,5 meters in length, 5,1 meters in width and 1,6 meters in height. It was built in 820 AD and it fits perfectly into naust A as it is. Another later example of a known war-ship is Skuldelev 2 from Roskilde, Denmark, built in 1042 AD in Dublin. It is 29,4 meters long and 3,8 meters wide and may well have fitted into naust A ratio-wise, even if we do not know the exact length of the building.

The naust also conditions urbanity- and centrality aspects. Who ordered the construction and controlled these buildings? It is plausible that there existed a royal demesne or a chieftain's manor in the vicinity of what later became Nyköping, a parameter which may have created unique preconditions for the expanding medieval city as a part of a greater whole (cf. Fritz 1971). As mentioned earlier, one of few other places in eastern middle Sweden where a naust has been located is on the island of Adelsö, which had a royal demesne and dominion over Sweden's first city, Birka. However, if one examines the construction phase of the naust in Nyköping, there is no known demesne from the Vendel period that can be directly connected to it, or rather; there is no excavated example of such a milieu in the area. Regardless, the naust phenomena should be perceived as centralized but detached

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constructions placed in a strategic position for the surrounding Late Iron Age settlements, albeit most likely commissioned and under the control of a local chieftain. Several of the Norwegian examples lay somewhat detached from the manors that are situated farther inland. In order to understand the Nyköping naust one must examine the surrounding landscape and its tenancies, known farmsteads and burials from the Late Iron Age. The registered locations in the Swedish National Heritage Board's inventory of the Nyköping area are mostly generalized as Late Iron Age (Vendel and Viking periods) localities. However, from their outer forms and position in the landscape several can be attached to the timeframe of the naust. The milieu surrounding Nyköping is not surprisingly rich in Late Iron Age settlements and burials, such as Kaffebacken (RAÄ 44), Kungsladugård (RAÄ 27), Lindsbacke (RAÄ 30, 307 & 349), Oppeby/Broby just north of Nyköping (RAÄ 1) and Kråkberget in the eastern part of Nyköping town. The latter where one could witness ättebackar or burial mounds, according to a dissertation regarding Nyköping written in the 1700's (Asp & Sundler 1759).

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Notes

1. Ship referred to in this article is a vessel of considerable size (at least 12 by 4 meters) used for traveling long distances over sea.
2. A term (among other things), applied for naval military expeditions. Cf. Varenius 1992 & 1998.
3. Depending on region and period.
4. One from the Viking period and one medieval, where the former has not been excavated (Brunstedt 1996).
5. Enforced mooring locations, usually with a draw trench but without overbuild.
6. One can also study place-names; cf. e.g. Njord- and Nor- (Vikstrand 2001, Wahlberg 2003), but this is somewhat speculative and more likely exemplify locations where boats have been dragged.
7. Few of these have been excavated making the dating unsure and Rolfsen (1974, p. 13) mentions that no examples from pre-history are known outside of Norway, this is however not the case today.
8. Cf. e.g. buildings in Hodde (Hvass 1985) and Grøntoft (Rindel 1997).

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