Ships and Adzes in Scandinavian Rock Art

A Note on Shipbuilding in the Bronze Age

BY PETER SKOGLUND

Abstract

The ship is the most prominent motif in south Scandinavian rock art. In relation to ships, different kinds of axe images also occur on many sites in eastern Sweden. However, many of these images display an S-shaped handle, which makes the traditional interpretation as an axe questionable. On the other hand, a characteristic of many adzes is their bent, or even S-shaped, handle. This strongly indicates that motifs with S-shaped handles represent adzes and not axes. The most important tool in the traditional shipwright's toolset is the adze. In this paper it will be argued that notions about the shipbuilding process influenced the occurrence and arrangement of these motifs on the panels.

Introduction

Our understanding of south Scandinavian rock art has changed rather dramatically in the last decade. Thanks to detailed landscape reconstructions it has become clear that a majority of rock art was situated close to the Bronze Age shoreline. In earlier research rock art was often related to agriculture and fertility rites. Today most scholars would agree that they are part of a maritime environment. The most prominent image in south Scandinavian rock art is the ship, and these ships are often seen as expressions of maritime rituals related to the equipment and manoeuvring of ships in relation to long-distance travels taking place between 1700 and 500 BC (Ling 2008, 2013; Nimura 2016; Skoglund 2016).

This new perspective on Scandinavian rock art has proved fruitful and opened up new avenues to the interpretation of the material. This paper examines the occurrence of a specific type of image interpreted as a representation of metal axes known as palstaves. These motifs often occur in relation to nearby ships – a relationship not discussed earlier in earlier research – this paper will argue that they represent specialized tools linked to the shipbuilding process.

Palstaves in rock art

In Scandinavian rock art some rock art panels have depictions of axes hafted in a bent handle often displaying an S-shape (Nordén 1925; Althin 1945; Burenhult 1973; Kjellén & Hyenstrand 1977; Burenhult 1980; Coles

Fig. 1. Map of Scandinavia showing the sites discussed in the text.

2000; Hauptman Wahlgren 2002; Fredell 2003; Lindblad 2011). This particular kind of axes is restricted to south-east Sweden where they mainly occur along the coasts of the Baltic Sea; but they are also represented at some inland sites and on the island of Gotland in the Baltic (Fig. 1).

These axes have been discussed for a long time and they have been referred to as palstaves dating to Montelius' period II of the Nordic Bronze Age, 1500–1300 BC (Nordén 1925, 235). This identification has recently gained additional support from Johan Ling's studies of rock art in Uppland where these kinds of axes occur in close relationship to ships dating to this period (Ling 2013, 57).

Though different researchers have identified these objects as axes (Nordén 1925; Ling 2013), there have also been other suggestions concerning the correct identification. John Coles (2000, 67), in his account of the carvings in Uppland, discusses various alternatives, and puts forward the possibility that they might represent horns rather than axes.

Given their widespread distribution along the east coast of Sweden, these motifs have been given rather limited attention, and research has focused on what types of axes these objects represent and to which period they should be attributed, rather than their use and functionality. One reason for this may be the shape of the handle, which for a modern viewer does not correspond to the idea of what a representation of an axe should look like. The S-shaped handle does look odd

when compared to modern axes, and may give rise to the idea that they represent something else, for example horns.

However, we know from the studies of other rock art motifs that different details may be important in defining specific types of objects and functionality (Glob 1951; Skoglund 2008). From this perspective, the combination of what seems to be a metal blade and an S-shaped handle should not be seen as a curiosity, but something that may reveal important information concerning the function of the object. Furthermore, when it is possible to compare images of metal axes with actual axes, for example, the resemblance both in size and shape is often striking, indicating that objects in rock art often are portrayed in a realistic manner (Almgren 1987).

Strictly speaking, these objects are not axes: rather the bent shape of the handle indicates a function as adzes. In order to function properly, axes have a rather straight handle, while the handle of an adze can display various curvature forms, and sometimes appear almost as an S-shape. For example, adzes displaying such shapes occur in ancient Egypt (Maragoudaki & Kavvouras 2012, 203). On these items, the metal blade ran parallel to the wooden handle fastened only by a leather string, resulting in this specific shape (Fig. 2). A characteristic of adzes is that the edge is perpendicular to the handle. If we look at the images, and take them as a straightforward representation of an object, we see that the blade is hafted slanted, as if these objects were axes. Still, if we acknowledge that various parts of objects sometimes are shown from different angles, other interpretations are possible. For example, the handle could be shown from the side, while the blade could be shown from the front.

This way of representing an object is different from today's standard, but it appears repeatedly in rock art. A well-known example is the representation of chariots and wagons in Scandinavian rock art, which are often

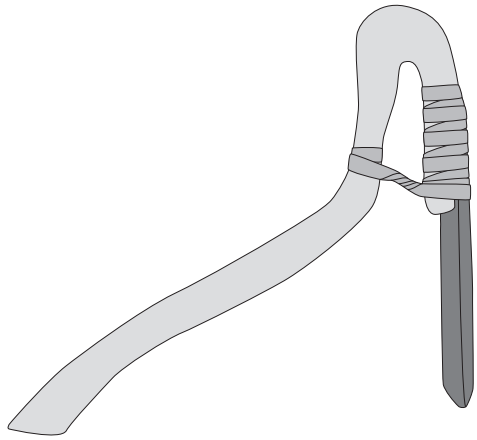

Fig. 2. Principle sketch of an Egyptian adze dating to the New Kingdom, *c*. 1550–1295 B.C. Drawing based on object stored in the Metropolitan Museum of Art, Accession number 25.3.113. Image: Anders Gutehall.

displayed from two different angles, the coach being viewed from the top while the wheels are viewed from the side (Nilsson 2005, 52–60). The principle in these cases is that each different part of the object is shown from the perspective where its characteristic form and shape are best demonstrated. In conclusion, the bent shape of many of the handles appearing on rock art panels indicates a function as adzes which in turn indicates that in these cases the handle and the blade are depicted from different angles.

The main functional difference between an axe and an adze is that axes are useful for felling trees and shaping timbers roughly, while adzes are designed to trim timber to an exact measurement. Today the use of adzes is a rather unknown phenomenon. Starting with the Romans, the function of the adze was taken over by the carpenter's plane, though adzes are still used by people specialized in traditional carpentry.

It should be noted that today's strict division between different types of tools was

less pronounced in the Bronze Age, as the same blade could be hafted and used together with different handles. The same blade could thus function as either an axe an adze, or even a chisel, depending upon what kind of handle it was attached to (Kovács & Hanke 2015, 257).

In the European Bronze Age, both axes and adzes were used in parallel, as demonstrated by rare finds of handles for axes and adzes. For example, the famous Gullhøj burial in Denmark, dated by dendrochronology to *c.* 1380 BC, incorporates a palstave daring to Montelius' period II, hafted slanted towards the handle as an axe (Boye 1896; Randsborg 2006). Looking at other regions of Europe, we find a greater variety of handles. For example, in Fiavè in northern Italy excavations of a Bronze Age settlement have uncovered preserved wooden material. Among the documented handles, there are both handles for axes and handles for adzes, testifying that both types of objects were in use at the same place (Perini 1987, 297–304).

In conclusion, we may say that axes and adzes existed in parallel in the Bronze Age and it is only natural to find both kinds of objects represented in rock art.

Adzes and shipbuilding

Adzes can be used for a variety of purposes such as trimming planks to a specific thickness or shaping wood to certain forms. However, they have a clear association with shipbuilding; the building of a ship requires timber details of various forms and shapes with a high accuracy in measurements, if the boat is to keep dry. Before the introduction of iron nails, clamps and rivets joined the ship together, and this construction made it necessary to sculpture the timber into various forms, using adzes and chisels.

Much of this work was carried out with the help of various kinds of adzes – a process that has been reconstructed in the making of copies of Bronze Age and Early Iron Age ships like the partly reconstructed Dover boat (Darrah 2004), *Morgawr* (Van de Noort *et al.* 2014) and the *Tilia* (Crumlin-Pedersen & Trakadas 2003). *Morgawr* and *Tilia* are the modern replicas of the Ferriby and the Hjortspring boats. The use of adzes in shipbuilding has a long history, going back at least to ancient Egypt where adzes appear in visual art in relation to the building of ships (Wild 1953).

The importance of axes in shipbuilding was demonstrated in an attempt to reconstruct the use of various tools used by Mycenaean shipwrights. Based on practical experiments with modern replicas of ancient tools, Maragoudaki and Kavvouras reached the conclusion:

> It seems that the most basic and essential tool for a shipwright is the adze. In the hands of a well-trained craftsman, and sharpened to a razor's edge, it was very good at finishing heavy timbers in hull construction, leaving a fine, almost planed, finish. The adze handles were of a different configuration because the shipwright used the adze throughout the construction of a hull. If the handles were the same, this would be very difficult, if not impossible (Maragoudaki & Kavvouras 2012, 207).

Another notion put forward by these authors is the existence of two types of adzes: one smaller adze suitable for holding in one hand and one larger adze to be held with two hands. The handles may have different forms; practical experiments indicate that the smaller inward-slanted V-shaped handles were suitable for chopping (cutting across the grain) while the larger S-shaped handles are appropriate for surface smoothing or chipping (cutting along the grain) (Maragoudaki & Kavvouras 2012, 203). In Scandinavian rock

art we find a variety of sizes and shapes among these motifs, indicating that various kinds of axes and adzes are represented including items with an S-shaped handle.

In comparison to axes, adzes require a lot of training and experience to be handled correctly. The smaller item is worked with one hand, while the larger item is worked with two hands, with the person standing and swinging the adze upwards and down towards the feet. To handle such an adze requires training and it is a dangerous task because of the risk of hitting the foot. To be able to use an S-shaped adze and trim timber to set sizes requires a skilled carpenter. Thus, presumably many of the representations of adzes do not only refer to a specific object, but also to the skill and specialized knowledge related to the use of that object.

While various people might have carried out the felling of the required trees, specialist carpenters were probably responsible for the construction of the boat (Clark 2005). In his account of ships and shipbuilding as described in the *Iliad*, Samuel Mark points out that Homeric society revered its master carpenters. Master carpenters belonged to the upper social stratum, and to exemplify this he points out carpenters as one of few kinds of skilled people invited from foreign countries. It is noteworthy that Odysseus himself built his ship while at the same time being known as both a traveller and a warrior (Mark 2005, 87).

In the *Odyssey*, book 5.234–57, there is a description of shipbuilding starting with Odysseus going out to fell trees with his axe, which he then roughly shapes with an axe, and then adzes to the line. He then bores the pieces, fits them together with pegs and lacings, and adds further details to finish the construction. To "shape an object to the line" refers to the carpenter's skill in trimming a timber with the help of an adze to an exact measurement, indicated by a line made by chalk or some other substance (Mark 2005, chapter 5).

Palstaves in metalwork

The palstave is not only represented as a motif in south Scandinavian rock art but is also found as a metal object. It is noteworthy that the palstave occurs both as an undecorated working tool and as a decorated prestige object. According to the Swedish archaeologist Oscar Montelius, palstaves are divided into two types, an undecorated working axe mostly found in hoards, and a decorated axe, labelled weapon axe by Montelius, which is found in hoards, but more often in graves (Fig. 3) (Montelius 1922, 27–28; Persson 1983).

Kristian Kristiansen has discussed the decorated palstaves found in graves on the Danish islands, and concludes that they are associated with the Nordic full-hilted swords,

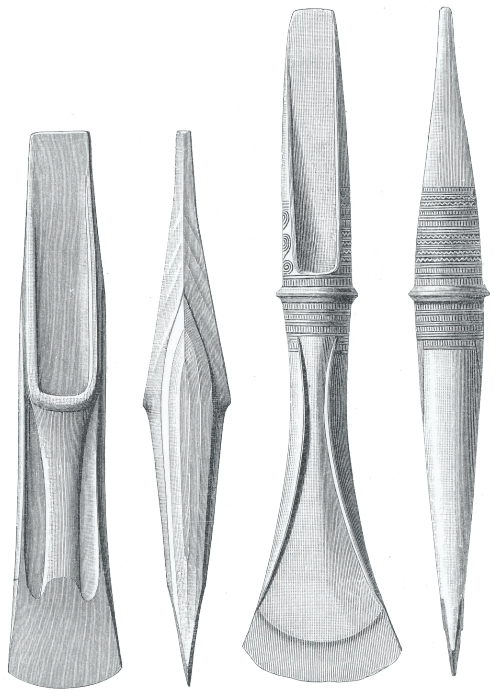

Fig. 3. Two types of palstaves: an undecorated working axe to the left and a decorated ceremonial axe to the right. From Montelius 1922, 55.

which probably had a primarily ritual function. They appear in elaborate graves, but they may also occur as the only find in a grave. Kristiansen (1983, 76) regards these axes as primarily ritual objects, in line with the larger cult axes, as they never demonstrate use wear. To interpret these axes as weapons is therefore probably wrong; the spiral decoration, lack of use wear, and their associations with the full-hilted sword link them to a ritual sphere of society.

Ritual and practice go together, and the ritualization of the palstave indicates that the use of undecorated palstaves was a valued skill in south Scandinavia in Montelius' period II. These values were probably related to carpentry, requiring a large amount of training in order to be performed successfully. Taking shipbuilding as an example, rituals may have been carried out at specific stages of the shipbuilding, such as the very start of the building process ("the laying of the keel"). From this perspective, the occurrence of decorated palstaves in Montelius' period II is partly a response to the importance of expert knowledge and skills in advanced carpentry, for example in the shipbuilding process.

Persons in charge of some of these operations are possibly among the people buried with palstaves. Märta Strömberg excavated one such grave in 1973 at Valleberga, a couple of kilometres from the coast in south-east Scania (Strömberg 1975). The grave was situated in a landscape with maritime connotations as it is only a short distance from Valleberga to the island of Bornholm. Valleberga and the nearby harbour at Kåseberga would have been an important stepping-stone for ships going from this part of Scania to Bornholm (Söderberg & Knarrström 2015).

Inside the mound there was an oak cist covered by a complicated stone packing in several layers. The grave was richly equipped with bronze items; many of these were dress-related, such as buttons and fibulas, but there was also a nail with a probable function of locking a bag. Around the body there were many items, including a sword, a decorated palstave, and an awl (Strömberg 1975).

Looking at some of the items surrounding the boy, we notice a decorated palstave which could have functioned either as an axe or as an adze depending on the character of the handle. In the latter case it could be associated with the shipbuilding; the awl was also part of the shipwrights' toolset, used to mark lines and points on the wood and to make small holes (Maragoudaki & Kavvouras 2011). Close to the body was also a red stone, possibly as a make-up stone for decorating the body. An alternative function, which associates it with carpentry, would be for marking lines in wood to cut timber to exact sizes. The position of the red stone just at the blade of the axe/adze is intriguing.

In conclusion, there are indications that in south Scandinavian during the Bronze Age advanced carpentry was a highly valued ritualized skill, and with these observations concerning adzes and shipbuilding we may now turn to the rock art images.

Axes, adzes and ships in rock art – some possible relationships

The occurrence of images depicting adzes is a rather restricted phenomenon in time and space; spatially it is largely confined to the surroundings of the Baltic Sea and its hinterland and it occurs in Montelius' period II, 1500–1300 BC. In the following, I will exemplify the relation between adzes and ships by discussing three sites which display adzes, namely, Himmelstalund on the Baltic Sea, Hästholmen by Lake Vänern, and Gladsax, which is located a short distance from the sea in south-east Scania (Fig. 1).

Some characteristics are common to many of the sites with axes/adzes. The most obvious relationship is a strong spatial connection

Fig. 4. Part of a panel at the Himmelstalund site. Note the variety in axe blades and shapes and sizes of the handles, indicating different kinds of function. For further information concerning the motifs, see the discussion in the text. From Broström & Ihrestam 2014.

between these objects and ships. Axes and adzes rarely occur alone but in relation to one or more ships. Another observation is that on the same site there is a great variety in the shape and size of the adzes, indicating that adzes fulfilling different kinds of functions are represented at the same site. One of the most intriguing sites with axes/adzes is the Himmelstalund site at Norrköping (Figs. 1 and 4). On one of the panels (*FMIS*, Östra Eneby 1:1; Broström & Ihrestam 2014; see also Nordén 1925; Hauptmann Wahlgren 2002; Ljunge 2015; Nilsson 2017) there is a large concentration of adzes in relation to ships. The adzes are of various sizes, but they all display a characteristic S-shaped handle. They are related to ships, and while the ships are roughly arranged in rows, the adzes circulate around the ships. The majority of the boats are rather simple vessels, made up of one or two lines, but there is also a ship which stands out because of its many fine details. What attracts the eye is the decoration of the hull, divided into segments three of which are decorated with crosses, representations of trees (?) and a spiral.

Another place with adzes and ships in combination is the Hästholmen site at Lake Vättern. Hästholmen is the only natural harbour along the eastern shore of the lake

Fig. 5. Photo from the Hästholmen site towards the natural harbour at Lake Vättern. Photo: Peter Skoglund.

and constitutes an important nodal point in the landscape (Figs. 1, 5 and 6). On this site we find 27 ships, 14 axes, 9 human images, 6 animals, three footsoles and in addition unidentified motifs, fragments and 127 cup marks. Judging by the axe images and ship images, the majority of carvings seem to fit into Montelius' period II, 1500–1300 BC (*FMIS*: Västra Tollstad 21:1; Broström 2007, 16).

Of special interest here are a couple of axes with straight handles which fit the definition of an axe – the angle of the handle was designed as an axe and thus they would have been suitable for felling trees and maybe for a first approximate shaping of the timber (Fig. 5). Two of these items fit this definition well, while the function of the other two is uncertain.

Below this composition are two ships and an adze, two footprints and some lines. In this case the haft attached to the blade has an S-shape allowing us to interpret it as an adze. In contrast to the axe images discussed above, this motif occurs in relation to the ships. The lines below the ships are interesting since their shape is reflected in the shape of the ships. Given the occurrence of the adze, it is tempting to interpret these lines as part of boats, perhaps referring to planks shaped to fit into a boat.

Axes and ships also occur on other parts

Fig. 6. Part of a panel at the Hästholmen site. For information concerning the motifs, see the discussion in the text. From Broström 2007, 15.

of the panel and among the ships there is one which stands out because it is decorated with a crisscross pattern. This is the only such boat on this site and they are rare also in other parts of south Scandinavia.

Taken together, it seems as if one important aspect of the Hästholmen carvings reveals the making of ships with the help of axes and adzes. The fine details manifested on some of

Fig. 7. The Gladsax site. For information concerning the motifs, see the discussion in the text. From Broström & Ihrestam 2013.

the images, like the crisscross pattern on the ship, add to this picture. The site is located in a maritime environment only 300 metres from the natural harbour at Hästholmen. This is the only natural harbour on this the eastern side of Lake Vättern and it thus stands out as a very natural place for the location of a shipwright.

About 600 metres north of the carving, archaeological excavations have revealed a 350 × 200 metre large area with prehistoric settlement remains and burials of various types. Interestingly, there is a concentration of five cooking pits dating to *c*. 1400–1200 BC (Karlsson & Räf 2007), which would make them contemporary with the rock art. The context of the cooking pits is uncertain, but they indicate that the area near the rock art site and the natural harbour was part of a larger Bronze Age cultural landscape.

A final example is Gladsax in Scania, which in contrast to the other panels is not in a maritime context but about 5 kilometres from the sea (Fig. 7) (Skoglund 2016). The Gladsax carving is situated on the roof slab of a passage grave, which is surrounded by a mound. The

mound, which is 16 metres in diameter, is located on a small height. The passage grave itself consists of a chamber and a passage, and when excavated in 1978 it yielded finds from a larger part of the Neolithic, including the Late Neolithic, but no specific Bronze Age finds that could be contemporary with the carvings (*FMIS*: Gladsax 8:1). There is no indication of the monument being covered by a mound, and thus the roof slab should have been reachable for the making of rock art without any encroachment on the monument.

On the roof slab there is a composition of images consisting of 11 ships, 5 axes, 1 animal, 2 circle figures, 7 uncategorized motifs and 95 cup-marks (Broström & Ihrestam 2013). Documentation in 2013 revealed that all the motifs except the larger circle image at the top were made in a similar style. The larger circle cuts over the other motifs, indicating that it is a later addition than the other motifs.

The axes on this panel are palstaves and date to Montelius' period II, 1500–1300 BC. The ship images too are likely to have been produced in Montelius' periods II and III (Skoglund 2016, 39). At least three of the axe motifs have bent handles indicating a function as adzes while a fourth item has a rather straight handle as if it is supposed to be an axe. The fifth object is smaller and attached to a ship and it may well be an adze judging from the shape of the handle. Thus, it seem as if there are axes and adzes represented as well as adzes of different sizes. Interestingly, two of the ships have a line on the hull dividing it into two, indicating that the hull was composed of different planks as known from the Hjortspring find. This resembles the situation at Hästholmen, with the occurrence of tools with possible shipbuilding functions and rather detailed ship images referring to various details on the ship.

Concluding remark

There are no images representing the building of ships in south Scandinavian rock art. This is contrary to the situation in ancient Egyptian iconography where shipbuilding is displayed in a rather detailed manner; people appear with tools in their hands actually building ships (Wild 1953). However, in this paper it has been argued that many of the motifs hitherto labelled as axes rather should be categorized as adzes. Thereby they represent specialized tools, which potentially can be used for a variety of tasks, but among these shipbuilding stands out as a noteworthy example. Three rock art sites with motifs displaying adzes were discussed, and on all sites, adzes occur in relation to ships with constructional details or decorations represented in a detailed manner. In Scandinavian rock art, the shipbuilding process is displayed through the combination of adzes and ships. The adze was important because it represented the most important tool used in the shipbuilding process. The reinterpretation of the axe motif has thus added a new layer to our understanding of south Scandinavian maritime rock art. It is not only ships with their crew that are displayed in rock art, but also the tools needed to build such ships.

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Peter Skoglund, Linnaeus University, Faculty of Arts and Humanities, Department of Cultural Sciences, 391 82 Kalmar, Sweden, peter.m.skoglund@lnu.se.