

Gunnar Heinsohn (June 2014)

***VIKINGS FOR 700 YEARS WITHOUT SAILS, PORTS, AND TOWNS?***  
***AN ESSAY*** (summary: p. 22<sup>1</sup>)

It is the famous Viking longship with its oars and square sail, suitable for ocean voyage and river warfare alike, that made these norsemen such a swift and effective power. Just as these daring seafarers shocked 8th-10<sup>th</sup> c. Europeans, Vikings still stun modern maritime historians. Why did these Scandinavian raiders waste the first 700 years of the 1st millennium CE before they could finally bring themselves to build ports and use sails? After all, the oared long boat with a square sail had been used in Europe since Greece's Archaic Period in the 6th c. BCE.

**Upper part of the frieze:**

**Greek *Penteconter* with square sail and ram hull (dated 6th c. BCE) already exhibiting the main features of ships built by Scandinavians some 1500 years later in the 8th/9th c. CE. Building techniques for the hull (mortise and tenon and carvel versus clinker/strapstake) differ, too. The long (28-33 m) and sharp-keeled Greek ships (c. 4 m wide) were used for trade and warfare. They were rowed by up to fifty (*pente*) oarsmen, arranged in two rows of twenty-five on each side of the ship. A midship mast with sail could be employed under appropriate wind. The type was in use until the Hellenistic period ending in 31 BCE.**

**Lower part of the frieze:**

**Sketch of two dragon Penteconters in close battle**

(<http://en.wikipedia.org/wiki/Liburna#mediaviewer/File:Liburnianship.jpg>.)



<sup>1</sup> Thanks for editorial assistance go to Clark WHELTON (New York).

**Reconstruction of Greek *Penteconter* with square sail and ram – here for only 28 [instead of usually 50 (pente)] warriors. Length varied from 25 to 35 m [width ca. 4.5 m]. The type **preceded Viking long boats by at least some 1500 years.****

(<http://kotsanas.com/de/exh.php?exhibit=1901003>)



Yet, 1st millenium CE Scandinavians, no less than the inhabitants of the Baltic Sea's southern coast, present themselves as utterly "retarded." Not only did they avoid the square sail, they also wasted the 1st millennium's first 700 years before they could bring themselves to construct ports, build towns, establish kingship, issue coins or adopt Christianity.

However, nothing is more surprising than the hydrophobia of these most daring seafarers, who during the first seven centuries of the first millennium, most of the time seem to avoid the sea. Nordic people were famous for a large variety of sophisticated boat types long before the Romans came close to their realm. **Scandinavia's countless rock carvings depicting ships as well as the burial mounds known as "stone ships" show an obsession with shipping hardly known anywhere else in the pre-Christian period. The disappearance of this ocean-going culture in the early 1st c. CE remains no less a mystery of European history than its sudden rebirth 700 years later.**

When Imperial Rome turned Europe into a culturally integrated sphere, Scandinavia apparently shut down – or was reduced to burials. Yet, up to the time of the Roman

Republic, many items made of imported European bronze and gold are preserved. Through the Bronze Age (1700-500 BCE) and the Pre-Roman Iron Age (500-31 BCE)

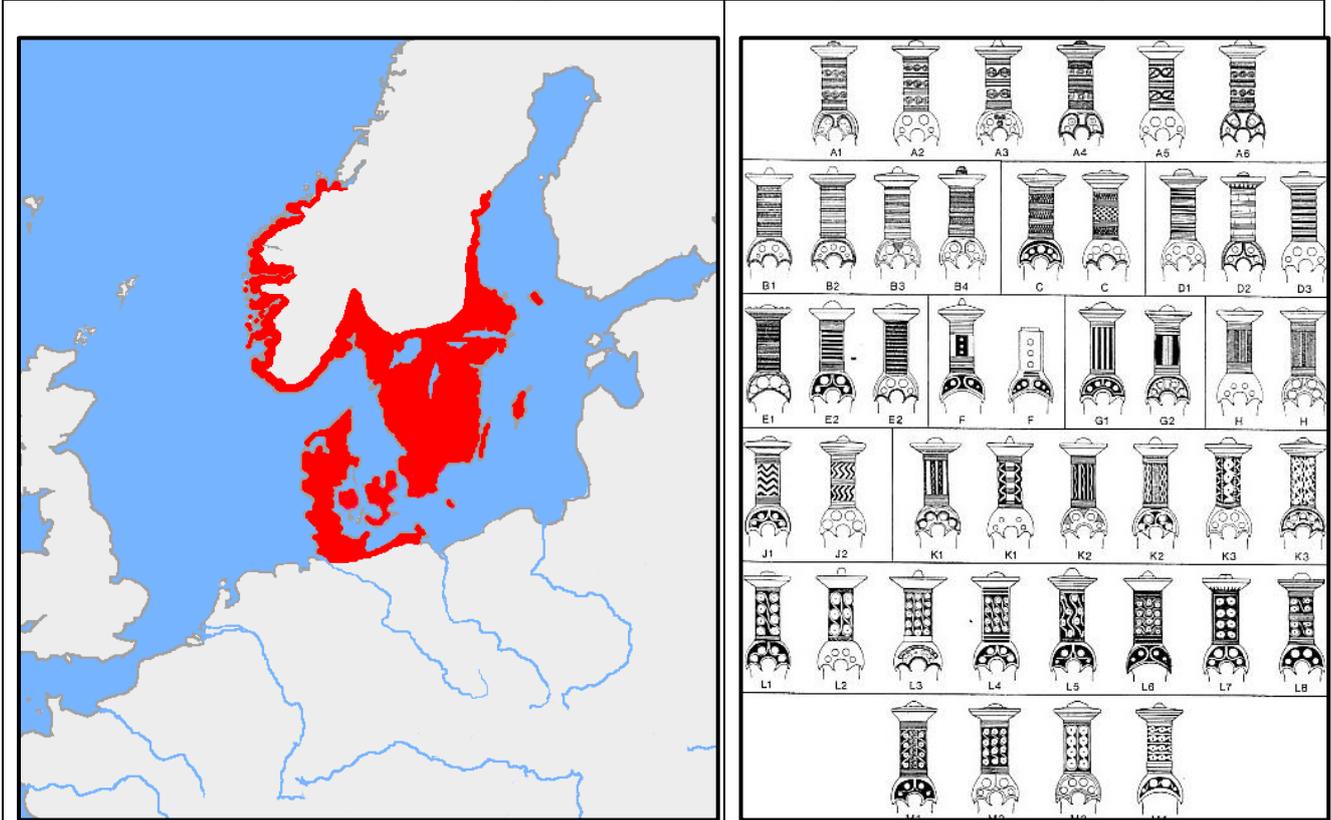
”the watercraft of Scandinavia took on some of the appearance of the future Viking ship, including high posts at each end crowned with spirals or animal heads. Some of these heads are certainly serpents or dragons, and dragons are depicted hovering over boats in Bronze Age art. The warriors manning these boats often wore the horned helmets that have come to symbolize the caricature Viking” 1500 years later (John R. Hale, <http://www.users.globalnet.co.uk/~jasen01/texts/longship.htm>)

**Left: Settled territory of Scandinavia’s Bronze Age (c. 1700-1200 BCE) that includes the areas with naval rock drawings, and settlements with many items made of imported European bronze.**

([http://en.wikipedia.org/wiki/Nordic\\_Bronze\\_Age#mediaviewer/File:Nordic\\_Bronze\\_Age.png](http://en.wikipedia.org/wiki/Nordic_Bronze_Age#mediaviewer/File:Nordic_Bronze_Age.png)).

**Right: Scandinavian Bronze Age sword handles.**

([http://www.twcenter.net/forums/showthread.php?579556-Nordic-bronze-age-\(early-germanic\)-weapons-technology](http://www.twcenter.net/forums/showthread.php?579556-Nordic-bronze-age-(early-germanic)-weapons-technology))



Like Scandinavia’s bronze workers, Nordic shipbuilders did not have to hide from their Southern contemporaries. **If Scandinavians from the last centuries BCE had added a mast and a square sail to their longships, they would have been hardly distinguishable from the contemporary Greeks, or from the longships of their brethren who lived 1500 years later.** After all, naval warfare in the Mediterranean, too, was mostly executed without sails. To give a ram its lethal drive, oarsmen had to

speed up quickly, and, then, pull away through precise steering to free themselves from the sinking opponent. Sails were of no use in such operations.

<p><b>Beaked war longship with ram similar to Greek <i>penteconter</i></b> (from Vitycklehall, Vastra Gotaland, Sweden). <b>1700-500 BCE.</b> (<a href="http://www.trommerphotography.com/tag/world-heritage-site/">http://www.trommerphotography.com/tag/world-heritage-site/</a>)</p>	<p><b>Beaked war longship manned by axe-wielding warriors. The round shield already looks similar to Viking types of 1500 years later (Svenneby, Bohuslän [Sweden]).</b> <b>1700-500 BCE.</b> (<a href="http://natmus.dk">http://natmus.dk</a>)</p>	<p><b>Beaked war longship (with ram similar to Greek <i>penteconter</i>).</b> <b>1700-500 BCE.</b> (<a href="http://www.redbubble.com/people/helua/works/6406203-predating-the-viking-ship-vitylycke">http://www.redbubble.com/people/helua/works/6406203-predating-the-viking-ship-vitylycke</a>)</p>
		

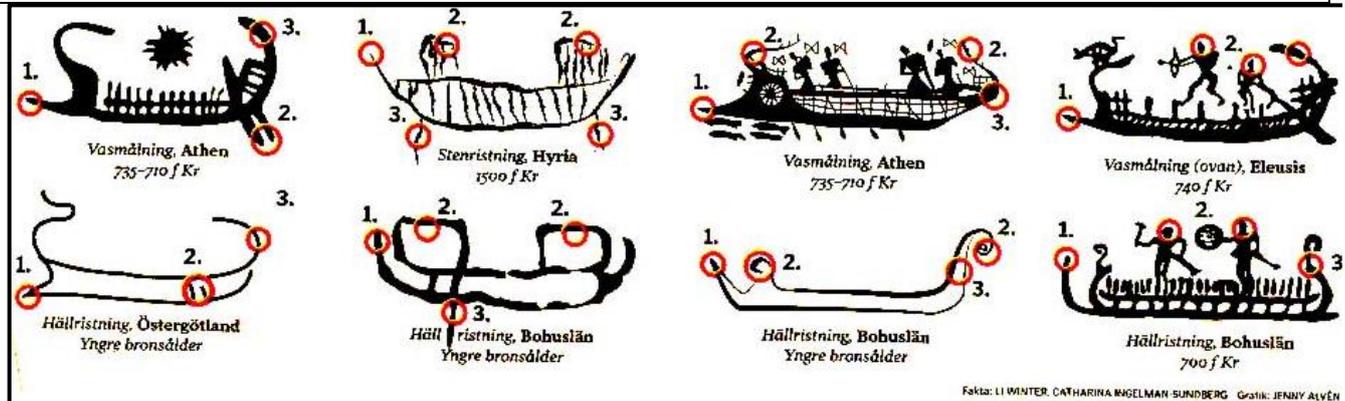
It is occasionally even claimed that pre-Christian Scandinavians already had the square sail. Rock drawings may show them. Since, however, those squares are not set close enough to the center of the ship's hull, they may represent huts or tents. Of course, nobody can exclude that the Scandinavians had immortalized in stone the outlines of ships visiting from Europe's South

**Lower line: Scandinavian Bronze Age longboats (Rock drawings ) with square shapes on Bohuslaen boat (2nd from left) that some interpret as sails, a view not generally accepted.**

**Upper line: Greek Bronze Age longboats.**

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**1: Ram / 2: ?Square sail? / 3: Rudder/anchor**  
 ([http://www.twcenter.net/forums/showthread.php?579556-Nordic-bronze-age-\(early-germanic\)-weapons-technology](http://www.twcenter.net/forums/showthread.php?579556-Nordic-bronze-age-(early-germanic)-weapons-technology))

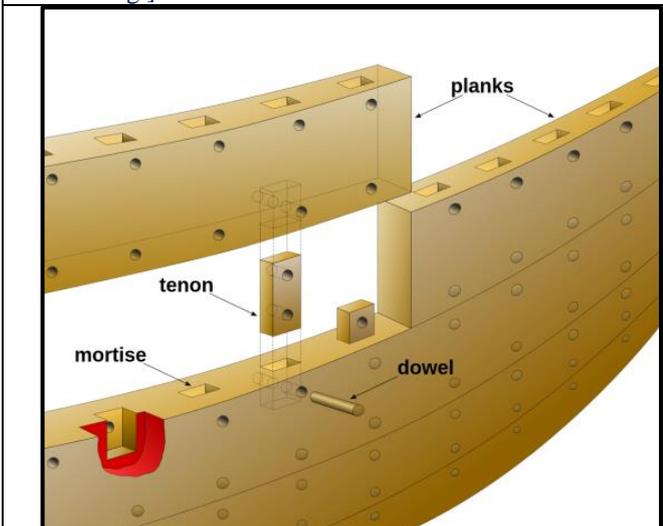
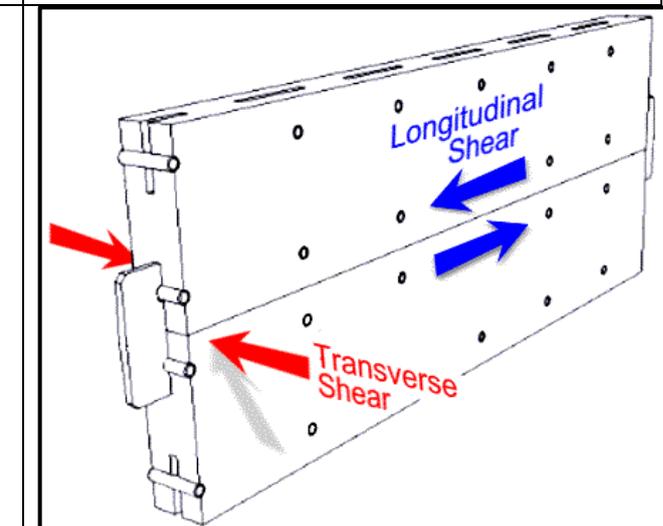


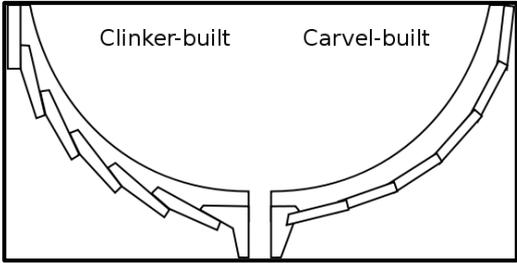
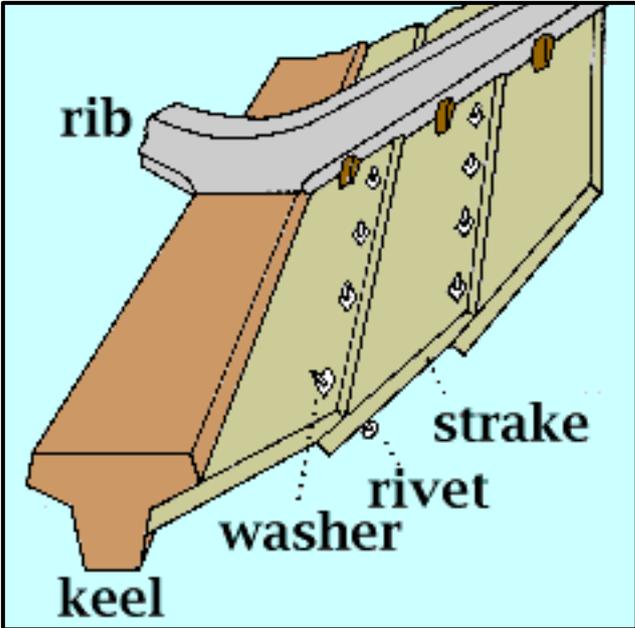
That all these drawings are not dreamt-up fantasies is borne out by hard evidence from well into the time of the Roman Republic (507-31 BCE). Outstanding is the

*Hjortspring Boat* (Denmark; excavated 1921-1922). With an overall length of 18 m (13 m inside; 2m wide), it could accommodate a crew of some 20 men who used paddles to propel the vessel. It is the oldest ship with wooden planks so far found in Scandinavia. The builders did not yet use the klinker method of planking.

<p><b>4th/3rd c. BCE <i>Hjortspring Boat</i> (Denmark). Its hull is not yet built by klinker planking.</b></p>	
<p><b>Reconstruction of the boat (18 m length overall; 13 m inside; 2m wide).</b> (<a href="http://www2.rgzm.de/navis/home/..%5Cships%5Chip006%5CShip006Engl.htm">http://www2.rgzm.de/navis/home/..%5Cships%5Chip006%5CShip006Engl.htm</a>)</p>	<p><b>Pre-klinker hull construction in the carvel manner.</b> (<a href="http://www2.rgzm.de/Navis/Ships/Ship006/Image/006f012.jpg">http://www2.rgzm.de/Navis/Ships/Ship006/Image/006f012.jpg</a>)</p>
	

Technological differences between Southerners and Northerners in constructing their ships' hulls do not emerge before the 1st millennium CE. Mortise and tenon was preferred in the South whilst klinker planking won out in the North.

<p><b>Mortise and tenon planking</b> was used by Greek shipbuilders at least since the <b>4th c. BCE</b>. It was continued by Romans in early and late Antiquity (<b>1<sup>st</sup>-6<sup>th</sup> c. CE</b>). It provides a smooth and stable surface. [<a href="http://en.wikipedia.org/wiki/Madrague_de_Giens_(Shipwreck)#mediaviewer/File:Mortise_tenon_joint_hull_trireme-en.svg">http://en.wikipedia.org/wiki/Madrague_de_Giens_(Shipwreck)#mediaviewer/File:Mortise_tenon_joint_hull_trireme-en.svg</a>.]</p>	<p><b>Mortise is ideally designed to counter longitudinal shear between planks.</b> (<a href="http://worldwideflood.org/ark/basic_hull_design2/monocoque_planking.htm">http://worldwideflood.org/ark/basic_hull_design2/monocoque_planking.htm</a>.) "The entire hull built up in this fashion makes the timber sailing ship of more recent history look crude by comparison" (<a href="http://worldwideflood.org/ark/basic_hull_design2/monocoque_planking.htm">http://worldwideflood.org/ark/basic_hull_design2/monocoque_planking.htm</a>.)</p>
	

<p><b>Difference between clinker-built (Scandinavian/Viking) and carvel-built hulls.</b>  <a href="http://en.wikipedia.org/wiki/Clinker_(boat_building)#mediaviewer/File:Clinker-carvel.svg">http://en.wikipedia.org/wiki/Clinker_(boat_building)#mediaviewer/File:Clinker-carvel.svg</a>.</p>	<p><b>Clinker/strapstake hull building.</b>  <a href="http://www.hurstwic.org/history/articles/manufacturing/text/norse_ships.htm">http://www.hurstwic.org/history/articles/manufacturing/text/norse_ships.htm</a>.</p>
 <p><i>"In contrast with clinker built hulls, where plank edges overlap, carvel construction gives a stronger hull capable of taking a variety of full-rigged sail plans albeit one of greater weight. In addition, it enables greater length and breadth of hull and superior sail rigs because of its strong framing, and is one of the critical developments that led to the preeminence of Western European seapower" in the 15th c. CE.</i>  <a href="http://en.wikipedia.org/wiki/Carvel_(boat_building)">[http://en.wikipedia.org/wiki/Carvel_(boat_building).]</a></p>	

<p><b>Oarholes running through the clinkered planks of the Gokstad ship (890 CE). Reconstruction.</b>  <a href="http://www.hurstwic.org/history/articles/manufacturing/text/norse_ships.htm">http://www.hurstwic.org/history/articles/manufacturing/text/norse_ships.htm</a>.</p>	<p><b>Illustration of clinker built Viking ships in a naval battle (9th c. CE).</b>  <a href="http://www.hurstwic.org/history/articles/manufacturing/text/">http://www.hurstwic.org/history/articles/manufacturing/text/</a>.</p>
	

**When, at the latest, must Nordic mariners have seen Southern longships with square sails?** One may argue that norsemen had not yet come into contact with such ships before the Romans had replaced their Hellenistic, Egyptian, and Phoenician rivals as masters of the sea. The Romans had copied the ships of the defeated, and, soon, were able to employ them in their conquest of northern Europe, whose rivers, such as the Rhine, became prime routes of Roman naval traffic. Under Julius

Caesar's (100-44 BCE) naval operations against the British Isles, the North Sea and its coastal people became a Roman battleground. Thus, by **at least circa 1 CE, Scandinavians must have seen ships with square sails. Still, they decided not to assimilate them for another 700 years, although they had no qualms about using Roman coins and silverware from the very same 1st c. period that, strangely, left no houses or ports but which did leave burials containing occasionally splendid Roman imports.**

**Early 1st c. CE Roman silverware from a tomb in Hoby (Denmark).**

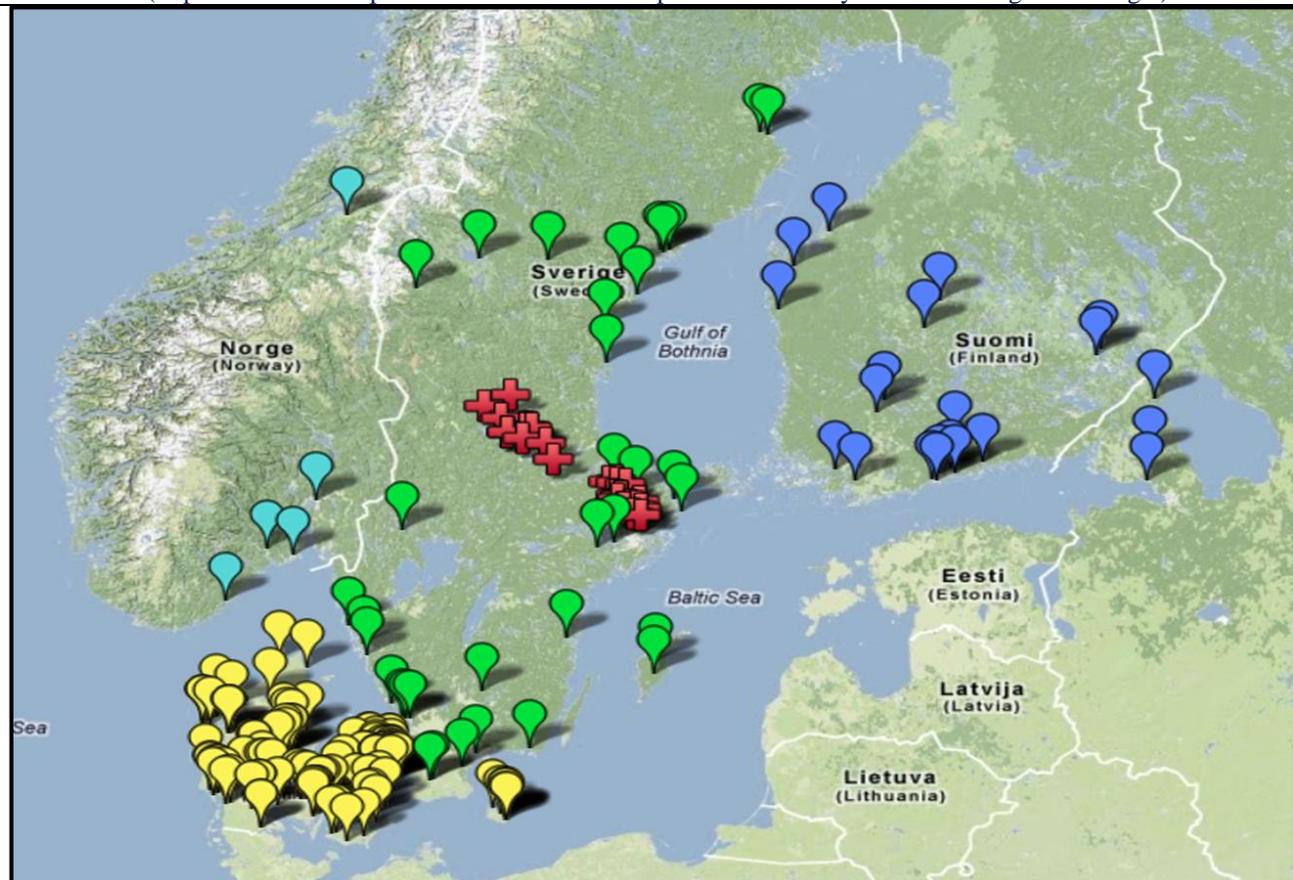
([http://commons.wikimedia.org/wiki/File:Hoby\\_b%C3%A6gerne\\_02.jpg](http://commons.wikimedia.org/wiki/File:Hoby_b%C3%A6gerne_02.jpg))



**Distribution of Roman low value coins (including coins of the Roman Republic) in Scandinavia that could not have been hoarded for the precious metal value.**

**Strangely, though, these Roman "small change" units were still used in the 8th c. CE.**

(<http://floasche.wordpress.com/2012/01/23/the-poor-mans-money-in-the-carolingian-iron-age/>)



Even in the building of sail-fitted cargo ships the Northerners insisted on letting the first seven centuries of the 1st millennium CE pass before their shipyards finally took action.

**Reconstruction of Greek, 306 BCE, merchant ship with square sail (Kyrenia/Cyprus wreck discovered in 1965). The vessel was 14.75 m long and 4.2 m wide.**

(<http://kotsanas.com/gb/exh.php?exhibit=1901006.>)



Greek boats of the same type, however, were well in use since the Archaic period (6th/5th c. BCE).

**Reconstruction of Viking freight ship with square sail (10th/11th c. CE).**

([http://www.hurstwic.org/history/articles/manufacturing/text/norse\\_ships.htm.](http://www.hurstwic.org/history/articles/manufacturing/text/norse_ships.htm))



What types of Roman ships must Nordic seafarers have come across around the time of Christ? Most probably the square sail *Liburnia*. The *Liburnia*'s design followed the

Roman *Liburnia* with square sail modelled after the Greek *Penteconter* on coin of Pompeius Magnus (106-48 BCE) commemorating his victory over Mithridates (134-63 BCE).

([http://www.artsales.com/ARTistory/Ancient\\_Ships/12\\_roman\\_galleons.html](http://www.artsales.com/ARTistory/Ancient_Ships/12_roman_galleons.html).)



Closeup of a Pompeius-*Liburnia* with square sail (different coin issue). The boat-type was named after the Liburnians (from today's Croatia).

([http://artsales.com/topics/ancient\\_ships/mRomanGal leons.html](http://artsales.com/topics/ancient_ships/mRomanGal leons.html).)



Greek and Hellenistic *penteconter*. The most frequent version had one bench with 25 oars. The vessel had been **in general service since the 2nd half of the 1st century BC**. It remained the Empire's naval warhorse for river and coastal battle well into the 2nd c. CE.

Two small *Liburnians* without sails (compact boats with two banks of oars) used by the Romans in their campaign against the **Getae** (identified as **Goths** from Scandinavia by Jordanes) and Dacians in the early 2nd century CE (reliefs from the Column of Trajan (98-117 CE; c. 113 CE).

([http://en.wikipedia.org/wiki/Galley#mediaviewer/File:058\\_Conrad\\_Cichorius,\\_Die\\_Reliefs\\_der\\_Traians%C3%A4ule,\\_Tafel\\_LVIII.jpg](http://en.wikipedia.org/wiki/Galley#mediaviewer/File:058_Conrad_Cichorius,_Die_Reliefs_der_Traians%C3%A4ule,_Tafel_LVIII.jpg).)



**Ulysses seduced by the sirenes. Small Roman *Liburnia* for sea and river warfare with square sail and ram (early 2nd c. CE) rowed by Roman soldiers. Their round shields, as well as the boat's split stern, convey the appearance of Vikings in Roman uniform.**

[Mosaic in Bardo Museum, Tunisia; [http://en.wikipedia.org/wiki/Madrague\\_de\\_Giens\\_\(Shipwreck\)](http://en.wikipedia.org/wiki/Madrague_de_Giens_(Shipwreck)).]

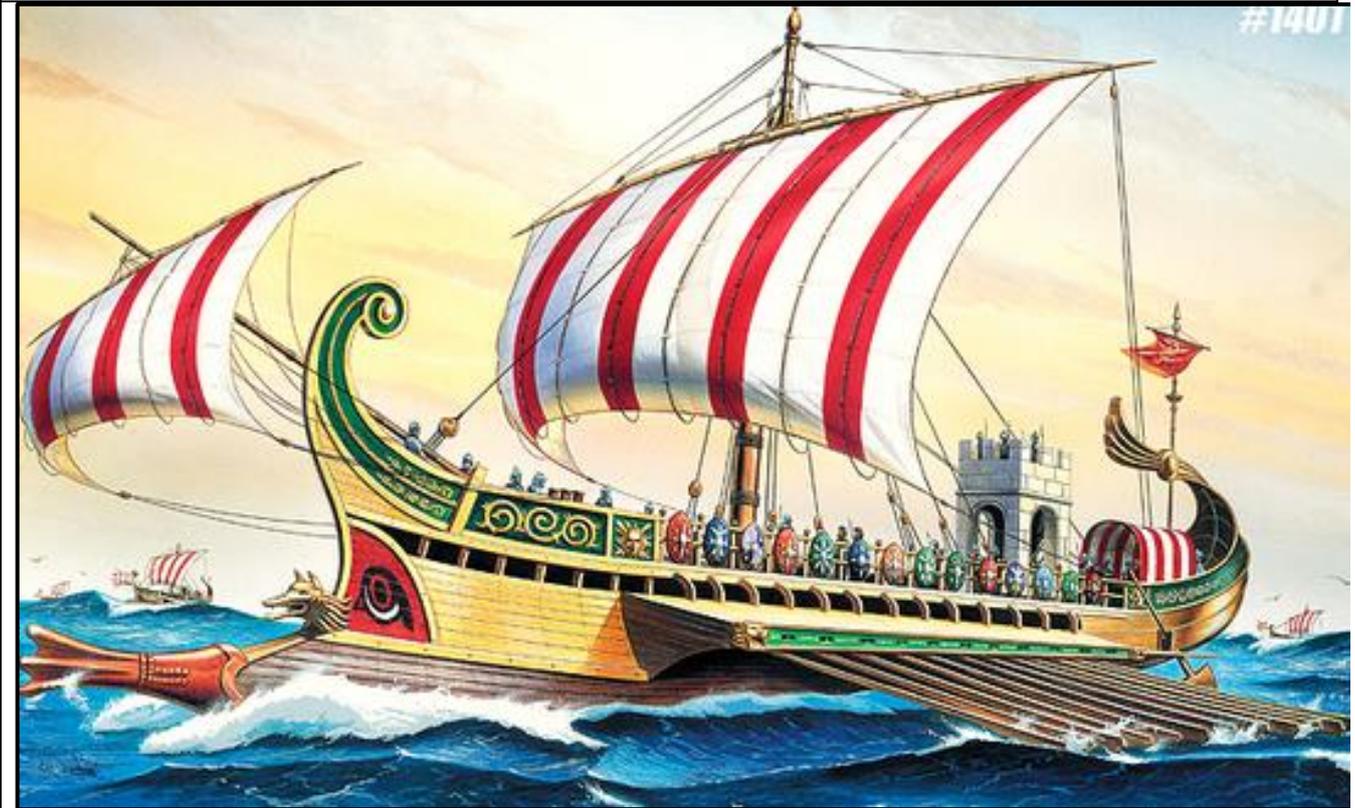


In 33 BCE, the Liburnian territory had become part of Rome's province of Illyricum. By 35 BCE Octavian had defeated the area's pirates who were hiding on the Dalmatian islands. The Liburnians mostly lived in hill forts (some 400 identified so far) that were fortified with dry walls. The same material was used to build single floor and single room square houses. (In many European regions, Hillforts became popular again in 4<sup>th</sup>-6<sup>th</sup> c. Late Antiquity [Scandinavia] or in Slavic territories of the 8<sup>th</sup>-10<sup>th</sup> c. period of the Vikings).

*Liburnians* were in service in many parts of the Roman Empire. They also dominated rivers like the Rhine, Danube, and Nile. Rome's neighbours and enemies, including the 1st-3rd c. CE inhabitants of the Viking realm, must have seen such vessels operating.

**Reconstruction of larger Roman *Liburnia* (used since 50 BCE) with square sail and ram. It was rowed by up to 80 oar-men (*remiges*), and could, on a deck above the *remiges*, transport up to 50 additional soldiers (marines).**

(<http://www.model-making.eu/products/Roman-Warship.html>.)



**The most surprising aspect of Scandinavian behaviour in Rome's 1st-3rd c. imperial period is not, however, the rejection of the Roman square sail by these navigation-obsessed realm. Much more bewildering is the total disappearance of evidence of material and iconographical shipping. However, a total of 7,756 Roman *denarii* were found in Sweden alone (mostly from 50-200 CE), which indicates numerous contacts with the imperial world and its shipping evolution.**

This absence of ships is accompanied by a no less surprising absence of urban structures with secular and ceremonial buildings. However, finds from burials "all over Southern Scandinavia, of especially fibulas, indicates that a small 'Empire' was present here in the first and second century, with a 'Himlingoje Dynasty' as rulers. This 'Dynasty' not only traded with Rome, but apparently also lived a very 'Roman'

style of life. If there were such an 'Empire', it is obvious that the Romans could benefit from this, and seek alliances with this regime" (<http://romandanes.blogspot.com/2006/08/denmark-and-roman-empire.html>).

There is no explanation yet of why such an open and extensive exchange would not have included the transfer of the square-sail-concept. Moreover, an "empire" without houses, temples, dams and roads is quite difficult to visualize. How would Romans have landed without ports to dock their ships? How could they have hidden their square sails from curious Scandinavians?

Yet, Rome's own territories are confusing the historians, too, although evidence of Roman shipping does continue. Yet, the technological evolution of Antiquity's most dynamic civilization comes to a sudden and unexpected standstill. Be it watermills, basilicas, arms, glass items etc., whatever we see in the 4th/5th c. CE repeats, like in a second run of the same show, the technological level already mastered in the 1st and 2nd c. CE.

Moreover, Roman cities with massively rich marble and brick building strata in the 1st-3rd century period have – after an expected (but not found) stratum with the traces of the 3rd c. imperial crisis – no second strata-group on top with new buildings for the 4th-6th c. CE. In turn, the important cities of Late Antiquity, like Milano or Constantinople etc., are rich in 4th-6th c. marble and brick building strata but are missing, further down in the stratigraphy, post-Augustus strata from the 1st-3rd c. CE (see more in [http://www.q-mag.org/\\_media/gunnar-creation-of-the-1st-millennium-new16-11-2013.pdf](http://www.q-mag.org/_media/gunnar-creation-of-the-1st-millennium-new16-11-2013.pdf)).

In Rome's Eastern neighbourhood, the huge area of the Cernyakhov culture from the 4th-6th c. Gothic period has, in some 2,600 archaeological sites, no 1st-3rd c. Getic/Dacian strata although it is believed that Goths replaced the Getae/Dacians against whom Emperor Trajan (98-117 VE) went to war using his *Liburnians* on the Danube (see p. 9 above; see more in "Getae=Gothi", forthcoming in q-mag). Did the emperor fight a phantom war against phantom enemies and then manage to fool the entire empire with a column shamelessly illustrating made up stories?

The same strange repetition of the same old technology is true for the *Liburnia*. 4th c. CE boats look againlike 1st CE *Liburnians*.

Late antiquity (290-6th c. CE) Roman *Liburnias* did – to the surprise of historians – not differ from 300 or more years older ships of the Late Republic and the Early Imperial period (1-230 CE). Technological evolution appears to have stalled. War galley with square sail from Rome’s Rhine-port Moguntiacum/Mainz (one of five, c. 20 m long; 3.70 m wide) was discovered in 1981/82. The boats were dated after the catalogue date of a retrieved coin by **Theodosius I (378-395 CE)** was found on the boat. The wrecks were located **about 7.5 meters below the current street level.**

Reconstruction of one Mainz’s dragon *Liburnias* (“Mainz I”). ([http://www.livius.org/mo-mt/mogontiacum/mainz\\_ships.html](http://www.livius.org/mo-mt/mogontiacum/mainz_ships.html).)

Rowing banks of “Mainz I”. Note how the soldiers were protected by their round shields. ([http://www.livius.org/a/germany/mainz/mainz\\_mas\\_warship2\\_3.JPG](http://www.livius.org/a/germany/mainz/mainz_mas_warship2_3.JPG).)



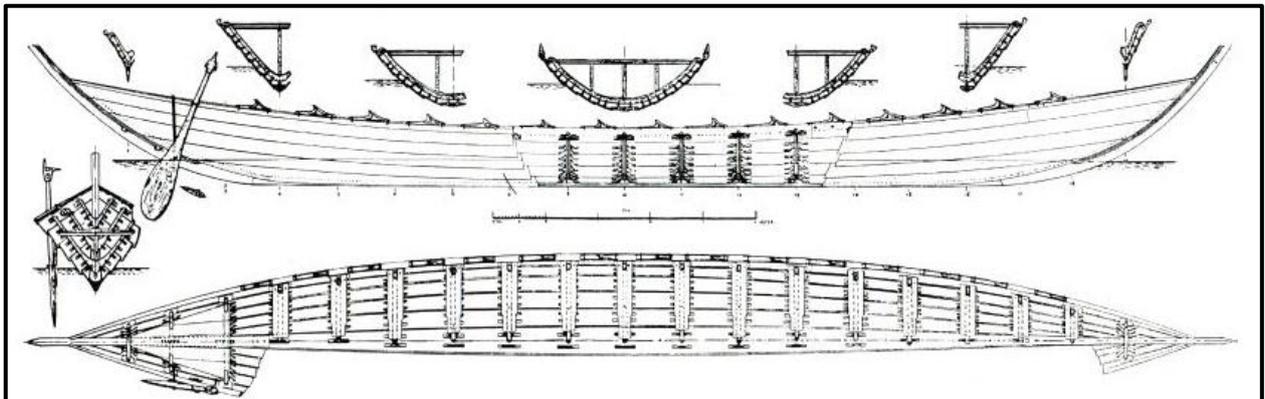
It is in Late Antiquity that Scandinavia makes its comeback into materially-confirmed shipping with the Nydam Boat of the 4th c. CE. It has an impressive new technical feature, the klinker planked oak hull. In the 1st millennium’s peak shipping period of the 8th-10th c. CE, this creative approach will prove its worth and will be kept unchanged. Hamlets of farm houses with their emergency hillforts appear, too. Yet, the dwellings built for the 4th-6th c. CE usually have no fresh building layers higher up in the stratigraphy for the 8th-10th c. CE. Where buildings are assigned to that period they are difficult to distinguish from 10th-12th c. buildings. Of course, the 4th-6th c. CE building strata have no 1st-3rd. C. housing structures beneath them.

Yet, the Scandinavians, with all their Roman coins as well as the splendour of their 4th-6th c. Roman imports (strangely repeating the style of 1st-3rd Roman artifacts), do not yet feel ready to set sail. However, they are definitely not prepared to build ports, preferring instead to wade ashore.

**Reconstruction and structure of the klinker hull Nydam Boat (dated 320 CE). that would also have been fit for an 8th c. fleet.**

**Length: c.22.84 m. Maximal width: 3.26 m. Crew: Up to 45 men including 30 oarsmen.**

(<http://www.archeurope.com/index.php?page=the-nydam-boat>)



The breakthrough into a level of civilization that was implemented elsewhere at least 700 years earlier, the Scandinavians don't dare to engineer until the end of the 1st millennium. In shipping, however, the only important innovation of the 8th c. is a mental rather than a technical one. Scandinavians, now called Vikings, feel finally ready to adopt the square sail. But they do not stop there. They take the much more serious decision to no longer transport their belongings through treacherous surf. They build ports. Of course, there is no innovation in that either. Yet, this determination after 700 years of bickering has a touch of radicalism. And, hardly expected anymore by the rest of Europe, the Vikings also begin to erect towns that could even be called small cities in places like Kaupang, Haithabu or Truso, with well

developed ports with landing piers. Even breakwaters, inexplicably despised for some 700 years, are finally allowed.

**Reconstructions of Viking port towns of the 8th-10th c. CE supposedly not needed from 1-700 CE when wading through treacherous surf would do.**

**KAUPANG** (Norway; <http://theslayerrune.blogspot.com/2013/08/saga-oseberg-sails-to-kaupang.html>),

**HAITHABU** (largest; Germany; <http://raidsvikings.wordpress.com/tag/haithabu/>)

**TRUSO** (Poland; <http://mstawski3d.blogspot.com/2011/03/project-truso-part-15.html>)



The new ships – with their marvellous klinker hulls yet without the rams of Scandinavia’s pre-Christian era – might well have been able to match 1st-3rd c. *Liburnians*.

**Reconstruction of the 890 CE Gokstad Viking ship with square sail and clinkered hull (23.33 m long; 5.25 m wide), a true match for 1st-3rd. C. Liburnians.**

(<http://de.wikipedia.org/wiki/Gokstad-Schiff#mediaviewer/Datei:Gokstad-ship-model.jpg>)



If one tries to understand all these strange delays one must see that Scandinavia’s archaeologists desparately try to obey a 1st millennium chronology whose construction they neither understand nor challenge. Who does? The 1,000 years are always there, bigger than life, the most powerful and most sacred tool with which to order history and give scientific dating its general direction. Yet, most of the time these excavators are honest scholars and meticulous researchers. The author feels great respect for them. They want hard evidence for the millennium no less than anyone else. To bring it about they decide to distribute the available artifacts over the entire period in a way that may be defensible.

The **1st-3rd c. period** is preferentially filled with relics from burials as well as with catalogue dated Roman coins. Questions for urban structures, farmhouses, hillforts (in use around the Mediterranean at that period), sailing ships, and ports can always be answered with potential future digs that may eventually deliver the goods.

The **4th-6th c. period** is preferentially furnished with farmhouse hamlets and their emergency hillforts as well as Roman coins catalogue-dated to that period. Again, questions for urban structures, sailing ships, and ports can be answered with future excavations that may still reveal such items.

The **8th-10th c. period** receives the most immovable and manipulation-resistant items, like urban structures, ports, pier, breakwaters, sailing ships but also the non-Roman coins. Of course, there are Roman coins, glass items, fibulae etc. in the 8th/9th c. strata, too. Yet, the situation remains defensible. If you find a funeral urn with a 2nd c. Roman coin in a 9th c. stratum, and, in the same 9th c. stratum, you also find a hoard with a 5th c. Roman coin, you can claim that nearly all of the 1st millennium periods are represented in your site. Yet, you can never say that, in your 9th c. stratum with port and town, you found a funeral urn containing a 2nd c. pier, and a larger tomb containing a 5th c. breakwater, and, then, claim that there have been ports all through the 1st millennium. If it comes to towns and ports you have to respect the stratigraphical position. If your stratum is contingent, elsewhere or on site, with 10th/11th c. material it must be dated to the 8th-10th c. CE. Yet, that is the maximum of logic that will be accepted by the archaeologists. Claims that 1st c. Roman glass and coins in 8th c. strata makes that period parallel with the 8th c., too, are rejected by resorting to theories of scrap metal and heirlooms. Small finds that chronologically come too early are "mixed into lower levels later." If they come too late they are "inherited", belong to "ancient museums" or to a private collection of antiques.

<b>Filling Scandinavia's 1<sup>st</sup> millennium CE with artifacts.</b>			
<b>8<sup>th</sup>-10<sup>th</sup> c. CE</b>			Preferentially <b>towns, ports, sailing boats, breakwaters and non-Roman coins</b> . Catalogue dated Roman coins, glass beads etc. are neutralized as heirlooms, scrap metal, ancient museums etc.
<b>4<sup>th</sup>-6<sup>th</sup> c. CE</b>		Preferentially <b>farmhouse hamlets with their emergency hillforts, and catalogue-dated Roman coins</b> . Towns, sailing ships, ports and breakwaters are left for "future" digs.	
<b>1<sup>st</sup>-3<sup>rd</sup> c. CE</b>	Preferentially <b>items from burials, and catalogue-dated Roman coins</b> . Towns, farm house hamlets with their hillforts, sailing ships, ports and breakwaters are left for "future" excavations.		

If it comes to understanding the extreme lateness of ports, breakwaters and towns, grand theories are required. Since these theories usually carry little persuasive weight, they are, with an aura of authority, pushed down the throats of people who dare to ask questions like "Why are mankind's best seafarers without ports and sails for the first 700 years of the 1st millennium?" The author well remembers answers that were quickly bellowed to the tune of "They did not need them" or "Das brauchten sie nicht", even before he could finish his sentence. These experts are scholars and, therefore, expect logical followup questions like "So, why did they suddenly need them?"

A much stronger point, at least at first glance, provides a reference to Frankish, Anglo-Saxon, and Arab coins that are found abundantly in Scandinavian 8<sup>th</sup>-10<sup>th</sup> strata. After all, these civilizations are dated to exactly that period in their realms of origin, too. **Alfred the Great** (9<sup>th</sup> c. CE) is of special interest because he even sent Wulfstan to visit Truso on Weonod turf, and left coins in many a Viking settlement. Yet, if we look for buildings at his capital, Winchester (*Venta Belgarum*), we fail because above the building strata of the 1st-3rd c. Roman period one immediately lands at 11<sup>th</sup>/12<sup>th</sup> c. churches. There are no strata anywhere between the 3<sup>rd</sup> and the 11<sup>th</sup> c. to accommodate the king's 9<sup>th</sup> c. palace. Yet, there is a 2<sup>nd</sup>/3<sup>rd</sup> c. Roman period palace in Winchester for which no one claims ownership. Moreover, Alfred – with his coin portraits – puzzles historians. He wears a Roman diadem as well as a Roman chlamys – very much like Charlemagne and other Frankish rulers. Our students are taught that Saxons liked to brag on the cheap by putting on Roman attire. Yet, there is one palace in Winchester that fits such a manly décor well. It belongs to the Roman period ending in the 3<sup>rd</sup> c. CE. A sufficiently Roman appearance would be required of anyone claiming ownership of the building. That's where Alfred's diadem and chlamys would fit perfectly. Anyway, Winchester's only palace available for Alfred is located in Winchester's Roman strata. What is now ridiculed as Alfred's fashion obsession may just turn out be the right thing for a Roman *foederatus* who does not like to be ranked below other Roman *foederati*.

Yet, a 9<sup>th</sup> c. Alfred in a 2<sup>nd</sup> c. stratum or Rome's 2<sup>nd</sup> c. period actually belonging to the 9<sup>th</sup> c. is difficult to accommodate. Yet, it is stratigraphy that cannot accommodate the 700 years between the 2<sup>nd</sup> and the 9<sup>th</sup> c. CE – neither in Winchester, nor in Truso or Kaupang (see more here: <http://www.q-mag.org/charlemagnes-correct-place-in-history.html>).

But what about the Vikings' **Abbasid Arab** partners? They, too, are seen as "retarded" because for the first seven centuries of the 1st millennium they are not able to mint

coins, write properly, develop urbanism or adopt monotheism. Yet, Abbasid 8-10th c. building strata are stratigraphically as parallel (=contemporary) with 1st-3rd c. Roman (or 4th-6th Byzantine) building strata as they are with Winchester's or Truso's 8-10th c. building strata (see more here: [http://www.q-mag.org/\\_media/gunnar-islam-and-arab-chronology-heinsohn-21-11-2013.pdf](http://www.q-mag.org/_media/gunnar-islam-and-arab-chronology-heinsohn-21-11-2013.pdf)).

Moreover, 8<sup>th</sup>-10<sup>th</sup> c. Abbasids bewilder historians for copying, right down to the chemical fingerprint, Roman glass: "The glass industry in the Early Islamic Period [8<sup>th</sup>-10<sup>th</sup> c.] can initially be characterized as a continuation of older traditions. / Mold-blowing, based on Roman traditions from the **1st century CE**, is another specialized technique that spread widely throughout the Islamic Mediterranean world during this period" ([http://en.wikipedia.org/wiki/Islamic\\_glass](http://en.wikipedia.org/wiki/Islamic_glass); bold GH).

<b>Roman 1<sup>st</sup>/2<sup>nd</sup> c. glass</b>	<b>Abbasid 8<sup>th</sup> /9<sup>th</sup> c. glass</b>
<p data-bbox="263 808 715 887"><b>Roman millefiori glass bowl of the 1st c. CE.</b></p> <p data-bbox="142 891 775 954">(http://www.e-tiquities.com/sites/default/files/imagecache/product/SC21653-2.jpg.)</p>	<p data-bbox="879 808 1433 887"><b>Abassid millefiori glass bowl from 8th/9<sup>th</sup> c CE.</b></p> <p data-bbox="860 891 1449 981">(http://www.christies.com/lotfinder/ZoomImage.aspx?image=http://www.christies.com/lotfinderimages/d56712/d5671208&amp;IntObjectID=5671208)</p>
	
<p data-bbox="158 1323 815 1406"><b>Late 1<sup>st</sup> c. CE Roman glass vase of from Cologne.</b> (D.B. Harden, <i>Glass der Caesaren</i>, 1988, 191.)</p>	<p data-bbox="860 1323 1442 1406"><b>Fragment of 9<sup>th</sup> c. Abbasid glass plate.</b> (D. Whitehouse, <i>Islamic Glass</i>, 2010, 269.)</p>
	 <p data-bbox="860 1783 1422 1868">"A ninth-10<sup>th</sup>-century is certainly possible. [...] Similar motifs [...] are found on a Roman relief-cut vessel from Cologne" (p. 270).</p>

If it comes to the most peculiar type of cameo-glass, evidence for the 1st-3rd c. period is no less convincing than for Late Antiquity (4th-6th c.) or the Abbasid Viking partners (8th-10th c.): "Some of the finest examples of ancient Roman glass are

represented in cameo glass, a style of glassware that saw only two brief periods of popularity. The majority of vessels and fragments have been dated to the Augustan and Julio-Claudian periods, from 27 B.C. to 68 A.D., when the Romans made a variety of vessels, large wall plaques, and small jewelry items in cameo glass. While there was a brief revival in the fourth century A.D., examples from the later Roman period are extremely rare. In the West, cameo glass was not produced again until the eighteenth century, inspired by the discovery of ancient masterpieces such as the Portland Vase, but in the East, Islamic cameo glass vessels were produced in the ninth and tenth centuries.” [R. Trentinella, "Roman Cameo Glass", Heilbrunn Timeline of Art History. New York: The Metropolitan Museum of Art, 2000– [http://www.metmuseum.org/toah/hd/rcam/hd\\_rcam.htm](http://www.metmuseum.org/toah/hd/rcam/hd_rcam.htm) (October 2003); bold GH.]

Already the „Umayyad period [**up to 750 CE**] was characterized by palaces and bathhouses located in remote desert landscapes. Their basic plan comes from Roman military models” in use since the **1<sup>st</sup> c. CE**. (<http://otraarquitectura.esposable.blogspot.com.tr/2011/03/typologies-in-islamic-architecture-iv.html>.)

Are the Vikings’ 9<sup>th</sup> c. **Frankish partners** also obsessed with repeating everything Roman? Definitely! **Charlemagne’s** best researched palace at Ingelheim (9<sup>th</sup> c.) is a copy of a 2<sup>nd</sup> c. Roman villa. Historians cannot comprehend their findings. After all, there is no hint of any order proving his insistence that anything but 2<sup>nd</sup>. C. Roman style would get his architects in trouble (more here: <http://www.q-mag.org/charlemagnes-correct-place-in-history.html>).

#### Details from Charlemagne’s 9<sup>th</sup> c. Ingelheim Villa in 2<sup>nd</sup> c. Roman style

Reconstruction of **2<sup>nd</sup> c. Roman style Exedra** (semi-circular building measuring 89 m across) regarded as a sensation for being the **only such building of the 800s CE**. ([http://www.kaiserpfalz-ingelheim.de/archaeologie\\_pfalz\\_der\\_karolinger\\_02.php](http://www.kaiserpfalz-ingelheim.de/archaeologie_pfalz_der_karolinger_02.php).)

Reconstruction of Ingelheim’s **2<sup>nd</sup> c. Roman style Aula regia of the 800s CE**. ([http://www.kaiserpfalz-ingelheim.de/denkmaltourismus\\_bildergalerie\\_01.php](http://www.kaiserpfalz-ingelheim.de/denkmaltourismus_bildergalerie_01.php).)



No erudite from the 9<sup>th</sup> c. is on record for researching 700 year old styles and building materials. After all, that would have been an absolute first in that period. After centuries of research, there are no ships anywhere for Charlemagne and his Franks because they would look no less 2<sup>nd</sup> c. Roman than his villa. Therefore, retrieved

specimens were assigned either to the 1<sup>st</sup>-3<sup>rd</sup> c. period or, as in Mainz, to the 4<sup>th</sup>-6<sup>th</sup> c. period.

The most unexpected result of all of the parallels between 1-230, 290-520 and 700-930 is that only the supposedly "retarded" groups (8th-10th Scandinavians, Slavs, Franks, Anglo-Saxons etc.) get it more or less right when it comes to stratigraphy-based dates for their habitats. By simply fitting their chronology to the dates of the 10th/11th c. culture materially following their own they cannot help but end up in the 8th-10th c. period. Yet, Rome's 1st-3rd or Constantinople's 4th-6th c. building strata, too, are succeeded by 10th/11th building strata. Stratigraphically they are parallel and, therefore contemporary with the 8<sup>th</sup>-10<sup>th</sup> c. strata. Exemplary Viking towns/cities confirm that they are as contingent with the immediately pre-Christian era in the same way as are 1<sup>st</sup>-3<sup>rd</sup> c. Roman strata are contingent with the 10<sup>th</sup>/11<sup>th</sup> c. CE. **Wherever one looks, there are only 300 years of solid archaeology in the 1<sup>st</sup> millennium CE.**

<b>Stratigraphy of paradigmatic Viking settlements (all dates rounded)</b>				
	<b>Camp de Péran (France)</b>	<b>Kaupang (Norway)</b>	<b>Haithabu (Germany)</b>	<b>Truso (Poland)</b>
<b>8<sup>th</sup>- 10<sup>th</sup> c. CE</b>	Viking settlement (formerly regarded as Iron Ages site of the <b>1<sup>st</sup> c. BCE</b> ).  <b>Square sail period</b>	Norway's first town <b>4<sup>th</sup> c. Roman coins of rulers like Constantine the Great who build in 1<sup>st</sup> c. style (Trier, Constantinople etc.). Square sail period</b>	Largest 8th-10th settlement of Schleswig-Holstein <b>(Roman coin).</b>  <b>Square sail period</b>	7th/8th-10th/11th c. <b>Roman coins of 2<sup>nd</sup> c. CE</b> <b>Roman milliefiori beads of 1st c. CE.</b>  <b>Square sail period</b>
<b>1<sup>st</sup>-7<sup>th</sup> c. CE</b>	<b>ENIGMATIC HIATUS OF SOME 700 YEARS WITH NO BUILDING CONTEXT.</b>	<b>ENIGMATIC WASTELAND PERIOD OF SOME 700 YEARS IN THE EARLIER 1<sup>st</sup> MILLENNIUM CE WITH NO BUILDING CONTEXT.</b>	<b>ENIGMATIC WASTELAND PERIOD OF SOME 700 YEARS IN THE EARLIER 1<sup>st</sup> MILLENNIUM CE THOUGH HAERVEJEN („ARMY ROAD”) RUNS THROUGH THE TERRITORY SINCE THE BRONZE AGE.</b>	<b>ENIGMATIC WASTELAND PERIOD OF SOME 700 YEARS IN THE EARLIER 1<sup>st</sup> MILLENNIUM CE WITH NO BUILDING CONTEXT.</b>
<b>1<sup>st</sup> c. BCE</b>	Gallic/Celtic settlement  <b>Period of Late Hellenistic and Roman square sails</b>	Wasteland  <b>Period of Late Hellenistic and Roman square sails</b>	Wasteland. Yet, HAERVEJEN („ARMY ROAD”) since Bronze Age. <b>Period of Late Hellenistic and Roman square sails</b>	Late Latene (in the surrounding territories)  <b>Period of Late Hellenistic and Roman square sails</b>

## Summary

The learned reader might think the title of this essay is misleading because Vikings could not possibly have misplaced the first seven centuries of the 1st millennium if these norsemen only emerged in the 8th c. CE. That criticism is well taken. Yet, all the author tries to show is that 1st-3rd as well as 4th-6th c. Scandinavians were the same people we call Vikings today. The evidence that stratigraphically belongs only to their 8th-10th c. period has been spread over the entire 1st millennium to fill a 1,000 year time span whose construction is neither understood nor challenged. Burials and catalogue-dated Roman coins are the preferred way of filling the 1st-3rd. c. period. Farm hamlets with their emergency hillforts, and more catalogue-dated Roman coins give the main weight to the 4th-6th c. period, whereas towns, ports, sail-fitted long boats, breakwaters, and non-Roman coins provide the most important furnishing for the 8th-10th c. CE.

Viking 9th c. longboats with square sails are in actual fact found at the same stratigraphic depth as Roman longboats with square sails. The latter are wrongly dated 700 years too early to the 2nd c. CE. Therefore, the Scandinavians' supposed 700 year delay in all major fields of development, like towns, ports, breakwaters, kingship, coinage, monotheism, and sailing ships, is derived from chronological ideas that make the Roman period some 700 years older than stratigraphy allows. However, Scandinavians undoubtedly engineered a different technique (klinker) when it comes to the hulls of their 1st millennium ships. The debate as to the advantages and disadvantages of klinker versus mortise and tenon is not conclusively settled. Chronologically it is of only secondary importance. Technologically, it provides, other than the square sail, an undisputed Northern achievement.

If one assumes – as historians of Viking vessels do – that 1st-3rd c. Roman period boats were principally different from 8th-10th c. boats because all of Europa had changed so dramatically one would expect a boat type similar to the Nordic one of the 8th-10th c. to be used also on the Iberian peninsula, in France, in Southern Germany, in Austria, in Italy, on the Dalmation coast or in Romania during the 8th-10th c. period. After all, the need for using boats had not disappeared. Yet, one does not find such boats in these territories although hundreds of sites have been researched. Moreover, even the assumption of principally different boat types between the 1st-3rd

c. CE and the 8th-10th c CE is not borne out by the facts as, e.g., proven by the Roman ships from Mainz.

Mainz was Rome's most important port on the Rhine. Since the city never lost its strategic geographical position it should exhibit the evolution from Roman-period vessels all the way to ships supposedly more appropriate for the general climate of the 8th-10th c. Mainz's five Roman oar-men boats with round shields and square sails for river warfare – similar in size and function to Viking oar-men boats with square sails for river warfare of the 8th-10th c. – were covered by more than 7 m of debris, which gives them a fine stratigraphic fix. But if one looks for levels higher up in Mainz's 1st millennium CE stratigraphy, not only are any hints of such new boat types missing, but corresponding strata are absent, too. The same situation is confirmed on the Danube. Its most massive Roman site, Carnuntum, lies fallow after 400 CE with no human habitats added in its entire territory before the 2nd millennium when the period of 8th-10th c. ships is bygone history. Thus, any individual site has, in the 1st millennium CE, just one time-block with ships. However that strata group may be dated (1-230, 290-520, or 700-930) it is contingent with strata of the 10th/11th c. CE. Thus, each individual site has, in the 1st millennium CE, archaeological remains for only some 300 years. In any individual site there are only 300 years of solid archaeology for the entire 1<sup>st</sup> millennium CE.

<b>Contemporaneity of 1<sup>st</sup> millennium periods that stratigraphically are contingent with 10<sup>th</sup>/11<sup>th</sup> c. material culture, and, therefore all belong to the 8<sup>th</sup>-10<sup>th</sup> period.</b>		
<b>1-230s Ce</b>	<b>290-520s CE</b>	<b>700-930s CE</b>

This summary is extended by a kind of second summary. It is meant for readers who do neither want to deviate from mainstream chronology nor to be left in the dark about its inconsistencies. It was designed for a Viking museum as a guide for curious children. They are not only confronted with the standard summaries of 1st millennium history but explicitly directed to problems that usually are not seen fit for the educated public frequenting such institutions. They have their separate question and answer column that allows them to join controversies that are either not settled or still have to begin. Because their questions are usually regarded as naïve they appear in **green**.

<p align="center"><b>PROBLEMS IN THE EVOLUTION OF 1ST MILLENNIUM CE SHIPPING</b>  <b>SKETCH FOR A POSTER TO GUIDE YOUNG VISITORS THROUGH VIKING MUSEUMS</b></p>			
PERIOD	NAVAL ITEMS FROM CONTINENTAL AND SOUTHERN EUROPE	<p align="center"><i>QUESTIONS BY CURIOUS VISITORS</i></p> <p align="center">-----</p> <p align="center"><b>ANSWERS BY THE MUSEUM</b></p>	NAVAL ITEMS FROM SCANDINAVIA AND BALTIC SEA EUROPE
<p>10th/11th c.</p> <p align="center"><b>A</b></p>	<p>Final triumph of Christianity after Christian items are found since the <b>1st c. CE</b>.</p>	<p><i>Why, in Christian evolution, are Northerners, Slavs and even people from Prague some 700 years behind even, e.g., Austria?</i></p> <p>Reply with standard-theory of the museum but encourage differing answers.</p>	<p>Slow triumph of Christianity after quite a few Christian items are found since the <b>8th c. CE</b>.</p>
<p>7/8th-10th c.</p> <p align="center"><b>B</b></p>	<p>Charlemagne's <b>9th c.</b> Ingelheim exedra + aula of <b>2nd c.</b> Roman style.</p> 	<p><i>Why do Northerners come so late to sails, ports towns, breakwaters, and coinage? What did Frankish ships look like? Where are the best spots to find our new Northern boat types from Portugal to Romania?</i></p> <p>Northerners had changed because "different strokes make different folks". We have not found the southern boats yet. In most places we cannot even find building strata for <b>B</b>. Where we have them, like in Charlemagne's Ingelheim, it is 1st-7th c. strata that are missing. Charles builds in perfect 2nd c. Roman style. Therefore, he may also have built boats in 2nd c. Roman style of period <b>D</b>. They resemble our 9th c. ships that, too, have Roman coin + glass contexts. Present your own ideas about Charles's Roman-ness and why so much repeated 700 year older style.</p>	 <p>9th c. <i>Gokstad Boat</i> for sea and river warfare with <b>first square sails in the North</b>.</p>
<p>4th-6th c.</p> <p align="center"><b>C</b></p>	 <p>Late Antiquity <i>Liburnia</i> for sea and river warfare.</p> 	<p><i>Why are there no square sails and ports of periods <b>C</b> to <b>E</b> in the North although Late Antiquity wares and coins from <b>C</b> arrive plentifully? Why are there no 1st-3rd c. houses beneath the 4th-6th c. one? Why is there no Roman ship evolution from the 1st to the 4th c.?</i></p> <p>Scandinavians and Baltic Sea peoples did not need these items for another 300 years [Add museum's cultural-political evolutionary theory + scientific dating). Romans did need ships but no evolution. It is even more difficult because the 4th c. repeats 1st c. and the 5th c. repeats 2nd c. techniques. Water mills, basilicas, and even arms of the 4th/5th c. look like 1st/2nd c. CE items. However, there are no 1st-3rd c. building strata in 4th/5th sites and vice versa. Science works on this. Come forward with your own ideas.</p>	 <p><i>Nydam Boat</i> of the 4th c. (no square sail yet). Clinker planking does not undergo any evolution to period <b>B</b>.</p>  <p>Theodosius II coin (Gotland)</p>
<p>1st-3rd c. CE</p> <p align="center"><b>D</b></p>	 <p>Roman <i>Liburnia</i> types.</p> 	<p><i>Why do Northerners suddenly fall behind the rest of Europe in shipping although top Roman coins and silver wares arrive? Where are their strata with houses and ceremonial buildings? Why is the period represented only by contents of tombs?</i></p> <p>Scandinavians and Slavs may not have needed ships in these 300 years although rich burial artifacts and even low value coins show close relations to the Roman Empire. We still hope to find houses and ceremonial buildings. You may later have the chance to excavate them, or come up with an explanation of their absence.</p>	 
<p>400-1 BCE</p> <p align="center"><b>E</b></p>	 <p>Hellenistic/Roman Republic <i>Pentecoster</i> with <b>square sail</b>.</p>	<p><i>Why were Northerners quite up to date in boat building in the Bronze and Iron Ages but then fell behind some 700 years during the 1st millennium CE of sailing history?</i></p> <p>In this period Northerners could not afford to fall behind the fast emerging South! [Add museum's sophisticated cultural-political theory of evolutionary change.] Come forward with your own explanations.</p>	 <p>Sophisticated non-clinker hull of 4th/3rd c. BCE <i>Hjortspring Boat</i>.</p>

## APPENDIX:

A **6<sup>th</sup> c.** Saxon (?) longboat fitting a  
**9<sup>th</sup> c.** fleet loaded with **2<sup>nd</sup>/3<sup>rd</sup> c.** Roman silverware.

### Reconstruction of Sutton Hoo Ship Burial.

([http://www.magnoliabox.com/art/167402/Anglo-Saxon\\_Boat](http://www.magnoliabox.com/art/167402/Anglo-Saxon_Boat))

**Roman fluted silver bowl in  
 2<sup>nd</sup>/3<sup>rd</sup> c. style from Sutton Hoo  
 boat (would fit 9<sup>th</sup>/10<sup>th</sup> c. Viking  
 fleet)** (<http://www.culture24.org.uk/history-and-heritage/time/art12007>)

### Sutton Hoo's Stratigraphy\*

**(C) NO STRATA FOR 6<sup>th</sup>-10<sup>th</sup> c. CE.**

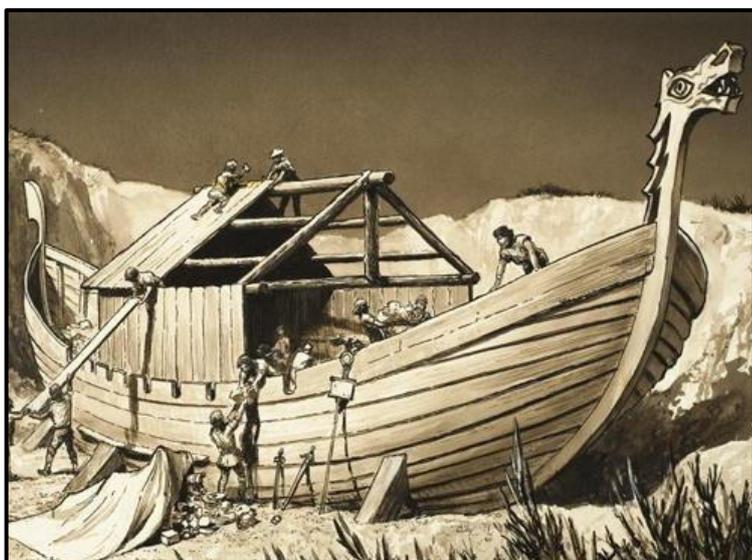
**STRATUM (B) is 2<sup>nd</sup>/3<sup>rd</sup> = 6<sup>th</sup>=9<sup>th</sup>/10<sup>th</sup> c. CE**

**(B) Boat-burial stratum dated 6<sup>th</sup> c. CE.**

**Stratigraphically 2<sup>nd</sup>/3<sup>rd</sup> c. CE**

**(A) Pre-Christian 1<sup>st</sup> c. BCE/ 1<sup>st</sup> c. CE**

\*Sutton Hoo provides an important stratigraphical proof that **Saxons and Romans were competing** for the British Isles from the very beginning, i.e. from the **late 1<sup>st</sup> c. BCE** (more here: <http://www.q-mag.org/charlemagnes-correct-place-in-history.html>; pp. 43-61.)

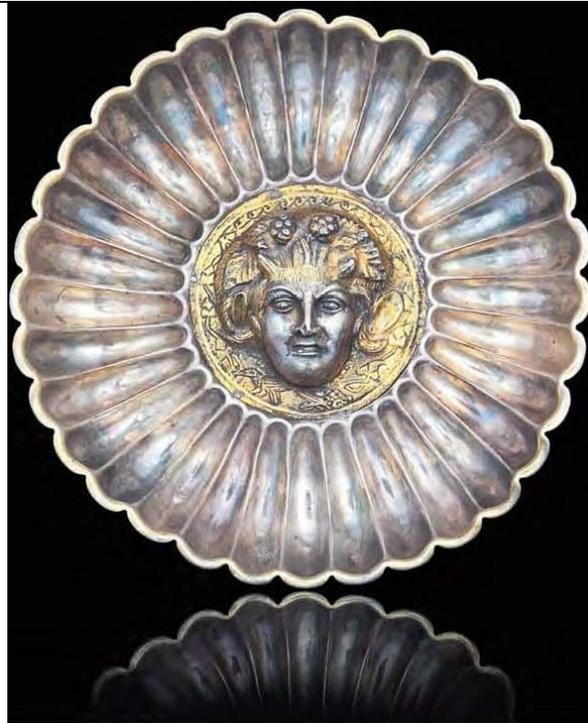


**Parallels for the Sutton Hoo's silver bowl indicating its **2nd/3rd c.** date.**

**An Elymaean silver bowl from the **2nd c. CE.****  
 (<http://nordonart.wordpress.com/2012/03/26/serious-bling-antiquities-at-christies-in-london/>)



**A Roman silver fluted bowl (**3rd c. CE.**)**  
 (<http://nordonart.wordpress.com/2012/03/26/serious-bling-antiquities-at-christies-in-london/>)



**Roman Silver Bowl from Blunsdon Ridge, Wiltsire**  
**(**300 CE at the latest.**)**

(<http://www.bbc.co.uk/ahistoryoftheworld/objects/8xbZjaNRQQaY-toK5PsdOw>)



**Hellenistic Greek silver bowl (**2nd c. BCE**)**

(<http://nordonart.wordpress.com/2012/03/26/serious-bling-antiquities-at-christies-in-london/>)



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