Beyond Transgressive Lands and Forgotten Seas

Towards a Maritime Understanding of Rock Art in Bohuslän

Johan Ling

Since the beginning of the 20th century rock art in Bohuslän has traditionally been interpreted, on the basis of its adjacent location to the clay-soil plains, as an indicator of permanent pastoral or agrarian settlement units. However, recent results of the first substantial and extensive shoreline study, covering the whole of Bohuslän, have shown that, during the entire Bronze Age, many of these lower, clay- soil plains were in fact sea bottoms in shallow bays. On the basis of these results new measurement of the rock art panels and the surrounding terrain were made. The study showed that many rock carvings had been placed on or near the contemporary shore during the Bronze Age. It therefore seemed essential to present new questions about the social and ritual behaviour, as manifested by the rock art in these particular areas. It is here suggested that the rock art in the investigated area may be a materialised reflection of seasonal maritime interactions during the Bronze Age.

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Key words: rock art, terrestrial paradigm, clay-soil plains, shore, maritime interaction, material reflection, reproduction, journey, times- space- edge

INTRODUCTION

This study is intended to shed light on an issue that has traditionally been either neglected or only briefly treated by rock-art research in Bohuslän, namely the process of the land uplift and its complications, implications and effects on the interpretation of the prehistoric landscape.

There have been more or less proper geological studies on this subject since 1950 and these have been revised and completed through the years (Fries 1951, Persson 1973, Miller& Robertsson 1988, Svedhage 1997, Påsse 2001, 2003). In spite of this accumulation of knowledge rock-art research has not been able to upgrade, compare, reflect and concretize these results in relation to the prehistoric remains in the landscape. However, there was a debate concerning the extremely high, shoreline level that Krister Svedhage proposed in connection with the World Heritage project in Tanum, but, before and after that, things were very quiet (Svedhage 1997, Ekman 2002).

Nevertheless, my intention here is not to advocate a general model or law on how to interpret rock art in general in Bohuslän. But, in some areas, it would be fatal not to use the first extensive, shoreline study ever made on northern Bohuslän (Påsse 2003). This study clearly shows that the majority of the rock- art sites in Bohuslän had a very close spatial connection to the sea during the Bronze Age. However, there are also areas with lots of carvings on higher ground at some distance from the sea.

Thus, rock art has obviously been sited in different types of landscapes and its prehistoric communicative function should be regarded as a complex and diverse phenomenon.

The view that I put forward in this paper should be regarded as an alternative interpretation of rock art in Kville parish in Bohuslän and Askim parish in Västergötland (Fig. 1).

The primary aim of this paper is to give an account of the results gained through new field observations made by the measuring of rock art and the surrounding terrain. On these premises, I intend to argue that one of the investigated areas of rock art may have served as a seasonal maritime arena, where both the local and the trans-local public may have interacted during the Bronze Age.

Before entering on these case studies, I intend to give a brief description of the historical, theoretical and methodological constraints that have traditionally governed and even today govern rock-art research in Bohuslän.

THE TERRESTRIAL PARADIGM

Many scholars have emphasized the communicative location and function of rock art in the prehistoric landscape of Bohuslän, thereby presenting different kinds of interpretations.

There has been a common tendency among these earlier scholars to distinguish rock art primarily as a medium or a visual projection of pastoral or agrarian mentality (Almgren 1927, Selinge 1966, Bertilsson 1987, Vogt 1998). Thus, rock art has traditionally been regarded as an indicator of permanent, prehistoric activity, such as dwelling sites. However, later excavations in these areas have not been able to verify these assumptions. On the contrary, these projects have rather shown a lack of proof of permanent buildings dated to the Bronze Age in connection with the rock-art panels (Algotsson & Swedberg 1997, Aulin & Gustafsson 2002). As for the discussion about the relation of rock art to the Bronze Age shore, some scholars have argued for a close connection (Burenhult 1983, Algotsson & Svedberg 1998); whereas others have rejected this hypothesis (Hallbäck 1944, Bertilsson 1987:168, Winter 2002), or mentioned it only in a secondary context (Hygen & Bengtsson 1999, Bradley 2000). Nevertheless, the major tendency is still to emphasize and focus on the adjacent location of rock art to the fertile clay soils of northern Bohuslän (Vogt 1998, Hygen & Bengtsson 1999, Bradley 2000, Winter 2002).

Only rarely has the discussion, including the functional, ideological and

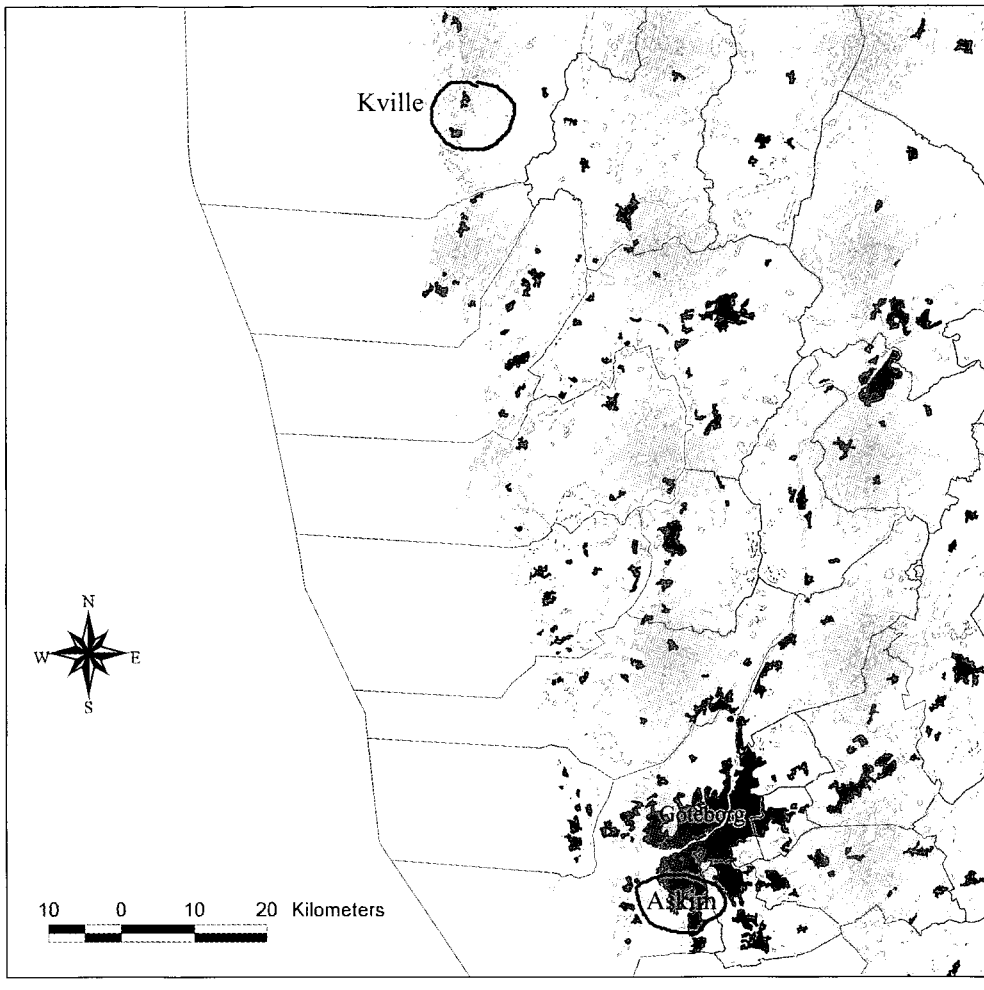


Fig. 1. The two study areas in the province of Göteborg and Bohuslän.

cosmological perspectives, stressed the aspects of coastal activity, mobility and identity when it came to the interpretations of rock-art context in the prehistoric landscape (Algotsson & Svedberg 1997, Bradley 1999, Hygen & Bengtsson 1999, Winter 2002; cf.Helskog 1999). Moreover, and as a convention previous attempts have had a tendency to treat the Bronze Age shoreline as a static, ahistorical phenomenon, situated somewhere between 10 and 15 metres above the sea, considering the whole of Bohuslän (Nordbladh 1980, Bertilsson 1987, Bradley 2000, Winter 2002).

To sum up, it is obvious that rock-art research in Bohuslän, traditionally but also today is governed by a terrestrial paradigm caused by a complex mixture of socio-historical, socio-scientific and methodological constraints (Kuhn 1962).

In the following discussion, I intend to focus primarily on the methodological tendencies of this issue.

TRADITION AND THEORIES OF TRANSGRESSION, SHORELINE AND ROCK ART IN BOHUSLÄN

The dating of rock art has been a major subject since the research on it started (Montelius 1874, 1885, Almgren 1927, Malmer 1981, Vogt 1998, Kaul 1998). When it came to using the transgression of the land as a method for dating rock art, the first efforts were made by Brunius in 1868 (Montelius 1874:151, 159). Almost a century later, Sören Hallbäck made an attempt, using the shoreline to deduct the maximal age of rock art in Bohuslän (Hallbäck 1944).

Hallbäck's inductive conclusion, based only on the lowest locality in each so-called "hundred", was that "some of the rock carvings must be dated to the Iron Age" ... and ... "the rock carvings hardly could have been placed at the water's edge" (Bertilsson 1987:161, Hallbäck 1944:54).

In his often quoted dissertation of 1987, Ulf Bertilsson is in favour of Hallbäck's analysis.

He consequently addressed criticism to Burenhult and others who advocate that many rock carvings might have been placed near the contemporary coast or at the water's edge during the Bronze Age. However, considering the maps which Bertilsson published in his dissertation, and his assumption concerning the shoreline level during the Bronze Age, it is clear that many sites with carvings in Tanum, Kville, etc., are, in fact, situated on the Bronze Age shore. Consequently, these low- situation carvings and the other carvings on higher ground in the vicinity of these plains must then have been deliberately placed adjacent to the sea during the entire Bronze Age.

> The analysis of the general pattern of distribution in relation to levels has clearly demonstrated that there exists no direct correlation between rock carvings and the Bronze Age sea shore-line. Instead, it is obvious that, the distribution is correlated to the plain areas with open and arable land, which must have constituted the basis for subsistence economy (Bertilsson 1987:167).

Bertilsson's conclusion seems extraordinary considering his own shoreline assumption that the plain areas in Tanum and Kville would in fact have constituted the sea bottom and this fact contradicts his own general assumption that the majority of sites reflect a pastoral or agricultural activity (Bertilsson 1987:figs. 11, 13, 14 and 17).

In connection with the World Heritage project in Tanum, Krister Svedhage made a study of a single lake south-west of Tanum, using traditional pollen methods. His conclusion was that the sea level during the early Bronze Age was about 25 metres above the present and had descended to 15 meters during the transition between the late Bronze Age and the early Iron Age (Svedhage 1997, Ekman 2002). The problem with Svedhage's conclusion is that many of the carvings considered as typical of the early Bronze Age would then have been situated beneath the shoreline, which of course, has evoked many protests from archaeologists. Lasse Bengtsson criticized Svedhage's assumption by analysing

three different low situation panels in Tanum with typologically datable, ship motifs from the early Bronze Age. Bengtsson concluded that these panels would be 5-10 metres under the water, according to Svedhage's shoreline assumption (Bengtsson 1999). One of the main problems with Svedhage's induction is that his study is based on a single lake, which was apparently not representative of the area.

> ...a critical evaluation of the Svedhage investigation is presented, pointing out that the dating of the layers in the Grundevattnet in Tanum, central in Svedhages argumentation, can not be maintained. This as the dating is based on ^{14}C of the sediment in the lake but on datings transferred from two other localities 140 and 180 km away. New investigations to determine the Bronze Age shore line are proposed and until such have confirmed the conclusions drawn by Svedhage must be regarded as highly uncertain (Ekman 2002).

THE AIMS AND METHODS USED IN THIS PROJECT

This project was then initiated by theoretical and empirical research developments concerning the prehistoric landscape and the interpretation and dating of rock art. The project was subsequently focused on and conducted by digital measurement of low-situation rock art with typologically datable, ship motifs and the surrounding terrain. The aim was to be able to discuss more specific chronological, spatial and communicative issues about the social, ritual and mental use of rock art. Earlier attempts were lacked an elaborative and representative, shoreline study of northern Bohuslän, but today we are able to use the results of the new shoreline study made by the geologist Tore Påsse. This is actually the first, substantial, shoreline study that covers the northern areas of Bohuslän. It was made in connection with the Stone Age project called " From Coast to Coast (Påsse 2003). Earlier studies had mostly covered the central and southern parts of Bohuslän. Påsse's intention was to be able, through new observations, to reconstruct the regression of the shoreline from 7000 BP to our time.

> Sixteen lakes and ancient lakes are investigated within the Strömstad area, with the aim of dating when these lakes were raised above the sea level. In the Strömstad area lakes at different levels exist within a small area, which is a prerequisite for constructing a complete shore level displacement curve. The isolations are determined by pollen analysis and there after dated by C ^{14}–analysis (Påsse 2003:31).

A calculation model of the regression of the shoreline was then made on the basis of the observations from Strömstad. This model was then used to modify earlier attempts from Halden in Norway and attempts from the central and southern parts of Bohuslän and through this procedure a shoreline could be reconstructed that covered the whole of Bohuslän (Miller & Robertsson 1988). Of vital importance for our project was then to use this new shoreline study. When we applied

these results on topographical and digital maps, it revealed a different perspective, clearly opposed to earlier assumptions of the Bronze Age landscape in these areas.

Flemming Kaul's recent comparative study of ships on bronzes was also of significance for this project and had attracted us for both its method and its material (Kaul 1998). According to Kaul's argumentation, the comparative method could then be used for dating bronze items as well as rock art (Kaul 1998). The comparative method has an even longer tradition than shoreline dating but Kaul's new observations and conclusion must be seen as an empirical and methodological development (Montelius 1874, Almgren 1927, Sprockhoff 1956, Glob 1969, Malmer 1981, Kaul 1998, Bengtsson 1999). In his study Kaul, analysed more than 400 bronze items with ship renderings. The majority of these items are dated by their contexts, mainly graves from the late Bronze Age, periods IV-V (Kaul 1998:117). Earlier items with ship renderings or ship shapes are considerably rarer and therefore the early ship chronology is also based on ship carvings from a few burial contexts. Bearing this in mind, the earlier phases of the ship chronology are more problematic and less substantial than those of the later Bronze Age.

But in this perspective it is also worth mentioning the interesting discussion concerning the dating of what is considered to be one of the earliest ship renderings, on the Rørby sword.

> With Rønne's splendid new examination of the Rørby swords, it has been conclusively demonstrated that the decoration was not punched or engraved into the sword but that it had been cast together with the sword. The ornamentation had simply been carved on the wax model (Rønne 1990) and is thus contemporary with the production of the sword, and the same applies to the ship-representation...The ship-picture also suggest that the ship building tradition that prevailed throughout the whole of the Bronze Age had already been developed by then (Kaul 1998:74).

Kaul emphasises the importance of the keel feature and the prows in his dating method. If the keel extension is horizontal or slightly upturned, this is a typical feature in the early Bronze Age and, vice versa if the keel extension is high and vertically raised, it is typical in the later periods. The prows are also of importance. In earlier phases, the prows are inturned but in period III they tend to turn out and to end up animal heads and this tendency becomes more emphatic during the following periods. However, as Kaul puts it:

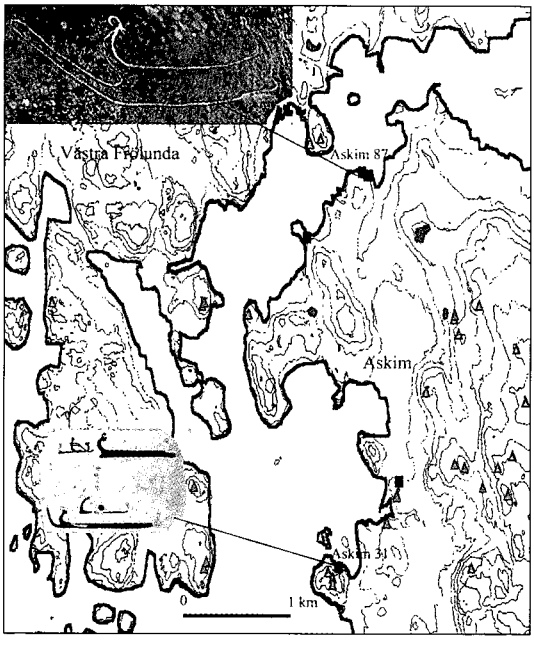
> The ships on the bronzes, for example, show that inturned prows (which are particularly characteristic of the Early Bronze Age) can occur in per. IV and per. V. Here it is necessary to get an overall picture of the individual ship and it is not only when the keel extension on a rock–carving ship is horizontal or slightly raised that one can be reasonably certain that the ship is an early rock-carving ship (Kaul 1998:89).

Though we were aware of the problems with these two methods, especially concerning the earlier phases of the ship chronology and the fact that the shore-line study was based on a calculation model concerning the central part of Bohuslän, we saw an opportunity to use these two methods on the same material. However, we were also fully conscious of the fact that this analysis would not be able to provide us with an absolute dating of the rock carvings.

This attempt may be a way of creating more specific chronological re-constructions of the landscape in these areas, thereby enabling us to discuss the distribution over time, space and activity, change and continuity of the social and ritual behaviour as manifested by rock art.

THE CASE STUDY IN ASKIM: THE HYPOTHESIS

The first field observations were made in Askim in the Gothenburg area and the outcome formed the hypothesis for the forthcoming study. This area has the highest frequency of rock art in this parish. Askim is also one of the finer residential suburbs of Gothenburg and on this account has the area been subjected to several exploitations for new housing over the years. Recent digital information concerning the topography has made it possible to envisage the prehistoric conditions of the area. In this area, there are some Mesolithic and Neolithic dwelling sites, some of which were excavated in the seventies. On the higher grounds, particularly in the eastern parts of the area, several cairns and stone-settings are situated. Some of these Bronze Age graves have earlier been the subjects of archaeological surveys. Dwelling sites dated to the Bronze Age in this same area were also surveyed back in the seventies. None of these settlements finds have been interpreted as permanent sites, rather as seasonal or temporary (Ling & Gutebrand 2003).



Two different rock-art localities in this area were examined, Askim 31and Askim 87. Both of these contained ship motifs with highly raised, keel extensions and stems that ended in stylistic animal heads (Fig. 2, compare also with Kaul 1998:88, fig. 53). These features are typical in the late Bronze Age and we would then dare to place

Fig. 2. An attempt to reconstruct the Bronze Age landscape in Askim with a shore-level at 7 metres above the present. The cubes signify rock-art localities, the triangles cairns and stone- settings and the polygons Bronze Age dwelling sites.

these ships in Montelius period V (Kaul 1998:96- 97, fig. 62).

The panels revealed a height of 8 metres and according to the new shoreline study these carvings could not have been produced during the early Bronze Age. Looking instead at the shoreline in period V for this area, it indicated at approximately 6 metres. First of all, this corresponded very well to the location of the carvings in the terrain and our typological interpretations of the ship motifs. It would also make sense if there was a land tongue or shore between the rock-art sites and the sea. During this period, there actually was a land tongue that could be used for the carving process (Ling & Gutebrand 2003). None of the total of six measured localities in Askim was situated above the 13-metre level. Thus, during the Bronze Age, all these localities had a close spatial connection with the sea.

In comparison with other parishes, such as Tjörn, Tossene, Kville and Tanum, Askim has very few rock-art sites, only six in the whole parish, and we needed to try this deduction on an area with more numerous and representative, rock-art material. The conclusion in Askim had thus given some substance to our hypothesis. But these observations had also confronted us with more questions.

Are there more rock-art localities in northern Bohuslän suitable for this kind of deduction? Is there any possibility of obtaining enough observations for a larger pattern and what could such a pattern tell us? Would this pattern throw more light on rock art as a means of communicating the world view, the communication forms and the public norms during the Bronze Age?

According to earlier studies and to the recent economic map, Kville parish in northern Bohuslän has numerous low-situation rock-carvings with typologically datable motifs (Nordbladh 1978, 1981, Bertilsson 1987).

THE CASE STUDY IN THE KVILLE AREA

The landscape of the south-western part of Kville is characterized by a fissure valley with rather dramatic formations of granite ridges and with clayey lowland. The Jore river with its branches is cuts through the clayey lowland and has its outlet in the north-eastern parts of Jorefjorden.

The archaeological remains show a continuity from the Mesolithic era to the Iron Age.

A few Mesolithic dwelling sites are located in the area, but there are also a few settlement finds from the Neolithic era and two gallery graves that indicate activity from the late Neolithic or early Bronze Age. On some of the hilltops, monumental cairns and stone-settings are situated.

At present, no settlements from the Bronze Age have been recorded in the area, but stray finds of flint daggers, bronzes and ceramics, together with the graves and the topography indicate clearly that some settlements were probably located here during the Bronze Age. From Länsmansbostället in the village of Kville derive one bronze axe from period Ib, from Hamn a socket axe from period V and from a grave in Torsbo a pin from period V.

Flint daggers dated to the late Neolithic or early Bronze Age and have been found in the Ödsmål, Torsbo and Hakeröd areas. From Hakeröd derive also ceramics from the Bronze-Age and theIron Age.

An interesting fact is that more settlement finds from the Bronze Age have been made just outside this area (Nordbladh 1980, Algotsson & Swedberg 1997). Thus, if we compare the settlement finds, the bronze finds and the graves (gallery graves, cairns and stone-settings) with the high frequency of rock art in the area there is an obvious discrepancy.

The concrete and presumptive settlement remains from the Bronze Age in the area are scarce in comparison with the rock-art sites (Fig. 3). This area is practically oversupplied with carvings and therefore it has engaged rock-art research for more than two centuries (Ekhoff 1880, Fredsjö 1943, Nordbladh 1978, 1980, 1981; Nordbladh & Rosvall 1981, Bertilsson 1987, Hedengran 1993).

Åke Fredsjö's elaborate and extensive documentation of the rock art in the parish has provided a vital foundation of information for later academic research and interpretation. For example, Nordbaldh's deduction of structuralism and semiotics on rock-art material in Kville has had a great impact on the current

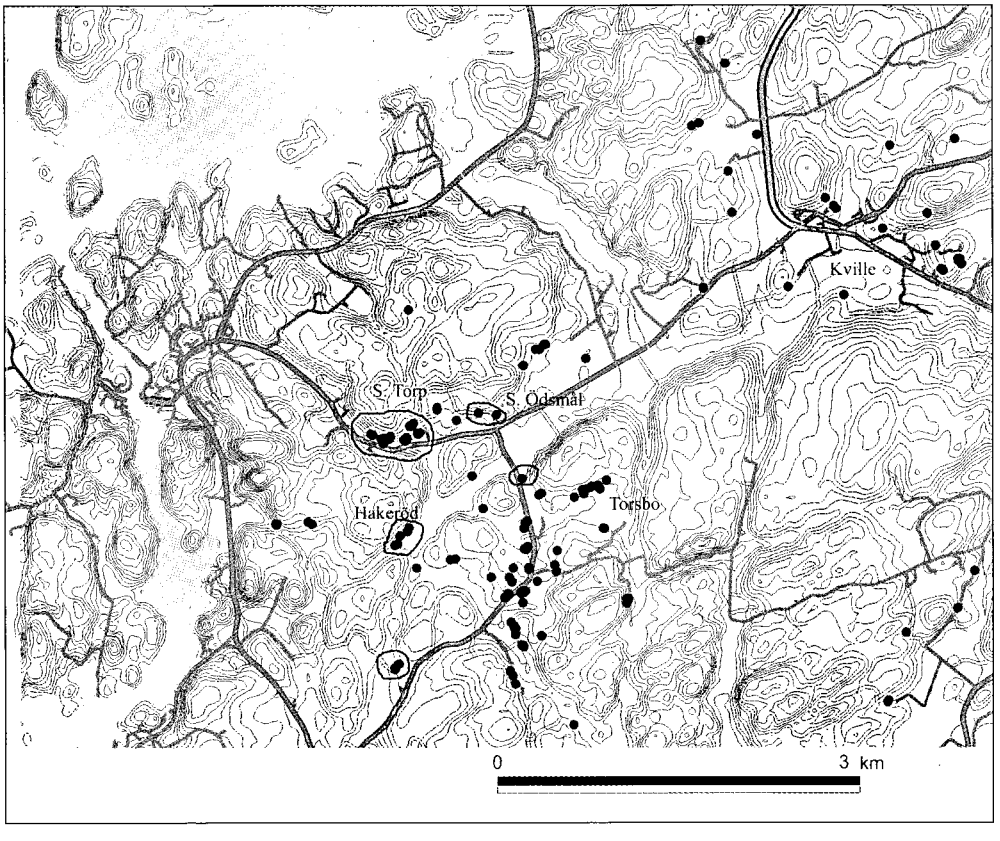


Fig. 3. The south-western part of Kville parish today. Black dots signify rock art and the marked ones are those that have been measured and interpreted.

interpretative and communicative, rock-art discourse (Nordbladh 1978, 1980, 1981, Bradley 1997, 2000, Tilley 1992, 1994, Vogt 1998, Goldhahn 1999, Hauptman-Wahlgren 2000, 2002).

In the south-western part of Kville there are approximately 102 rock-art panels. Thirty- two of these contain only cup-marks, 65 contain both cup-marks and other motifs and 5 ones have only figure motifs (Nordbladh & Rosvall 1981b). The predominant motif on these panels is the ship.

Almost 25 % of the panels are situated between 15 and 20 metres above the present sea-level. The predominant motifs on the rock-art panels in Kville derive from period I-II and periods IV-V and the predominant time is period, IV-V ; almost 60 % of the panels contain ships or other features that may be derived from these periods (Nordbladh & Rosvall 1981, Hedengran 1993). It is worth mentioning that the bronze finds in the area also derive from period I and periods IV-V.

The most famous and numerous rock-art complex in the area is that in the Torsbo area.

> The locality consists of no less than 20 engraving areas, varying in size from a couple of decimetres up to an area of 60 x 20 metres...In total the locality encompasses: 347 ships figures, 78 human figures, 14 foot- soles, 41 animal figures...In total that makes 966 figures (Bertilsson 1987:100).

The height of these carvings, 25-30 metres above the sea, deterred us from doing any measuring up here. However, the Torsbo complex was probably the key to a wider understanding of the chronological and spatial context of the rock art in this area. Recently a lot of attention has been given to the Torsbo complex because of its many ships dating from the early Bronze Age, per. I-II (Kaul 1998, Bengtsson 1999, Kvalö 2000, Kristiansen 2002). The majority of the ships have the same features of hull, keel extension and inturned prow as the ship on the Rørby sword, dated typologically to per. Ib (Fig. 4.). There are also many ship types that show astonishing similarities with the ships from the closed grave context at Truehojgård, the entire context dated to period II (Kaul 1998, Kristiansen 2002).

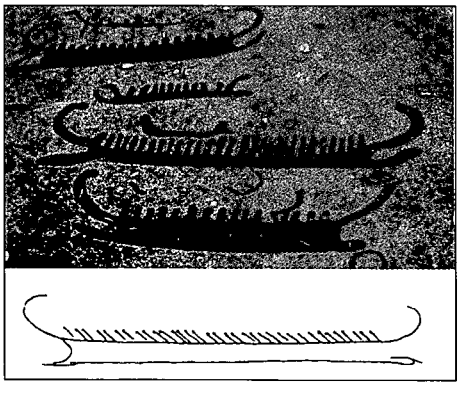


Fig. 4. A comparison between the ships from the Torsbo locality (above) and the ship rendering on the Rørby sword (below).

THE ROCK ART AT THE WATER'S EDGE IN THE MARITIME ZONE

The most striking feature is the clusters of low situation rock art, placed on the outermost edges of the rocks, in the north-western parts of the valley. At first glance, with the new shoreline study in mind, it seems as if these carvings were

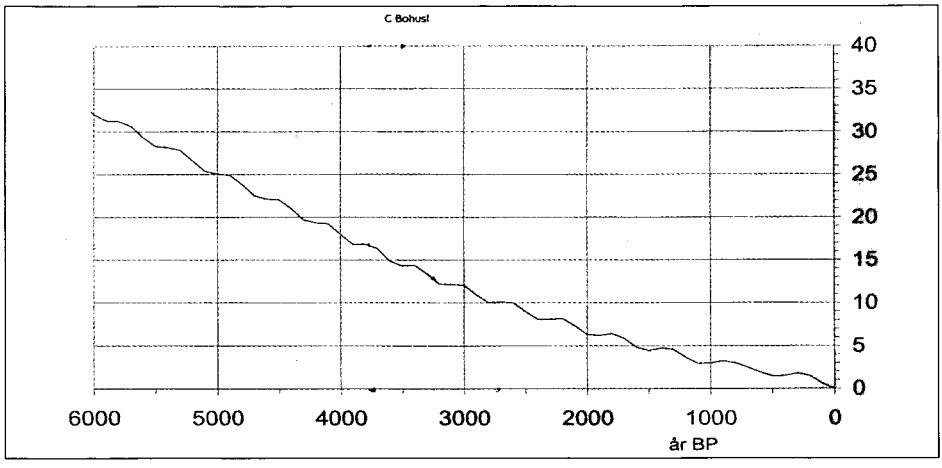


Fig. 5. The new shore-level curve of central Bohuslän after Påsse 2001.

made on panels just above the sea and that the low, arable land that ranges from 10-12 metres above the sea was in fact, the sea bottom in a smaller bay during the Bronze Age. Even during the late Bronze Age, the sea covered these lower parts of the valley (Fig. 5).

Could these observations give us other perspectives on the rock art? What ideological, functional or cosmological aspects could be concealed by this placing?

Before we enter into any of these discussions, I propose to give an account of the outcome of the digital measurements that we made at these specific localities and the chronological estimation based on the two methods as shown in these panels. Each measurement was made just beneath the lowest ship motif on each panel. The general trend is that the majority of these low-situation localities date from the late Bronze Age. Some of these panels could not possibly have been made at the beginning of the Bronze Age (Figs. 5-7). It would also be logical if

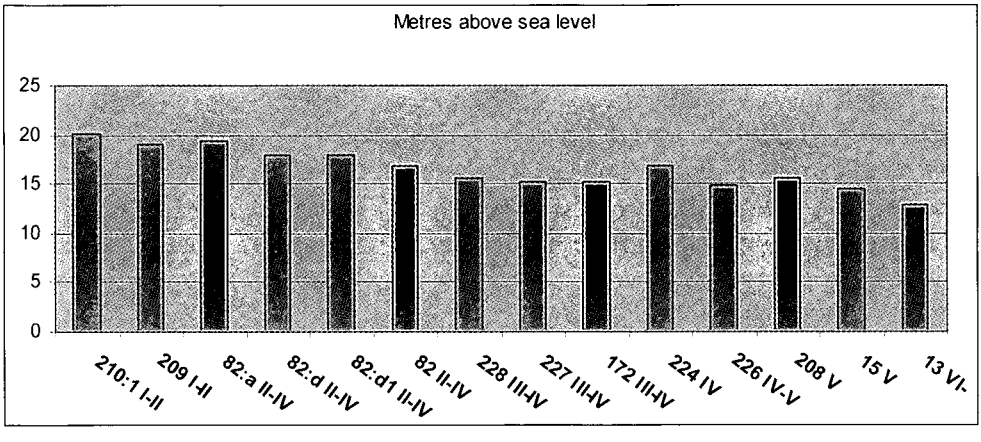


Fig. 6.Diagram of the measured rock-art panels in Kville, showing the heights of the localities above the current sea-level in metres. Compare also with Fig. 5.

Locality	M.a.s.l (Metres above current sea level.)	Estimated period on the ship features	Sea level during the estimated period (including fluctuation)
Kville 13	12, 80	VI	10-11
Kville 15	14,68	V	11-12
Kville 226	15,14	III-IV	12-14
Kville 227	15,20	III-IV	12-14
Kville 172	15,30	II-III	13-14
Kville 228	15,58	IV-V	11-13
Kville 208	15,58	V	11-12
Kville 224	16, 81	III-IV	12-13
Kville 82	16, 84	II-IV	12-14
Kville 210	19,07	I-II	14-16

Fig. 7. The measured rock-art panels in Kville with the relation to the contemporary sea-level, including fluctuation.

there were a slight land tongue or shore between the rock-art sites and the contemporary sea.

None of these panels show ship features that diverge from the chronological sequence in relation to the contemporary sea-level, which includes a normal fluctuation of approximately 1 metre (Kaul 1998, Påsse 2003). The fluctuation of the sea- level is actually of crucial importance when it comes to the interpretation of these low situation carvings. The sea-level is not a static phenomenon but a moving, organic element in constant fluctuation, caused by different weather conditions. Of course, the same circumstances governed the sea during the Bronze Age (Kvalø 2000, Påsse 2003).

The measurement of the surrounding terrain also showed that all these different carvings had then been placed near or on the contemporary shore during the Bronze Age and the shore was undoubtedly the main reason this placing (Fig. 8). In this respect, it is interesting to refer to Helskog's theory concerning the ritual behaviour behind the placing of the rock art in the most northern parts of Scandinavia. According to Helskog the placing of rock art in these areas may well reflect a cosmological system in which the shore was a device factor.

> The location of the rock carvings at specific places in the transitional shore zone indicates that the shore itself could be a ritual landscape, where specific locations were considered more meaningful than other for making rock carvings, practising ritual and communicating with the spirits of the cosmological system. The shore being where the three dimensions – sky, land and water— meet might indicate that this is also where spirits of these dimensions meet, given that there sis some structural similarity between the cosmological world and the physical world of the people (Helskog 1999:81).

This is a highly interesting perspective, but a religious communicative function need not exclude other symbolic and practical, communicative functions of the rock art (Olsen 1997, Helskog 1999, Bradley 2000). In this context it is worth mentioning that some of the main carvings in Kville have a close spatial connection with old roads that seem to have ended where they connected with the sea. Roads, paths and trails may theoretically have functioned as prehistoric infrastructure if the topography did not allow any other alternatives, especially if they passed by or led to pre historic remains (Bradley 1997:82, Agelii & Ling 1998). Could this pattern actually indicate that some of these places with rock art were used both as

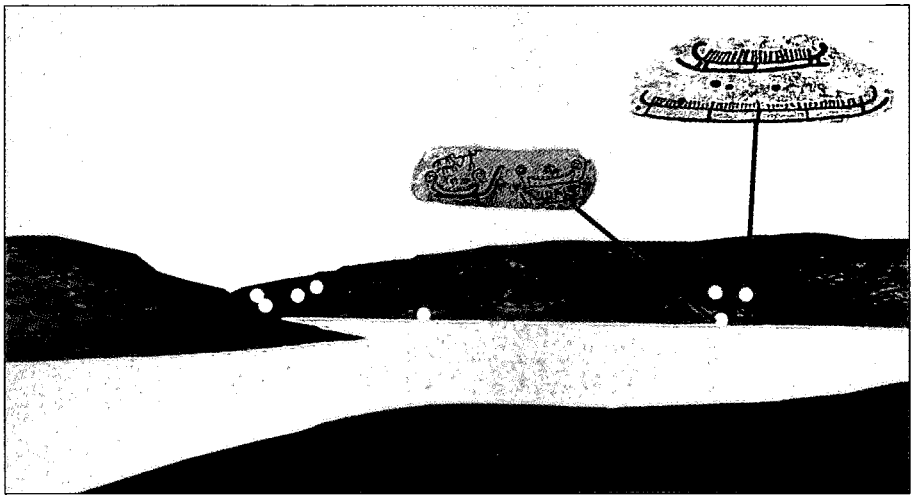


Fig. 8. A reconstruction of the early Bronze Age landscape in the S.Torp and Hamn area, with comments on the some of the rock-art panels (white dots) These two panels differ not only in height but also in the fact that the ships on them been carved with a totally different aesthetic and technique. The highest one, Kville 210, has been dated typologically to periods I-II. The digital measurement of the lowest ship on this panel showed a height of 19,07 metres. This is really interesting because, if this ship was carved during the early Bronze Age it was made just a couple of metres above the sea and the locality might have acted as an inspiration for the forthcoming and lower- situated carvings at Kville 208. This panel contains two ship motifs with spiral-shaped stems and highly raised, keel extensions. These features are typical in the late Bronze Age, per V. Above one of the ships, there is a ploughing scene, which is also interesting because some scholars claim that ploughing scenes usually appear with other motifs from the Late Bronze Age. The measurement was made just under the hull of one of the ships and it showed a height of 15,65 ma.s.l. .If we take a look at the diagram of the sea level in Fig. 5 we may exclude the possibility that these carvings could have been produced at the very beginning of the Bronze Age. Photo: Åke Fredsjö

cosmological edges and as markers or points for concrete transitions between land- and seagoing communications?

By applying the results from the first, extensive, shoreline study of the Bohuslän area, on the rock art and comparing these with the results of Flemming Kaul's analysis of ships on bronzes and ships on rocks, two independent methods may be deduced from the same material. These two independent methods harmonised very well. An attempt to interpret the chronological and spatial use of rock art in this area leads to the following conclusions.

- In the early Bronze Age the activity was more spatially homogeneous and mainly concentrated to the Torsbo area and on the basis of the high frequency of typological motifs from periods I-II could this complex could be regarded as initial for the rock-art activity in the area (Fig. 9).
- During the late Bronze Age it seems as if the rock-art activity followed the regression of the shore-level. At the same time and in a spatial perspective, the rock art became more extensive and heterogeneous, with new panels on the

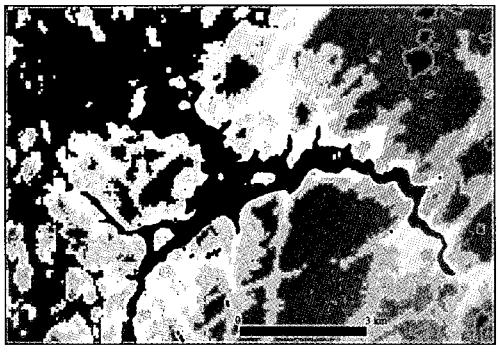


Fig. 9. The area during the early Bronze Age with a shore level at 14 metres. The black dots signify rock-art panels

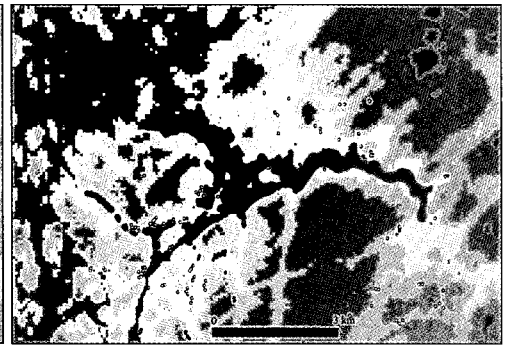


Fig.10. The area during the late Bronze Age with a shore level at 11 metres the black and white dots signify rock-art panels with late Bronze Age motifs and the black dots panels with early Bronze Age motifs

lower, topographical levels. Older panels on higher ground were also recreated and amplified (Fig.10).

- During the entire Bronze Age, the area was a communicative maritime zone, port or passage with a high frequency of rock art and with bronze finds that correspond chronologically to the major carving periods, per I and IV-V, but with few settlement finds and graves in comparison. The area was strategically situated and could be reached from the sea by a connection from the south (Fig. 11). In this context the cairns may indicate an earlier sea route leading to the area from the south.

If we agree that the major part of the rock art was produced during the Bronze Age, it seems as if these sites were deliberately placed in this transit zone, and some of them at the water's edge. In general, the shore-level study matched with the ship chronology. However, this assumption has to be regarded as an induction that needs to be verified or falsified by additional observations. Further observations may be of great importance and they can give more substance and knowledge of chronological problems, such as the earlier periods of the ship chronology, for instance. This is of the greatest importance, particularly if one intends to discuss more specific, chronological issues about the spatial, social, ritual and mental use of rock art during the Bronze Age.

SYNTHESIS AND REFLECTIONS

In this study, I have tried to give a wider understanding of rock art in Kville by presenting the carvings in a dialectic interaction with an organic shoreline and other archaeological remains and the landscape. How are these new observations to be interpreted? Why is the rate of rock art localities so much higher than that of the graves and the settlement finds? Could the high frequency of rock art be interpreted as a materialised reflection of contacts and meetings between a domestic and non- domestic public with different concepts regarding time and space?

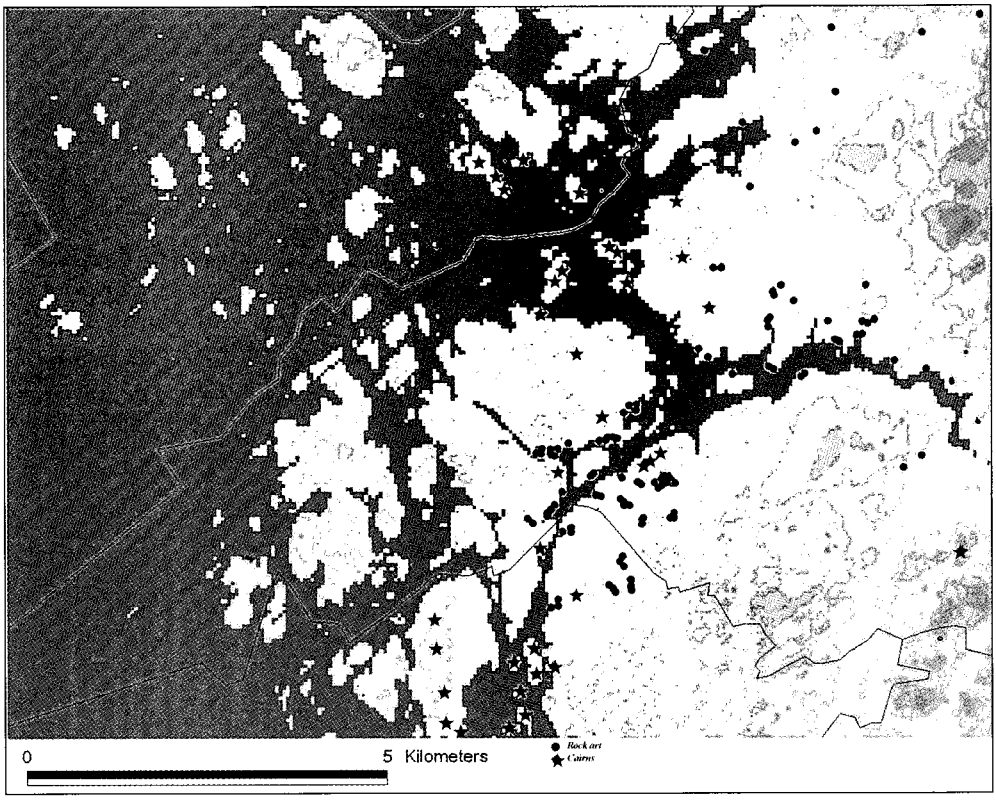


Fig. 11. The communicative maritime zone or port in Kville during the Bronze Age with rock art (black dots) and cairns (stars).

In opposition to the earlier, functionalistic, sedentary interpretations of this area I suggest that the rock art instead may reflect traces of seasonal maritime interaction during the Bronze Age (Nordbladh 1978, Bertilsson 1987, Vogt 1998, Algotsson & Svedberg 1997, Bradley 1997:6-8, Tilley 1999). The cairns, the stone-settings, the finds of flint, the ceramics and the bronze finds from the area indicate that some permanent residence existed here during the Bronze Age, maybe 3 permanent settlement units. However, the topographical conditions and the limited number of archaeological finds from the period rather indicate that the high frequency of rock art may have represented a larger area of habitation and activity, maybe within a radius of 5-10 km or more (Fig. 11). Bearing this in mind, we may assume that people from a larger area may possibly have visited, on a permanent or occasional basis, the south-western part of Kville in order to maintain, reproduce or initiate socio-ritual structures of power, identity, ideology and cosmology as well as to maintain economic activities such as fishing and herding (Nordbladh 1978, Bradley 1997:8 Algotsson & Swedberg 1997, Tilley 1999, Helskog 1999, Kristiansen 2001, 2002).[1]

[1] In this context it is interesting to refer to the Bronze Age settlement finds of postholes, hearths, flints and

Moreover, this strategic and communicative maritime zone could have served as an important port or centre for the local and the regional sea-going communications during the Bronze Age.

With the contemporary sea-level during the entire Bronze Age it actually seems logical to assume this. The Bronze Age ships were probably propelled by rowing or paddling and consequently the routes were located in the contemporary inner skerries (Marstrander 1979, Burenhult 1983, Kvalø 2000). Whether if these journeys were short or long, they depended on temporary stops for resting and for food and water supplies. Furthermore, the weather conditions must have had a great impact on these journeys and the daily trips must have been organised in relation to the stability or changes in the weather (Marstrander 1979, Artelius 1996, Kvalø 2000).

However, these journeys were probably and primarily organised along already established and traditional, maritime, interaction or aggregation routes, which might have been initiated in the Neolithic era primarily for the exchange of flint for domestic goods. During the Bronze Age, this traffic may have been extended to include the bronze items. A journey to such a port may also have been of great symbolic significance during the Bronze Age, and both local and regional power may have depended on this interaction (Helms 1988, Larsson 1997, Kristiansen 1999, Kvalø 2000, Winter 2002). In this context, it may also be interesting to discuss the making of rock art. Both local and regional identity and imagery may have been manifested by the carvings to illustrate the importance of consensus and independence regarding ideology, cosmology and identity (Artelius 1996, Concey 1997, Kristiansen 1999, 2001, Bengtsson 2002).

Consequently, the rock art in this area might be interpreted as traces of a "social geography" placed in "a third space" (Fig. 12). A space for social, economic and ritual interaction, transaction integration and transformation used both by a domestic and a non-domestic public, preferably on a seasonal basis during the Bronze Age (Bhabha 1994, Concey 1997, Olsen 1997:176, Tilley 1999, Kristiansen 2001). For the development of this interpretation, Anthony Gidden's structuration theory may be useful, especially as regards his discussions about societal changes that occur in edges or liminal spheres between various societies with different concepts regarding time and space (Giddens 1982:23, Olsen 1997:176, Kristiansen 2001).

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ceramics that were revealed in connection to the Tanum projects excavation in Edstensdalen, situated approximately 4-5 km north-east of the present area (Aulin & Gustafsson (Eds) 2002).

In comparison with the south-western part of Kville, Edstensdalen has very few rock-art sites, only 10 panels.

Is it possible that people from a larger area, like Edstendalen for instance, may have visited on a permanent seasonal basis the south-western part of Kville and for this reason marked their presence with rock art? This tradition may have been initiated in a earlier Neolithic phase with different expressions and actions for communication, maybe using portable artefacts instead of fixed rocks for conveying identity and ideology (Bertilsson 1987, Algotsson & Svedberg 1997, Bradley 1997: 4-8).

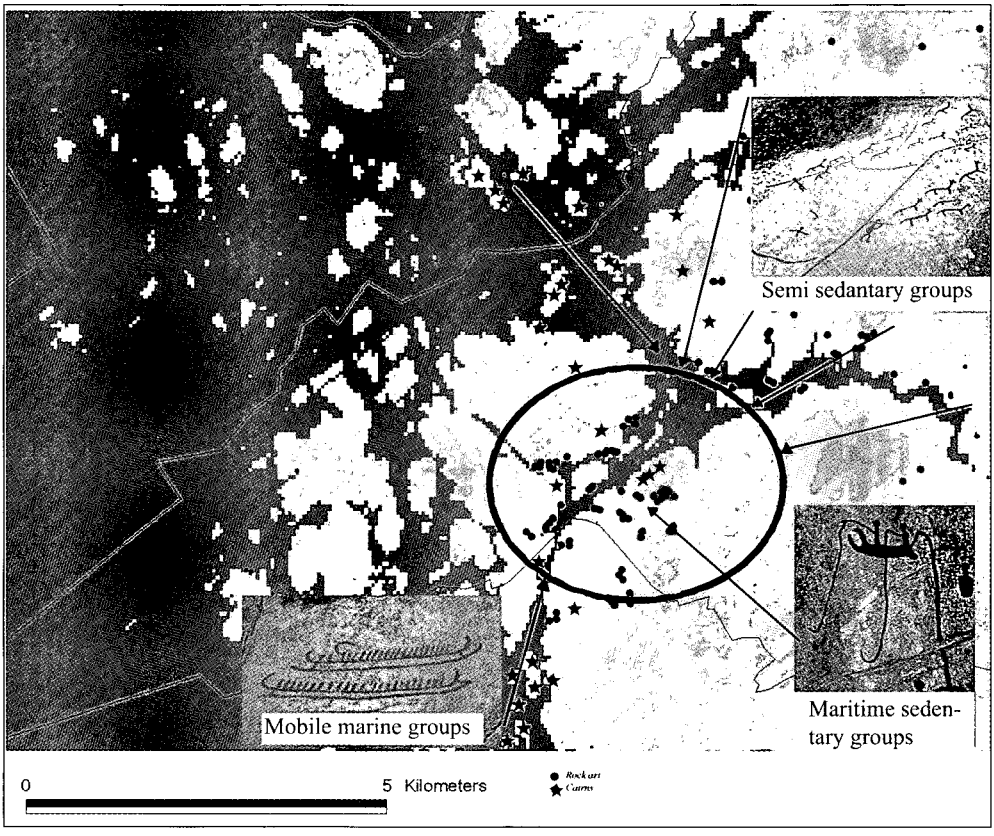

Fig. 12. An Illustration of the hypothesis concerning the maritime interaction during the Bronze Age in the area.

The triangles signify cairns and the black dots rock-art localities. Of great interest is that the sea distance between these areas is about one day's march with the reconstructed Hjortspring ship.

> Time-space edges refer to the forms of contact- and often of interferences-between different structural types of society. These are edges of potential or actual social transformations, the often unstable intersections between different modes of societal organisations (Giddens 1982:23).

It is tempting to see the high frequency of rock art in these areas as a materialised reflection of friction and stress caused by contacts and meetings between a domestic and a non- domestic public with different concepts regarding time and space.

CODA

In Bohuslän, some of the major rock-art areas, such as Tanum, Kville and Sotenäset were situated in very strategical maritime zones during the Bronze Age (Fig.13). Of great interest is the fact that the sea distance between each one of

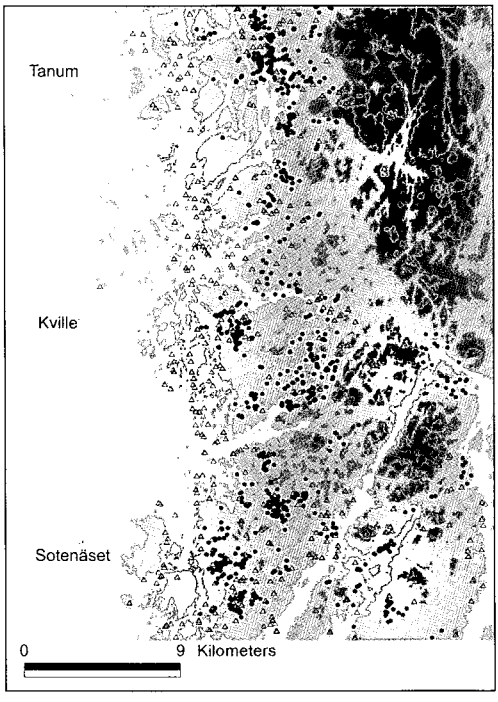

Fig. 13.Central Bohuslän during the Bronze Age illustrated with a shore level at 14 m.a.s.l. and cairns (triangles) and rock art (black dots).

these three areas is about one day's march, based on the facts of speed and manoeuvre capacities of the replica of the early Iron Age boat found in Hjortspring in Denmark (Marstrander 1979, Burenhult 1983, Kaul 1998, Kvalø 2000).

Bearing this in mind, it may be of importance to stress the possibility that there may be maritime archaeological remains, buildings or infrastructure in these areas that are still to be examined in the future. However, there are also areas with lots of carvings on higher ground at some distance from the maritime zones. It would be of great interest to further analyse and discuss the differences and similarities regarding content and context between the terrestrial and the maritime areas of rock art in Bohuslän.

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