

IMAGINARY VESSELS IN THE LATE BRONZE AGE OF GOTLAND AND SOUTH SCANDINAVIA:

Ship settings, rock carvings and decorated metalwork

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The paper compares the Bronze Age ship settings of Gotland with the vessels portrayed in rock carvings on the Scandinavian mainland. It also makes comparisons with the drawings of vessels on decorated metalwork of the same period. It considers their interpretation in relation to two approaches taken to the depictions of ships in other media. One concerns the use of boats to transport the sun, while the other emphasises the close relationship between seagoing vessels and the dead. A third possibility concerns the distinctive organisation of prehistoric communities on Gotland. It seems possible that the largest of the ship settings were equivalent to the Bronze Age cult houses found on the mainland and that they may even have represented the island itself.

Key words: Bronze Age, ships, Gotland, rock carvings, metalwork, sun, death, house urns

MOVING BETWEEN MEDIA

The ship is one of the dominant features in the visual culture of the Bronze Age, but is represented in different media in different parts of Scandinavia. Towards the south, boats are depicted on bronze razors, whose distribution focuses mainly on Denmark (Kaul 1998). Further

to the north, they are an important component of prehistoric rock carvings and are particularly common in the south and west of Sweden and Norway (Malmer 1981; Coles 2005; Goldhahn 2006). A third element is represented by stone ship settings. Although they occur on the mainland of Scandinavia, there is a marked concentration on Gotland (Fig. 1) (Strömberg 1961; Müller-Wille 1970; Capelle 1986, 1995; Arтелиус 1996; Skoglund 2005, 2008; Widholm 2007).

The decorated metalwork is often found in burials (Dotzler 1984; Kaul 1998), but the rock carvings depicting ships are usually associated

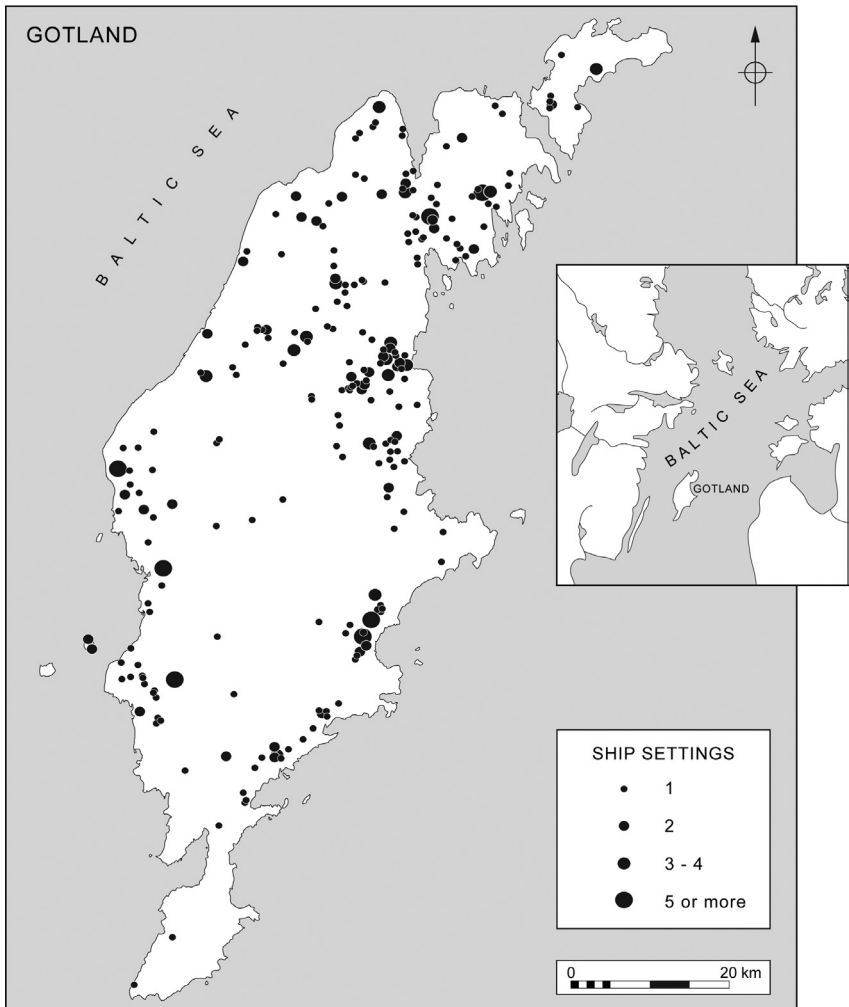


Figure 1. The distribution of stone ship settings on Gotland.
Drawing: Aaron Watson after Joakim Wehlin.

with water (Bradley 2006; Ling 2008). Many are near the sea, while other images are more frequent in landlocked areas. Ship settings are also located close to the coast (Hansson 1927). It is particularly striking that they should occur in such large numbers on Gotland, for the island is in the Baltic Sea but accessible by boat from the Swedish mainland and from regions further to the south and east. The images on the decorated metalwork are commonly compared with those in Bronze Age rock art (Kaul 1998; Ballard *et al.* 2003; Kristiansen & Larsson 2005; Bradley 2006, 2008, 2009:chapters 6–8; Skoglund 2009), but ship settings of the same date are less often discussed, perhaps because they have such a restricted distribution. As a result, researchers have overlooked some striking connections between these distinctive media.

Many of the images were contemporary with one another. Although a few Early Bronze Age artefacts feature drawings of boats, most decorated metalwork dates from the Late Bronze Age (Kaul 1998). Rock art was equally long-lived, but some of the most complex panels are attributed to the Late Bronze Age or even the Early Iron Age (Ling 2008). This is also the date of the ship settings on Gotland, a number of which have been excavated (Gustafson, 1878, 1891; Ulfsparré 1878; Hansson 1927; Arwidsson 1952; Silvén 1954; Manneke 1967; Gerdin 1974, 1975, 1979a, 1979b; Grimlund-Manneke 1979; Englund 1979; Pettersson 1982; Zerpe 1998; Hallin 2002, 2003, 2004; Carlsson & Widerström 2005).

It is worth comparing these features with one another, but that is only possible by considering the evidence from South Scandinavia as a whole. Otherwise there is too much regional variation. For example, in Gotland boats are represented on just two of the decorated rocks (Burenhult 1973, 1980; Broström 1999). By contrast, the island contains three hundred stone ships and there may have been many more (Stenberger 1945; Pettersson 1982; Hallin 2002). Similar distinctions can be recognised in other areas. There are occasional ship settings on the eastern shore of the Baltic, but they are well beyond the distribution of rock art (Grewingk 1878; Balodis 1940; Nerman 1954; Graudonis 1967; Capelle 1986, 1995; Artelius 1996; Pydyn 1999). On the Swedish mainland, carvings of boats are normally found in different places from these monuments, and both are recorded in areas with few finds of decorated metalwork (Bradley & Widholm 2007a). There is a similar contrast between the distributions of rock art and stone ships on the Danish island of Bornholm (Kaul *et al.* 2005:fig. 130).

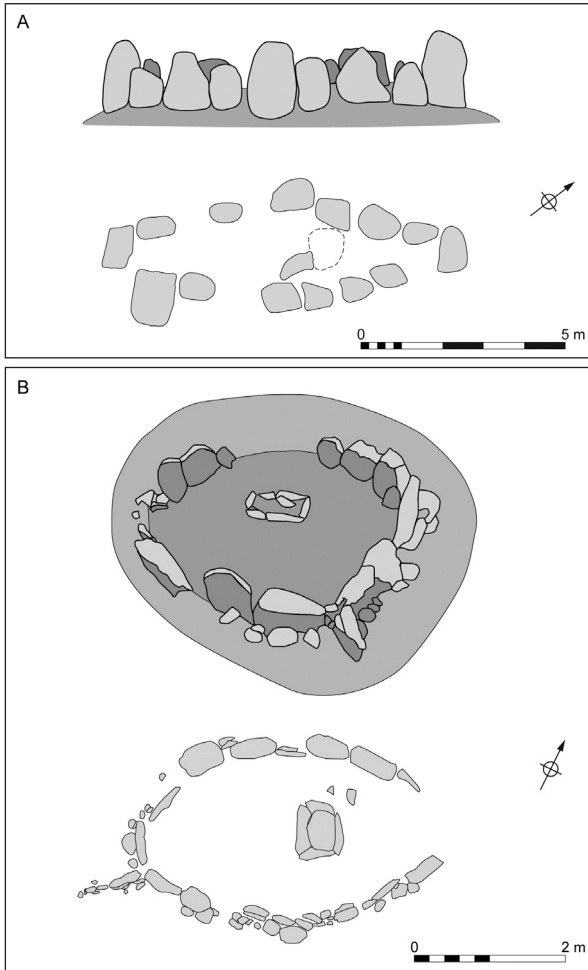


Figure 2. Plans and three-dimensional drawings of smaller ship settings on Gotland.

Drawing: Aaron Watson after Joakim Wehlin (above from Hansson 1927:84 and below from Pettersson 1982:62).

The first part of this paper is concerned with formal comparisons between ship settings, rock carvings and artefacts with drawings of boats. The second part discusses their meanings for the people who made them.

THEMES WITH VARIATIONS

The Late Bronze Age ship settings of Gotland have a number of features which distinguish them from their counterparts elsewhere in Scandinavia (Figs. 2, 3).

Several characteristics are of fundamental importance. The ship settings on Gotland may be defined by a perimeter of standing stones, or

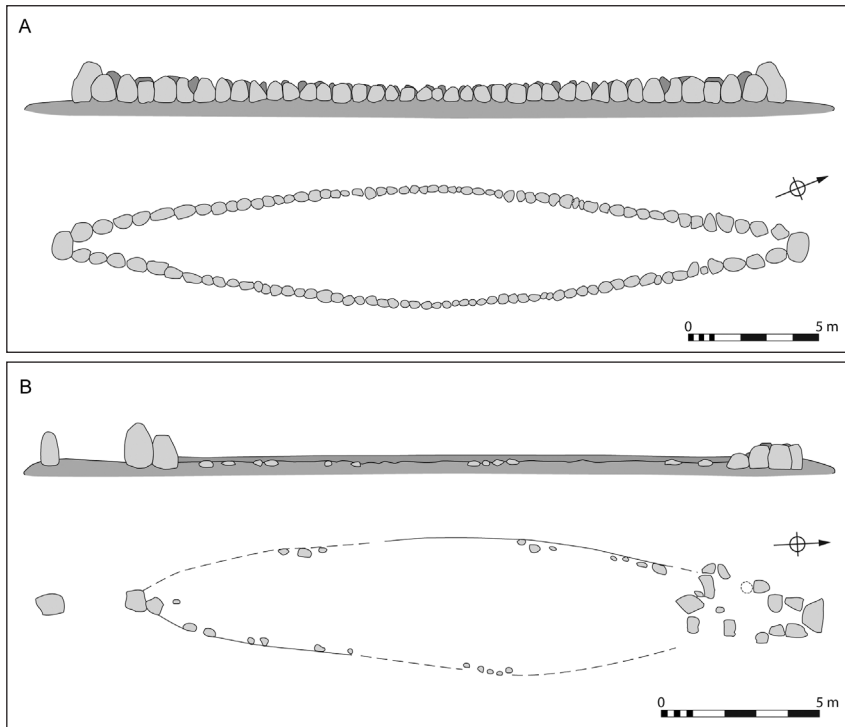


Figure 3. Plans and three-dimensional drawings of larger ship settings on Gotland.

Drawing: Aaron Watson after Joakim Wehlin and Peter Skoglund (above Nylén och Manneke 1961 and below Lau RAÅ 41:1).

they can be defined by a boulder kerb. The kerbs often mark the limits of low cairns, but other monuments take the form of a largely empty enclosure. At some of the sites with kerbs only the ends of the vessel were marked by upright stones. Their sizes vary, too. The smallest monuments are less than ten metres long, but the lengths of the most prominent examples approach forty metres. Many of the vessels were laid out in two sections, separated by taller stones placed half way along either side. The ship settings on the mainland occur in a similar range of sizes to those found on the island. Again they include inconspicuous cairns defined by kerbs. In both areas these structures are associated with Late Bronze Age cremations, accompanied by bronze artefacts such as razors, tweezers and pins (Artelius 1996). The sites on Gotland can also include house urns. Nine of the thirteen examples from the island were discovered in ship settings. They are not found with similar monuments in other regions (Arwidsson 1952; Grimlund-Manneke 1979; Pettersson 1982; Sabatini 2007).

Where ship settings on Gotland are defined by standing stones, the uprights occur at intervals of approximately a metre and are usually paired across the long axis of the vessel. Some attempt was made to select stones of similar appearance. The tallest examples define the middle of the ship setting and the positions of the prow and stern. At most sites the monoliths are rounded boulders which had been shaped by glacial action or perhaps collected from the seashore. There is little to suggest that they had been modified before they were used. Colour may also have been important because red stones seem to have been employed in the central part of the vessels and towards either end. The remainder of the monument is usually white or grey.

Other details may be equally significant. The end stones can be pointed, as if to suggest a boat with a raised prow and stern. That is particularly obvious where the rest of the monument is bounded by an inconspicuous kerb. Occasionally one end of the structure features a distinctive rectangular compartment. This is extremely small, and on a real ship it could have accommodated only one person, presumably the helmsman. The square end of the vessel was evidently the stern, whilst the pointed end would have marked the position of the bow. Both ends could also be indicated by detached monoliths continuing the axis of the boat, although this is very uncommon.

The ship settings on Gotland can appear singly or, more often, in small groups. Most follow the axis of the nearest coast, but in many cases the structures are symmetrical and it does not seem to have been important to distinguish between the prow and the stern. Ship settings are often found with other structures, normally round cairns or smaller stone monuments. They were constructed in a distinctive manner and were often defined by long, roughly rectangular kerbstones which are quite different from the taller monoliths associated with the most conspicuous ship settings. The chronology of the circular monuments is by no means clear, and in Gotland the ship settings can follow a path leading *in between* other monuments.

A number of these features recall the characteristics of rock carvings and decorated metalwork where images of ships play a prominent part.

Ship settings and rock carvings (Fig. 4)

The first comparison is with the rock art of the South Scandinavian Bronze Age. Several features are especially important: the forms taken by the boats; the presence or absence of a crew; the numbers of people

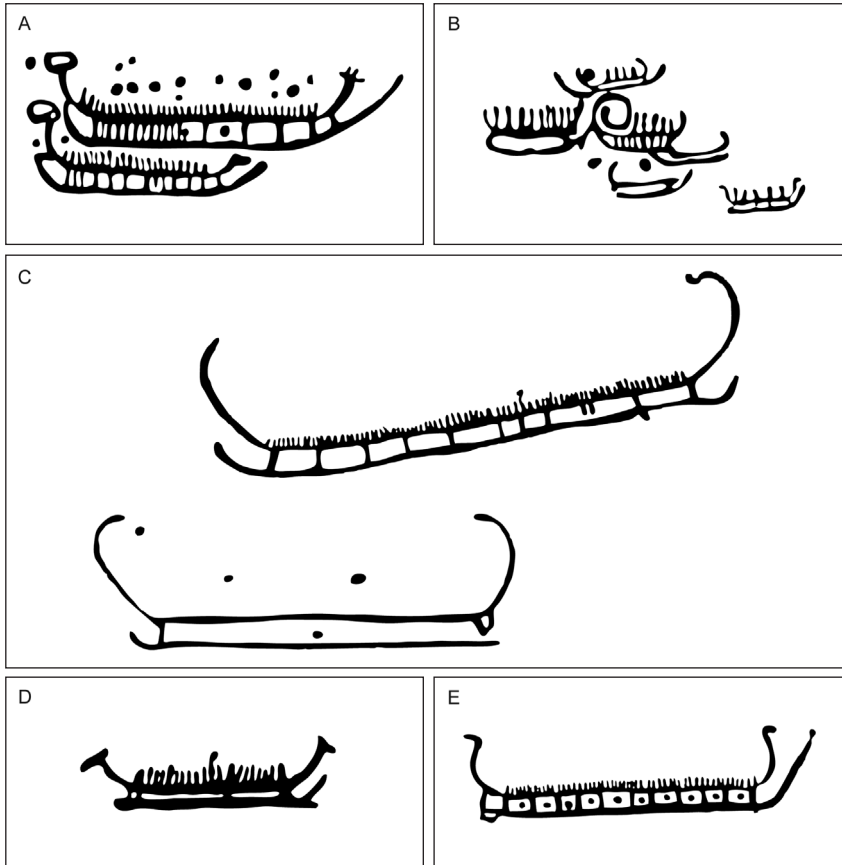


Figure 4. Details of rock carvings on the mainland of south-east Sweden. A: Boats with larger crews; B: Boats with smaller crews; C: Pairing of an empty boat and a vessel with its crew; D: Ship with a raised central figure; E: Ship with a large crew and subdivisions of the hull.

Drawing: Aaron Watson after Burenhult (1973).

on board; the direction of travel; and the distinctive siting of both ship settings and rock carvings.

All the ships in Scandinavian rock art are depicted in side view, so that the drawings show the elevation of the vessel and indicate the position of its crew (Glob 1969; Burenhult 1973; Malmer 1981). Although the forms of the ships changed over time, a consistent feature is the raised prow and stern. In the petroglyphs the prow may be embellished with a horse's head. This helps to establish the direction in which the boat is travelling (Strömberg 1983). Another indication is a line extending from the stern, continuing the axis of the keel. In most cases the crew is depicted by a series of vertical strokes, and it is com-

monly supposed that each represents a pair of individuals. There is no evidence of a sail, and paddles are rarely shown. The latest vessels are a little different, for they have a symmetrical profile. In this case it is impossible to tell the prow from the stern unless a rudder or steering oar is represented. This kind of vessel has been compared with the Hjortspring boat from Denmark and is dated to the Early Iron Age (Crumlin-Pedersen & Trakadas 2003).

The ship settings on Gotland share some of the same features. In almost every case the prow and stern are indicated by the tallest stones, whilst the others may increase in height towards the ends of the vessel. There are occasional contrasts between the shapes of the monoliths in these positions, but it is not always clear whether this results from modern reconstruction. Occasionally keel extensions may be indicated by a line of upright stones continuing the long axis of the vessel. Where the edge of the structure was marked by monoliths rather than a boulder kerb, the stones were usually arranged in pairs across the body of the vessel. Seen from the side, they resemble the 'crew strokes' in Bronze Age rock art. The links between these pairs are sometimes emphasised by the shapes or sizes of the uprights. At the same time each monolith has a distinctive appearance and can be separated from its neighbour by a small gap in the perimeter of the monument; it seems likely that they were meant to represent not only the ship itself but also specific individuals. If the stones represented a crew, this would explain their individual character as well as the pairing of uprights on either side of the vessel.

The idea that standing stones could represent people is common in ethnography. For example, standing stones at sacred places in the Marquesas and Tikopia islands are believed to represent people (or gods) (Handy 1927:171; Firth 1970:120f). The idea is also known from Gotlandic folklore, where several larger stones, or groups of stones, are believed to be people and animals who were transformed on their way to or from the church.

Finally, the presence of two taller monoliths at the midpoint of the vessel may even have its counterpart in the rock art of south-east Sweden where a taller and/or wider crew stroke is occasionally depicted in the equivalent position. On the other hand, the ship settings are more symmetrical than the majority of the vessels illustrated by rock carvings.

These observations apply to those ship settings with a continuous perimeter of standing stones. Others lack this feature and are defined

by less conspicuous kerbstones, in which case only the ends of the vessel are indicated by monoliths. At these monuments there is no indication of a crew, and the boat could even be empty. There are sites on Gotland where ship settings of both kinds are juxtaposed. The best known example is at Gnisvärd. A similar contrast is present in Bronze Age rock art, although it is seldom discussed. Johan Ling suggests that 23 % of the Late Bronze Age vessels in his study area in Bohuslän are shown without a crew (Ling 2008:194). The same applies to the smaller sample dating from the Iron Age when the proportion of empty vessels rises to 32 %. In Småland and Blekinge – the parts of the Swedish mainland nearest to the island – empty vessels account for approximately 28 % of the drawings of ships, but in this case it is more difficult to establish the dates of some of the individual vessels (Bradley 2008). Sometimes empty boats are paired with others carrying a crew. That pattern is found on many sites, but is particularly apparent on the principal outcrop at Himmelstalund, virtually opposite the northern tip of Gotland (Hauptman Wahlgren 2002). It is difficult to provide comparable figures for the ship settings on the island as some monuments have been restored and others remain unexcavated. It is enough to say that ships with crews and ‘empty’ vessels are widely distributed and that they are sometimes juxtaposed.

More can be said about the sizes of the crews represented in these media. Again Johan Ling provides some useful statistics on the number of people represented in the rock art of Bohuslän. He has recorded the number of ‘crew strokes’ in a large sample of Late Bronze Age drawings of ships. The range is usually between six and twelve, and the most common number is seven. Since the ships are viewed from the side, each crew stroke should represent a pair of individuals seated opposite one another, indicating that the sizes of the boat crews were usually between twelve and twenty four and that the norm was approximately fourteen (Ling 2008:fig. 10.11).

A smaller sample of rock carvings on the south-east coast of Sweden provides similar results. Here most of the ships are associated with between six and twelve crew strokes. In this case the commonest number was nine, suggesting that the boats were manned by eighteen people (Bradley 2008). It is difficult to provide exact figures for the number of monoliths associated with the ship settings on Gotland, but they are usually between twelve and twenty; fourteen and sixteen appear to be the commonest numbers, and this suggests the sizes of the crews.

It would apply to most structures of this kind, which are up to ten metres in length. On the other hand, there are a few ship settings in Gotland that can be four times as long. They are considered in a separate section of this paper.

In South Scandinavian rock art it seems to have been important to show the direction in which the vessels were travelling (Bradley 2006, 2009:chapter 7). That is less apparent with the ship settings of Gotland. Where they were built with upright stones the direction of sailing is rarely indicated. They may have been thought of as travelling in two directions – the closest comparison is with the latest boats depicted in rock art. On the other hand, it is possible to distinguish between the bow and the stern in some of the stone vessels with a low kerb.

The two media have one more feature in common, as ship settings and carvings of ships are frequently located near to water and often close to the shoreline. It has long been suggested that drawings of boats are most common near the sea and that other kinds of images were favoured in landlocked areas. That is not quite true, as carvings of ships on the Scandinavian mainland are also associated with rivers and inland lakes. In any case the relationship breaks down towards the northern limit of this style of rock art (Sognnes 2001). Further to the south, however, the close relationship between depictions of ships and the coast has become still more apparent with Johan Ling's work in the west of Sweden. It not only suggests that petroglyphs were nearer to the sea than had been supposed before, it even raises the possibility that they were most frequent in places which were accessible by boat (Ling 2008:222ff). The same argument might apply to the ship settings, but less is known about the shoreline of Gotland, which certainly changed during the course of the Bronze Age and Early Iron Age.

Ship settings and decorated metalwork (Fig. 5)

Can similar comparisons be made with the images on Bronze Age metalwork? In this case there are fewer topics to consider: the forms of the vessels are important, and so are the sizes of their crews.

Like the rock carvings, the drawings of ships on bronze artefacts show vessels with a raised prow and stern (Kaul 1998). They normally depict keel extensions, and a series of upright lines is thought to represent the crew. Again the boats are seen from the side. Many of them are accompanied by other images, including animals, fish, and what are probably representations of the sun. Some of these designs are nat-

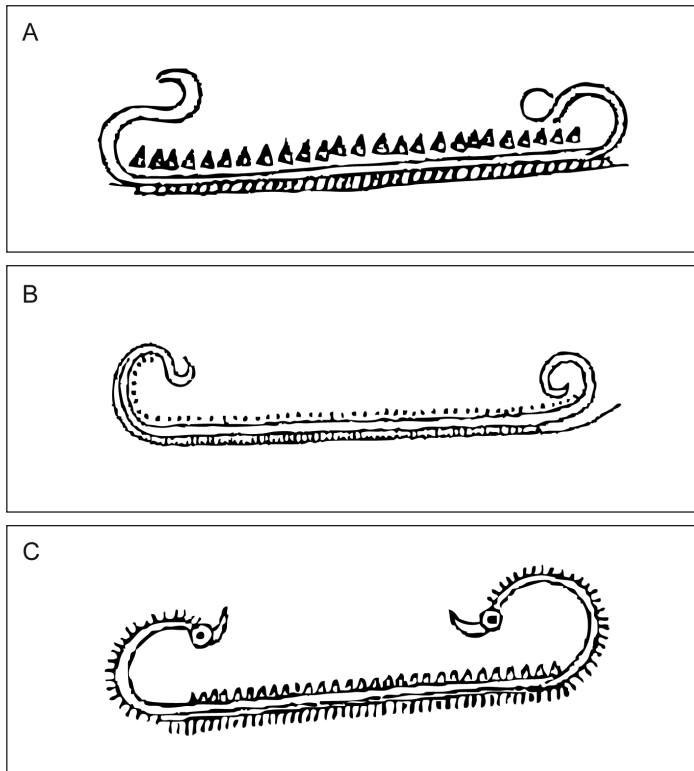


Figure 5. Three drawings of ships and their crews depicted on bronze razors.
Drawing: Aaron Watson after Kaul (1998).

uralistic but many are extremely stylised. Flemming Kaul has shown that the direction of travel is an important feature of the metalwork (1998:chapter 11). The vessels sailing from left to right are often associated with a horse, and those moving in the opposite direction can be accompanied by a fish or a snake. He relates these designs to the passage of the sun across the sky during the day, and its movement beneath the sea at night (Kaul 1998, 2004). The vessels themselves are similar to those depicted in South Scandinavian rock art, but in other respects the images created in these different media diverge from one another. The drawings on the metalwork illustrate the relationship between the sea and the sky, whilst rock art also refers to activities on land (Bradley 2009:chapters 7 and 8).

By their very nature ship settings can only be associated with the sea. If the smaller examples show the same kinds of vessels as most of the rock carvings, how are those in Gotland related to the designs on metal

artefacts? Again the basic shapes are very similar. The vessels are shown in elevation with a raised prow and stern. Even the keel extensions may be represented by short rows of stones continuing the axis of the vessel.

In other respects the images created in these two media differ from one another. The only association is between these monuments and circular cairns or platforms. It remains to be seen whether it happens very often, and at present there is little to suggest that the boats were entering or leaving these constructions in the way that happens on the mainland (Artelius 1996; Nordenborg Myhre 2004:chapter 6; Bradley & Widholm 2007a and b). Indeed, it is not known whether these structures were contemporary with one another; monuments with radial divisions like a wheel cross may belong to a later period than the ship settings. Kaul's interpretation of the metalwork emphasises the drawings of the sun, but it also considers the directions in which the vessels are travelling. Again the ship settings have a quite different emphasis, and in many cases no attempt was made to illustrate this feature.

More information is provided by the drawings of crews on the decorated metalwork. Unfortunately, the only comprehensive catalogue is limited to Danish finds (Kaul 1998), but the high quality of its illustrations makes it possible to estimate the number of people on board. There are usually between sixteen and thirty 'crew strokes', but in exceptional cases the figure can rise to sixty or more. Again each vertical line should represent two individuals, suggesting that in most cases these boats were carrying between thirty and sixty people (Bradley 2008). A few rock carvings on the mainland show boats of similar sizes, but these are altogether exceptional. In Ling's study area at Tanum only 12 % of the drawings show ships with more than fifteen crew strokes. In a smaller sample from the south-east shoreline of the Baltic the equivalent figure is 24 % (Ling 2008:fig. 10.11; Bradley 2008).

The remains of wooden boats of later date suggest that there is a consistent relationship between the length of the vessel and the number of people it can carry. This assumes that it was paddled by a crew arranged in pairs. Each person would occupy approximately a metre of the hull, but the members of the crew would also be spaced a metre apart in order to have room for manoeuvre (Randsborg 1995:chapter 1; Clark 2004:chapter 10; Crumlin-Pedersen & Trakadas, 2003). On that basis it should be possible to work out the sizes of the vessels represented on the metalwork. It suggests that their prototypes were between fifteen and thirty metres in length, with exceptional examples

which were even longer. The larger ship settings on Gotland fall within that range. They include 'empty' vessels as well as open enclosures defined by monoliths, the largest of which is forty-five metres long. Such monuments are very different from the smaller structures discussed earlier. If the majority of the stone ships can be compared with the vessels illustrated in Bronze Age rock art, these exceptional constructions refer to the kinds of ship which are drawn on artefacts of the same period.

SUMMARY

The ship settings of Gotland have certain features with a wider distribution in Scandinavia. The first is the distinction between stone ships which are shown with crews represented by upright stones, and boats that were apparently empty. Both types can be found on the same sites on Gotland, just as those with crews are paired with empty vessels in the rock art of the mainland.

A second distinction concerns the sizes of the boats and the representations of a crew. Most of the ship settings on Gotland depict small vessels with crews of under twenty. Sometimes they show considerably fewer people. The same applies to most of the rock carvings in South Scandinavia which feature ships with a similar number of individuals on board.

By contrast, the great majority of the decorated bronzes illustrate much larger craft, manned by significantly more individuals. The boats represented on the metalwork are rarely found with fewer than fifteen crew strokes, and in most cases the figure is much higher. If these vessels had any equivalents among the stone ship settings, they must be the comparatively rare examples which were up to forty metres long.

The significance of these patterns is considered in the final section of this paper.

DISCUSSION

One way of assessing the significance of the Gotlandic ship settings is to compare their interpretation with those of Bronze Age images on the mainland. Three topics are considered here: ships and the passage of the sun; ships and mortuary rites; and travel and island identities.

Ships and the sun

Kaul has argued that the images on Late Bronze Age metalwork illustrate a narrative in which ships carry the sun through the sky during the day and under the water at night (Kaul 1998, 2004). There are in-

dications of similar elements in South Scandinavian rock art (*e.g.* Ohlmarks 1963; Hauptman Wahlgren 2002; Kristiansen & Larsson 2005), although other themes are also illustrated in this medium (Bradley 2009:150–168). To what extent can Kaul's interpretation be extended to the ship settings of Gotland?

He emphasises the link between seagoing vessels and sun symbols. There are certainly sites on Gotland where stone ships and circular settings are found together, but this does not seem to happen in every case, and at present there is little to show whether these structures were contemporary with one another. That may not negate Kaul's hypothesis in relation to the ship settings, but, unlike the pairs of carved footprints recorded on the mainland (Bradley 2009:195ff), the ship settings do not conform to any obvious solar alignment. In fact they are moving both north and south, and different vessels on the same sites can travel in opposite directions.

In Kaul's model the sun crosses the sky from left to right between dawn and dusk. It returns beneath the sea, moving from right to left during the hours of darkness. Perhaps the inhabitants of Gotland took a different view. Because it is an island, out of sight of the mainland, the sun appears to rise from the water to the east. It travels across the sky until it reaches its highest point beyond the southern end of the island. Eventually it sets into the sea to the west. Thus the sun moves around much of the coast during the course of the day. Is it possible that the ship settings that follow the shoreline reflect its daily journey? The idea is tempting, for, like the boats on the decorated metalwork, many of the stone ships travel in two directions. This is an interpretation which requires more research.

Ships and the dead

Another possibility can be considered. There is evidence that on the mainland images of ships were directly associated with the dead (*e.g.* Randsborg 1993; Goldhahn 1999). Metalwork with drawings of boats was commonly deposited in graves (Dotzler 1984; Kaul 1998), and rock carvings depicting ships are often associated with cairns (Ling 2008). In fact these images are even found inside cists (Jellestad Syvertsen 2002). There are rock carvings which suggest that vessels are travelling between such monuments and the water's edge (Wrigglesworth 2002), and there may even be a connection between depictions of empty vessels and the commemoration of the dead (Bradley 2006). Thus the

decorated cist at Kivik contrasts one vessel sailing into the chamber with its crew and an empty boat towards the back of the same structure (Randsborg 1993:27–34). The ‘day ships’ depicted on the kerb of the barrow at Sagaholm are depicted with people on board, whilst the ‘night ships’ which travel around the monument in the opposite direction are apparently empty (Goldhahn 1999). The decorated outcrop at Hjortekrog may have a similar significance. Here all but one of the ship carvings buried beneath a Late Bronze Age cairn are shown without their crews (Widholm 1999).

At same time the boundary between land and water possessed a special importance. It is where carved rocks are commonly found, and large cairns attributed to the Early Bronze Age follow the shorelines of the Baltic and the North Atlantic where they frequently overlook the sea. Equally impressive funerary monuments were built on small islands off the coast. This is particularly revealing since it is unlikely that those places were inhabited at the time. In that case the dead must have been taken there by boat (Bradley & Widholm 2007a).

Another distinctive feature of the eastern mainland of Sweden is the pairing of stone ship settings with small rectangular monuments whose proportions (but not their sizes) are similar to those of Late Bronze Age domestic buildings. It seems possible that they were intended to represent the sea and the land respectively. Their appearance together would have emphasised the special importance of the shoreline. Both are found with round cairns at cemeteries like Hjortekrog and Snäckedal, where it seems as if some of the boats were travelling in and out of those monuments (Bradley & Widholm 2007a and b; Bradley 2009:166ff).

That is very different from the situation on Gotland. Here large Early Bronze Age cairns were built close to the sea, but in this case there is less evidence for the use of small offshore islands. Late Bronze Age stone ships have a comparable distribution and effectively ring the coast (Hansson 1927; Stenberger 1945; Hallin 2002). Like carvings of boats on the mainland, they are usually near the water’s edge. Some of the excavated ship settings are associated with human cremations and even with bronze razors in the form of a boat (Hansson 1927; Gerdin 1974, 1975, 1979a, 1979b; Grimlund-Manneke 1979; Pettersson 1982). The burials are also inside house urns. Although ceramics of this kind are widely distributed in Northern Europe, these are the only examples to be discovered in ship settings (Arwidsson 1952; Grimlund-Manneke

1979; Pettersson 1982; Sabatini 2007). The point is particularly striking since stone settings in the form of a house are entirely absent on the island. The contrast with the eastern coast of Sweden could hardly be more evident, yet in both areas the seashore may have been associated with the boundary between the living and the dead.

It is commonly assumed that ships were treated as a symbol of the voyage of the dead to the otherworld (Artelius 1996), and this interpretation seems entirely reasonable. On the other hand, it does not explain the contrast between vessels with crews and empty boats which happens with both ship settings and rock carvings. Perhaps the petroglyphs can shed light on this distinction, for at a number of sites ships seem to cross the decorated panel as if they are travelling away from the viewer. As this happens, the crew disappears from view. Boats with a full complement on board are replaced by empty vessels as they recede into the distance. That observation could be interpreted in many ways, but one possibility is that this device represents the transformation of the dead (Bradley 2006, 2009:chapter 7 and 185f). How is the idea relevant to Gotland? Perhaps the ship settings represented two distinct conceptions of the dead, or two stages in the rites of passage: the first when specific people were commemorated, and the second when they had been transformed into an undifferentiated body of ancestors (Skoglund 2010).

If this notion is correct, different kinds of ship settings would have separate ritual and social meanings. They will be explored in the final part of the paper.

Travel and island identities

A basic assumption made in this article is that the vessels defined by upright stones indicate ships with crews. These stones are often paired; they are regularly spaced and are separated by small gaps from one another. It makes them stand out as individuals. This arrangement is not found in the monuments on the mainland and emphasises the special connection between ships and people on Gotland; a phenomenon with parallels in island communities in other parts of the world (Ballard *et al.* 2003).

From this perspective the ship settings may provide some evidence of social organisation, for it seems as if they were commonly divided into two equal segments, suggesting some kind of social division on-board the boat itself. It may be no accident that in some cases that

basic module was repeated several times in the same group of monuments. Occasionally, the pattern is still more complex. Thus at Ranarve (Klinte parish) four vessels with this characteristic were built end to end (Grimlund-Manneke 1979), and at Domarlunden (Lärbro parish) another five stone ships were constructed side by side (Hansson 1927; Gerdin 1974, 1975, 1979b). It may be no coincidence that, taken together, their lengths – 34 metres and 35 metres respectively – are very similar to one another and also to those of the largest ship settings on the island.

There is a little evidence for a similar arrangement in the rock art of the south-east Baltic, but it has not been discussed. As mentioned earlier, in a few instances the carvings of ship are divided in half by an unusually high or broad vertical line. This has the effect of separating the people on board into two groups, but there are cases where the practice seems to have gone even further. The crew strokes are separated into several groups, each of approximately the same size. Occasionally, the distinctions between them are reflected by subdivisions of the hull. This pattern is by no means common and is never found on decorated metalwork. It suggests that some of the larger vessels were associated with several communities.

The stone boats of the Scandinavian Bronze Age have been discussed by Rausing (1984) and Capelle (1995), both of whom distinguish between smaller craft used for travel over short distances and larger ‘warships’ which were suited to longer voyages. Their analyses are based on two criteria: the proportions of the stone ships found on the mainland of South Scandinavia, and the overall lengths of these monuments. In their interpretations the smaller vessels have length: width ratios of between 2.5:1 and 4:1 and may be up to sixteen metres in length. The ‘warships’ are significantly longer and narrower. In this case the same ratio is between 6:1 and 8:1. The difference between these vessels is clearly reflected in the rock art of the Swedish mainland (Bradley 2008). Applying the method described earlier, a vessel sixteen metres long would be depicted with eight crew strokes; among the carved images the commonest figure is seven. The smaller vessels would be well suited to calm water. Ships with much larger crews – perhaps thirty or more – should belong in the other category (see also Ellmers 1995).

These distinctions may be helpful since Gotland is an island. The smaller boats were probably used for short journeys along the coast, and only the larger vessels are likely to have travelled to the mainland.

Almost 50 % of the ship settings are between 8 and 13 metres long. This can be compared to the size of traditional Gotlandic wooden fishing boats (Liljeros 2001:7ff). Only 10 % of the monuments are over 20 metres in length. Another comparison may be helpful here. Christopher Tilley discusses the significance of different types of canoes in the Vanuatu archipelago. Here the simplest forms could be seen in their hundreds, but only a few vessels of the most complex type were made, and these were intended for use at extraordinary events. For example, there were two types of canoe on the island of Malekula. The smaller canoes were for travel along the coast; they are still used today. Another larger type was used in the past for exchange and ceremonial expeditions (Tilley 1999:106, 118f).

Johan Ling's research in Bohuslän has points in common with this interpretation. The rock carvings were made in places that were readily accessible by sea. Smaller craft are commonly found in places that would have been half a day's journey apart, but those at Tanum stand out because they include a greater proportion of 'warships' (Ling 2008:chapter 10). Similar studies have yet to be undertaken along the east coast of Sweden, but it seems as if a similar distinction might be made, with drawings of the larger vessels at sites along the shoreline or major rivers at places like Boglösa (Coles 2000:78–97) and Himmelstalund (Hauptman Wahlgren 2002). They would have provided important landfalls for voyagers travelling long distances.

There are indications of the same geographical pattern in two other media (Fig. 6). Some of the biggest ship settings on the mainland, like those at Hellerö (Hedengran & Janzon 1999; Sigvallius 2005), Snäckedal (Widholm 1998, 2007) and Lofta (Hansson 1936), were readily accessible from Gotland (Bradley & Widholm 2007a). There are indications that further sites along the coast were equally important. There are a number of places where unusually large cairns are found together with the distinctive structures known as 'cult houses' (Victor 2002). The best known examples of this relationship are at Kivik and Hågahögen. Again these monuments were accessible from the sea.

The largest ship settings on Gotland occupy similar positions, but cult houses are entirely absent. This may be significant, for some of the largest stone ships also formed open enclosures. It may be useful to compare these different monuments with one another. On the mainland, stone enclosures with the proportions of a domestic dwelling seem to have been constructed close to the water's edge. There is little evidence

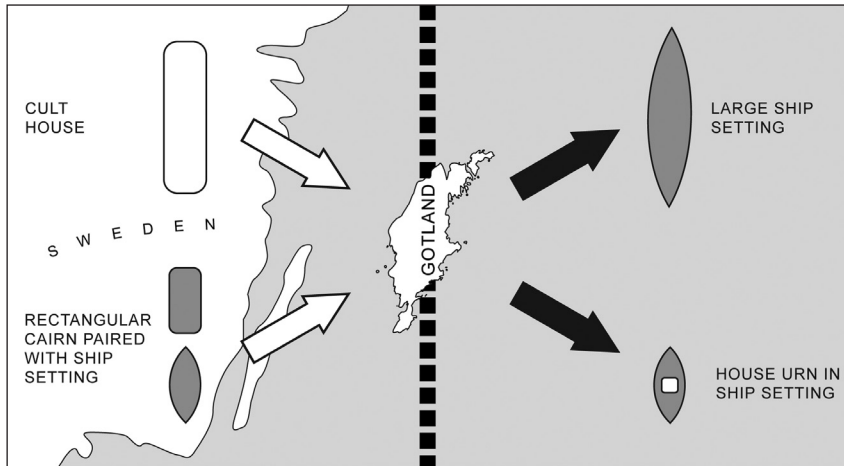


Figure 6. Contrasts between the representations of ships and houses on Gotland and the mainland of south-east Sweden.

Drawing: Aaron Watson.

that they were roofed, and it seems as if they played a specialised role in ceremonial (Victor 2002). The largest ship settings on Gotland may have had a similar significance, and again they might have been connected with the commemoration of the dead, for smaller monuments of the same type are associated with cremation burials. The contrast between cult houses and stone ships could be particularly revealing. On the mainland the buildings employed in rituals assumed the form of a house. On Gotland, however, they adopted the ship as their prototype, and yet both kinds of monument were constructed in similar locations. They could have been employed in a variety of public events, but the form of the ship setting evokes the importance of travel, whilst that of the cult house suggests the security of the domestic dwelling. Both emphasised the shoreline as the borderland between the living and the dead.

The smaller ship settings may have had a rather different significance, for they can be associated with cremation burials. They are also found with house urns (Hansson 1927; Arwidsson 1952; Grimlund-Manneke 1979; Pettersson 1982; Sabatini 2007). That association is revealing, for the use of those ceramics could have emphasised the importance of a group of people who belonged to the same community. They may even have been members of a single household, for the burials include men, women and children and do not seem to be those of specialised boat crews. Like the house urn itself, the small stone ves-

sels provided a metaphor for a social group who could have lived and worked together. Such ship settings are widely distributed and share that feature in common with the largest monuments.

It may be possible to take the argument one stage further, although it is necessarily speculative. One of the most striking characteristics of the Late Bronze Age archaeology of Gotland is the practice of depositing house urns in a monument in the form of a boat (Sabatini 2007). It gives the impression of a domestic building superimposed on a ship (Fig. 6). That is completely different from the situation on the west coast of the Baltic where stone vessels and ‘house cairns’ were separate and were built side by side (Bradley & Widholm 2007a and b). Were models of domestic buildings deposited on board the stone ships of Gotland because the boat represented an entire community, and were the largest ships meant to stand for the inhabitants of the whole island? There may be a good reason for taking this view. People who were accustomed to sailing around the island, taking their bearings from the land and from the sun, would have had a clear conception of its distinctive outline, even in the absence of a chart. Gotland is long and narrow and comes to a point at its northern and southern extremes. That is very similar to the outline of the large stone vessels. Is it possible that the greatest ship settings of all were meant to represent the island as a whole? Was Gotland itself imagined as an enormous vessel in the middle of the ocean?

Conclusion

There are many similarities between Gotlandic stone ship settings and the vessels represented in other media on the mainland. The position of the ships close to water, the number of people on board, the layout of the boats and the organisation of the crews are all reflected in other kinds of ships depicted on decorated rocks or metalwork elsewhere in Northern Europe. On a general level it is also possible to make associations between the Gotlandic stone ship settings and a cosmology concerned with the movement of the sun.

What makes the Gotlandic stone ships settings stand out in a comparative perspective is the connection between ships and people. Individuals were not only buried inside ships, they were also represented by the upright stones that made up the outline of the vessels. There seems to be an association between social units and these boats. The smaller ships were divided in two; different vessels were linked together; and,

finally, there were extraordinarily large ships which could represent the integration of local groups into larger communities.

This association between people and seagoing vessels might explain why the Bronze Age stone ships of Gotland play such an exceptional role in Scandinavian archaeology.

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