

Elevated Rock Art

Maritime images and situations

The aim of this article is to communicate the fieldwork conducted by the measuring of rock art and the surrounding terrain in Tanum. The study is a part of the author's PhD work which aims to address new questions and perspectives about how the rock art and the landscape in Tanum could be perceived, reconstructed and understood in relation to the shore displacement. New facts regarding the shore displacement during the Bronze Age in Tanum will also be presented. The conclusion of the measurement of the low situated rock art sites and terrain demonstrates clearly that a majority of the carvings in Tanum seems to have been sited close to the contemporary shore during the Bronze Age. These facts open up for a new discussion about maritime socio-ritual interactions, positions, ideals and traditions, as manifested by the rock art in the area. On basis of the made fieldwork I will also present a ship chronology of the landscape, a hypothesis about the rock art in relation to shore displacement and comparative chronology.

Introduction

When working with rock art in the landscape of Tanum one of the greatest conflicts that are faced is the one between the land uplift phenomena and the power and impact of the contemporary landscape. It is indeed difficult to grasp the transformations the landscape of Tanum has undergone for more than 3000 years and to recognize that a major part of this landscape used to constitute a seascape during the Bronze Age, where some parts and features used to be strikes, island, isthmuses, bays or lagoons. The contemporary agrarian landscape has of tradition also governed and biased rock art research in Tanum, much due to a misunderstanding of the land up lift phenomena but also due to evolutionary agrarian concepts regarding the Bronze Age society (Almgren 1927, Bertilsson 1987, Fredell 2003, c.p Baudou 1997, Ling 2005, Nordenborg Myhre 2004). It has also been a tendency among researchers to favour the traditional so-called agrarian motifs, such

as plough scenes, wedding scenes, chariots, net figures, sun horses and lure blowers that occur in numbers of 10 or less in Tanum, this in relation to the over 2000 ship depiction in the area (Fredell 2003, Kaul 2004). Why has so little emphasise traditionally been given issues based on the great variety of ship features, ship formations, ship scenes connected to real and ritual maritime interactions in the landscape?

Lately, however, attempts have emphasised spatial and social issues of the rock art in connection to Bronze Age maritime landscapes and interactions (Bradley 2000, Kristiansen 2002, 2005, Bengtsson 2004, Coles 2004, 2005, Kaul 2004). But these attempts have a propensity to either be to reserved (Bradley 2000, Bengtsson 2004, Coles 2004, 2005) or to general (Kristiansen 2002, 2005) interpretations of rock arts maritime situation and significance. The reasons of the

more reserved maritime interpretations of rock art in Tanum may be that these attempts have based their altitudinal facts of the economical maps which in turn are based on arbitrary and erroneous facts regarding the altitude. Consequently, this has led to the reserved assumptions regarding the distance and altitude between the rock art and the Bronze Age shore-line.

It is suggested here that altitudinal studies of prehistoric sites in the area can not solely rely on the arbitrary altitudinal facts of the economical maps. In this context it is necessary to apply specific GIS measurements of the rock art sites and terrain. Moreover, specific information about the shore displacement of the area is of crucial importance. On basis of a new study of lake sediments in Tanum, new specific facts about the shore displacement in the area and its affect upon the Bronze Age landscape/seascape will here be presented. This course of action may altogether contribute to an alternative understanding of rock arts original setting in the landscape. In the following article this kind of approach will be demonstrated and conducted.

The aims and methods used for the study

This tentative attempt is based on three major conditions:

- (i) The obtained height data of the rock art in the areas (in relation to)
- (ii) The new parameters concerning shore displacement of the areas (in relation to)
- (iii) Comparative chronology, as for Flemming Kauls latest scheme of ship renderings.

The first part of the study, which primarily deals with issues regarding rock arts landscape setting and landscape reconstructions, is limited to the Tanum parish. It was not possible to make a detailed map of each and every locality or terrain part in the area question. I have therefore tried to sample some of the most significant localities and terrain parts with rock art in accordance with the aim of this study. The case study involves also new aspects of chronology regarding the rock art in relation to shore displacement and comparative chronology. This part of

the study encompasses rock art sited not only in Tanum but also in parishes further south as Kville, Svenneby and Svarteborg. Nevertheless, these areas are located within such a close geographical distance from Tanum area, that the same parameter regarding the new shore displacement curve of Tanum could be applied. The discrepancy between the altitude of the shore level of these areas is accordingly less than 0,5 metres (Påsse 2001). I'm fully aware of the problems connected with these two methods, especially concerning the earlier phases of the ship chronology but also with the problems concerning shore displacement (c.p Kaul 1998, Ling 2004, 2005, Nordenborg Myhre 2004, Berntsson 2005). I'm therefore conscious of the fact that this analysis cannot generate or provide an absolute instrument of dating rock carvings.

The project was subsequently focused on and conducted through GPS and total station measurements of low situated rock art with typologically datable motifs and the surrounding terrain. Each measurement was made just beneath the lowest ship motif on each panel by means of a GPS with an accuracy of 2 cm concerning longitude, latitude and height. Occasionally entire rock art panels were also measured. All reliable coordinate systems local, regional and national where, tried, applied and compared¹. However, before moving on to the case there are some matters that have to be clarified.

Possibilities and constraints regarding landscape reconstructions, altitude, tide, rock art and terrain.

The conclusion of the measurement of the low situated rock art sites and terrain in Tanum has generated some general facts and ideas about the prehistoric landscape. Some broad chronological and spatial patterns could be outlined about the measured rock art sites in relation the shore displacement curve of the area. First of all, the sea was a very present and adjacent feature to the rock-art sites during the entire of the Bronze Age(BA), but also during the Pre Roman Iron Age (PRIA). However, this statement

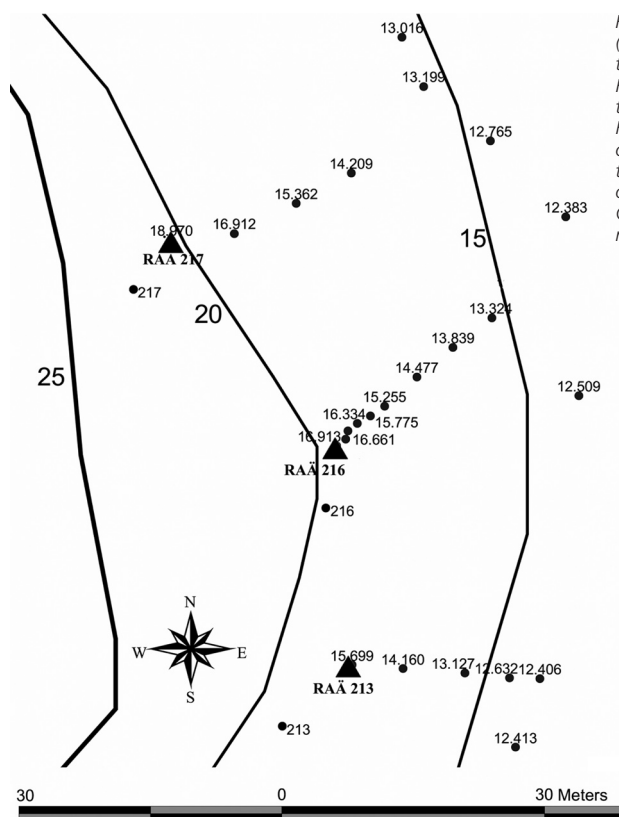


Fig. 1. The map illustrates terrain points (dots), altitude and rock art localities from the Ryk area in Tanum. The triangles with Raå numbers signify the real position of the rock art localities and the dots with Raå numbers signify the arbitrary position on the economical map. Note the value of the terrain curves, 15-25, in relation to the obtained altitudinal value of the terrain by GPS measurements near these (dots with number).

needs to be discussed further and for this purpose there are some specific altitudinal conditions that must be attended. First of all, the measured terrain parts, but also the altitude of the rock art localities, diverged considerably in relation to the economical maps: in general a discrepancy on 1-3 metres, sometimes even more (fig. 1). Swedesurvey AB among others explains this phenomenon simple by the earlier method of interpreting and creating economical maps on basis of air photography (Engberg 1998:25, Eklundh 1999:15). This fact was also revealed after GIS measurements of rock art and terrain in areas situated further south, as for the lower parts of the Kville and Askum areas. The new GIS measurements demonstrated that the sea had been considerably close to the rock-art sites during the Bronze Age also regarding these particular areas (fig. 2).

Thus altitudinal studies of prehistoric sites and monuments in the area cannot solely rely on the arbitrary altitudinal facts of the economical maps but must subsequently be complemented by specific GIS measurements. Due to general measurements and ocular estimation the position of the rock art sites has never been fixed by proper measurements, their position and altitude on the economical maps must therefore be regarded as arbitrary.

Moreover, the lower plain areas have been intensively cultivated for at least two centuries and some terrain parts since medieval times. Recent archaeological and geological surveys in these areas confirm these agricultural processes and show that at least 1-1,5 metre of agricultural sediments have been accumulated, moved and deposited from

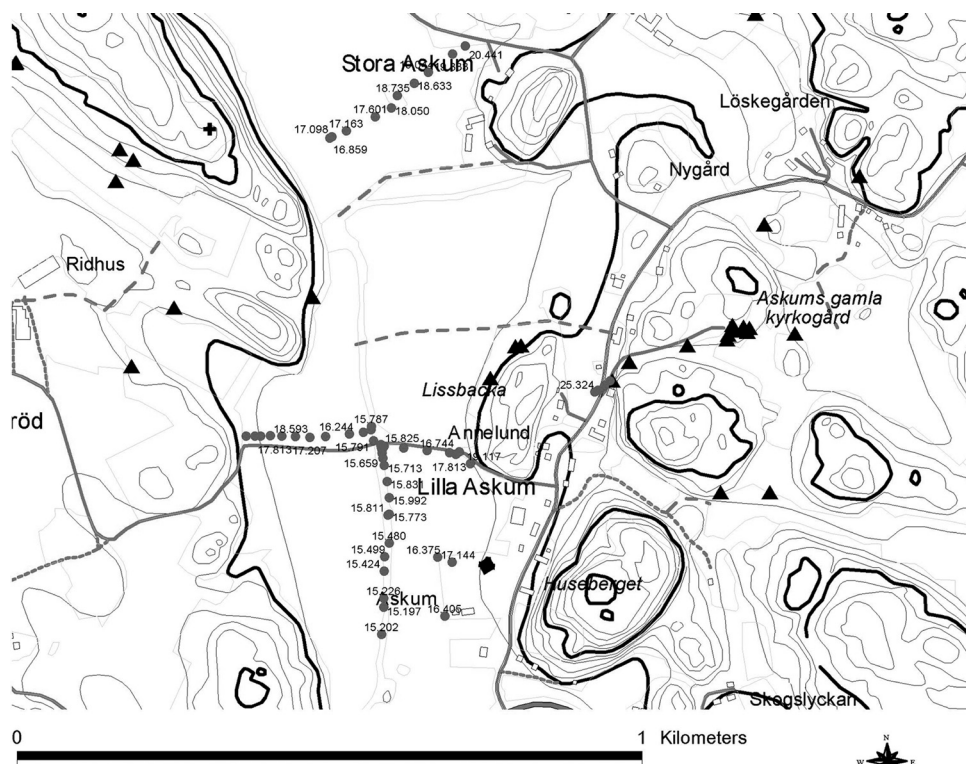


Fig. 2 The map illustrates the altitude of the lower plain area of Askum. These values demonstrate that the sea had covered this part of the valley during the major part of the Bronze Age.

higher grounds towards the lower terrain parts (Lindholm 1997, Algotsson & Swedberg 1997). This means that the altitude of these terrain parts must have been at least 1 meter lower during prehistoric times. Another vital fact considering the sea and its relation the rock art during prehistoric times is the subject regarding the high and low tide in the areas. The high and low tide at the coast strip of central and northern Bohuslän is very slight. The tidal movements are calculated to about + 0,3 meters in relation to the reference surface.

However the fluctuation increases during heavy currents and weather. Thus the normal maximal high tide is then calculated to + 0,43 and the normal low tide is – 0,52 (Rydberg 2000). But these values are anomalies and occur one or twice per months and succeed often just after each other during days of

low pressure. It is impossible even for today's forecasters to predict at what specific hour the low tide would turn in. The fluctuation of the sea is therefore more dependent of weather conditions than by lunar movements. It is likely that the same conditions existed during the Bronze Age in the area (Rydberg 2005 pers. comm.). It therefore seems far more logical to assume that the rock art was made without interruption of the tides.

Consequently, all of these of altitudinal adjustments provided us, in general, with a lower altitude of the rock art and the terrain at the lower parts, and this fact opens up for the following general statement or perspective: During the BA, the sea was very adjacent and present to the rock- art sites in Tanum (Ling 2004, 2005). In this context we

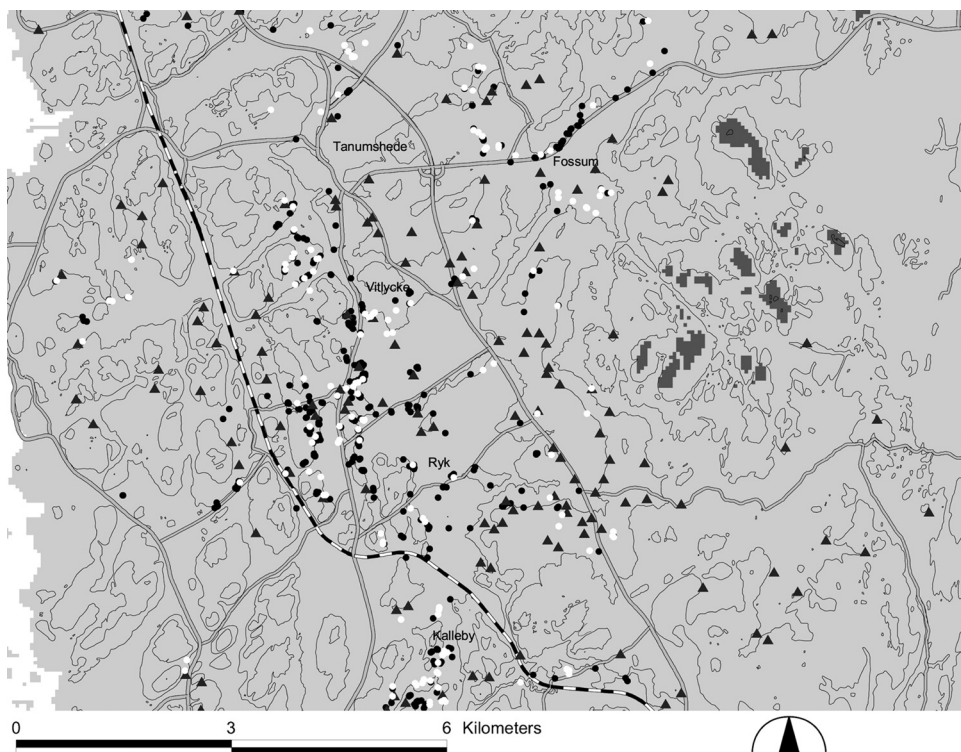


Fig. 3. The spatial distribution of figurative rock art localities (black dots) cup mark localities (white dots) and settlement finds (triangles) of the Tanum area.

may in define parts of the area as a seascape during the BA. This condition makes it possible to discuss new issues concerning action and dating of these localities.

The following questions may therefore be addressed to this attempt.

In what specific way did the ancient shore level affect the rock art sites and the adjacent landscape? How close was the sea to the rock-art sites? Were some of carvings made at the water's edge? Had the sea been a major device for setting placing and if so would this fact throw more light on rock art as means of communication forms and public norms during the Bronze Age? How does the new data considering shore displacement relate to the comparative typological/chronological dating of the rock art? For how long were the panels in use?

The rock art and the landscape of Tanum

The landscape of the Tanum area is characterized by fissure valleys with gravel deposit on higher grounds and low extensive plain areas with clayey soils. Granite hills, outcrops and rocks frames and define this landscape with its open plains, narrow valleys and passages. Another major characteristic of the area is a large interconnected lowland area, the Tanum plain. The majority of the rock-art sites are located on the edge of the granite hills, towards the lowlands. The area has the highest rate of rock-art sites in the entire of Sweden, more than 630 sites (fig.3) and has therefore attracted and engaged researchers with different aims and methods for more than two centuries (Brunius, 1832, 1868, Holmberg 1848, Almgren 1927, Bertilsson 1987, Kaul 1998, Fredell 2003, Coles 2005). The parish also demonstrates a considerable number

of other prehistoric graves, settlements, stray finds and hoards (Holmberg 1848, Almgren 1927, Bertlsson 1987, Algotsson & Swedberg 1997, Herner 1999, Coles 2005²). The majority of the settlement finds have been found on the higher parts, approximately 500-1500 metres east and south-east of the lower plain area where the majority of rock-art sites are located (fig. 3). The parish demonstrates also the highest rate of flint daggers (81) and sickles (88) of the entire of Bohuslän (Algotsson & Swedberg 1997, Apel 2001). And this fact displays the areas potential and significance of dwelling and interaction during LNI-EBA (Apel 2001).

Nevertheless, let's turn to the main topics of this analysis. The new shore displacement curve of the Tanum area demonstrates that the sea level during the beginning of the BA was about 16-17 m.a.s.l. and towards the end of the BA about 10-11 m.a.s.l. (Fig. 4). The new study was based on "diatom analysis, organic carbon content analysis and AMS-radiocarbon dating of terrestrial macrofossils combined with threshold levelling and lithostratigraphical studies. The interpretation

of the results is that Raftötångstjärnet was isolated from the sea c. 1385-1200 B.C. The isolation threshold, today uplifted to 13.8 m.a.s.l. was at the time situated at the ocean shore" (Berntsson 2005: 34-35).

The new study indicates a slight higher value of shore displacement regarding the BA than the earlier suggested curve by Tore Pässe, probably due to an improvement of method of the latter study (Pässe 2003, Berntsson 2005: 33). The new study indicates that the sea level was closer to 14 m.a.s.l. about 1300 BC (Fig. 4). The value of the new curve is highly interesting and it confirms an earlier hypothesis based on the measured altitude and estimated age of the rock art in Kville (Ling 2004, 2005). This geological prerequisite gives us a general idea of the rock art situation in the prehistoric landscape.

The interpretation of rock arts general situation in relation to shore displacement

Thus, a majority of the carvings in Tanum seems to have been sited close to the contemporary shore during the BA. About 70 %

*The majority of the rock-art sites are located on the edge of the granite hills, towards the lowlands. Ryk, Tanum.
Photo by Prohl/Milstreu.*



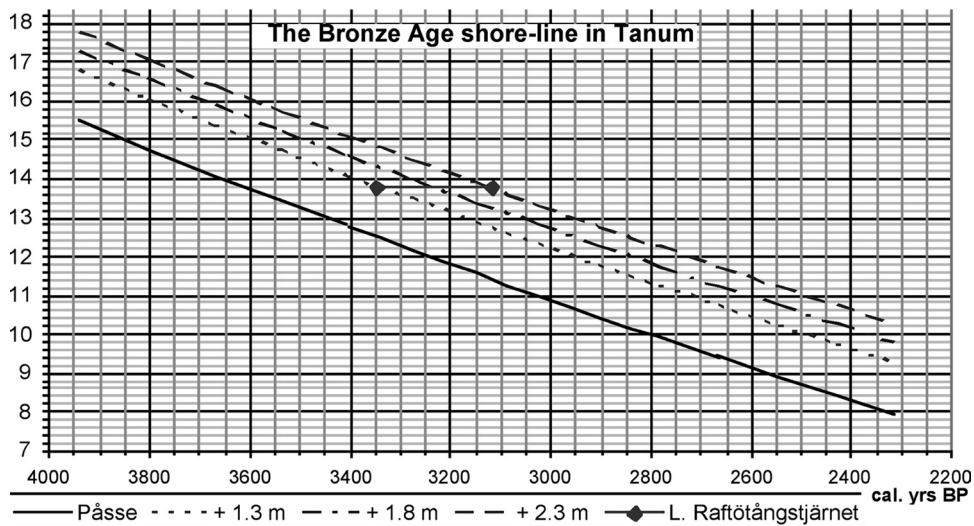
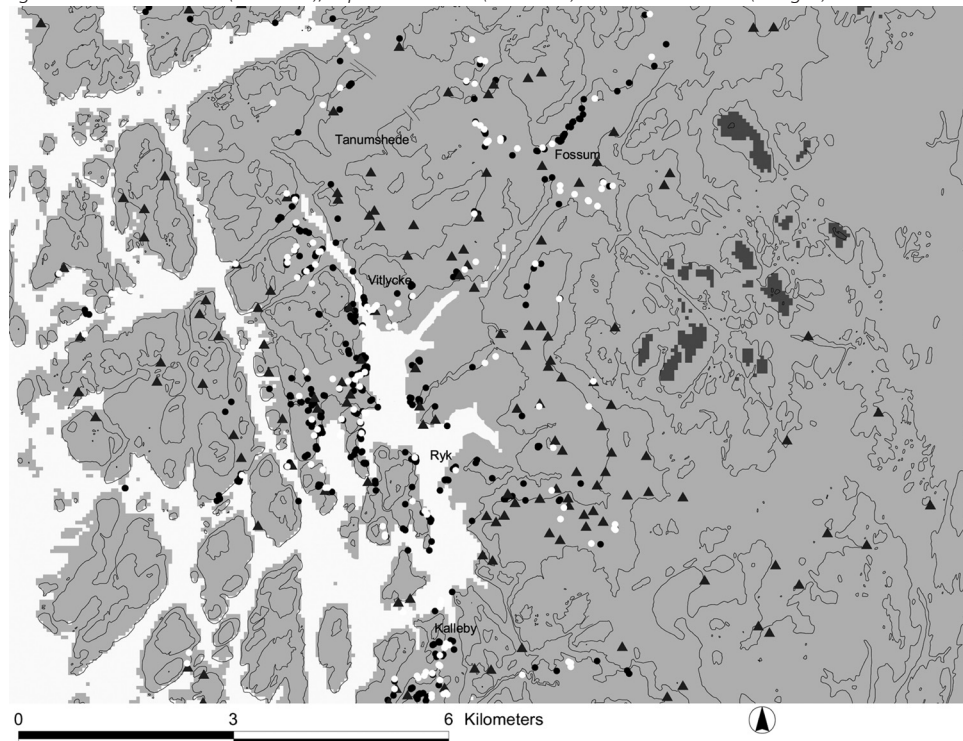


Fig. 4. The Bronze Age shoreline in Tanum. The shoreline according to Pässe (2001, 2003, pers. comm. Nov. 2005). The isolation age of Lake Raftötångstjärnet is marked. As an illustration to the discussion in the main text a **hypothetical** transformation of the curve, with 1.3 to 2.3 m (the mean value 1.8 m is also marked) added to the original values, is shown in the same diagram. All ages are in calibrated years BP. After Berntsson 2005

Fig. 5. The map demonstrate the Tanum area during the Early-Mid Bronze Age, with a shore-line at 14-15 m.a.s.l. and figurative rock art localities (black dots), cup mark localities (white dots) and settlement finds (triangles).



of all the carvings in the in Tanum are located on lower grounds which used to constitute smaller bays or lagoons, isthmuses, strikes, or small islands, during the BA (fig 5.). Moreover, on the whole this study supports Flemming Kaul's comparative ship chronology and demonstrates a clear chronological correspondence between the typological estimated ship depictions on the panels in relation to the regression of the ancient shore level (Kaul 1998, c.p Ling 2004). However there are some examples of ship depictions that clearly diverge from Kaul's taxonomy. Before entering the subject of dating, there is more to be said about the rock art relation to shore displacement. I have tried to conclude some of the most essential observations and made within this study by the following points

- The obtained height data of the rock-art sites demonstrate a close spatial connection to the sea shore during the entire BA. A majority of the rock art sited seems to have been sited closer between 0-100 metres from the sea shore (Table. 1). Moreover, out of this bulk were also the larger part sited between 0-20 metres of the sea shore (Table. 2).

However only a minority of these rock art sites, about 10 percent, seem to have been sited just at the water's edge (Table. 3). An important fact is that many of the rock art sites are situated on rather high altitudes on quite elevated outcrops but during the Bronze Age the sea stood just at the foot of these parts (fig. 5).

- The ship depictions, positions and formations have the greatest impact and dominate the panels not only by their size and frequency but also with their elaborative styles and utterances. The content and situation of the panels may speak in favour of the fact that these were meant either to reflect the actions, conditions or ideals at sea. Some sites were probably meant to be seen from the sea, at least from a close distance.

- The prevailing seascape during BA would thus have connected and united areas with rock art and made these sites considerable more accessible than today.

- The strategic maritime setting of the rock art in a transitional shore zone may reflect different forms of maritime movements, interactions, positions, initiations, ideals and traditions. Some of these panels may also have functioned as strategic meeting points between land going and sea going communications.

Thus low situated localities with ship features from the EBA (1700-1500 BC, c.p Coles 2005:22) are in general situated within the north-western part of the plain on altitudes that range about 25-17 m.a.s.l. (fig. 6). During the MBA (1300-900 BC, c.p Coles 2005:22) the rate of localities are increasing considerable and the activity tend to follow the regression of the shore displacement (fig. 7). Low situated localities with ship features from the LBA (900-500 BC, c.p Coles 2005:22) are in general situated within the southwest part of the plain on altitudes that range about 20-13 m.a.s.l. (fig.8). Finally the low situated localities with ship motifs from the PRIA (500-300 BC) are generally to be found within the southwest and western part of the plain on altitudes that range about 17-13 m.a.s.l.(fig.9)

Consequently, it seems as if the spatial and chronological structure behind the making of the rock art, in a broad sense, tended to follow the regression of the shore-line and the general movement of the land up lift. Figures 6-9 demonstrates this spatial and chronological conclusion. The sea had thus been very present in this landscape and this condition has subsequently affected the rock art activity as well regarding location as for their content. As the sea almost was present everywhere during the BA in the area, this fact may have affected and mirrored the rock art activity on different physical, social, ritual and cognitive levels. In this context may the nodes with rock art be traces of different forms of maritime movements, meetings, interactions, initiations, and ideals.

However, beside this praxis there seems to be a parallel action of making the rock art, regardless to the shoreline which by all means cannot be explained by the same causes and

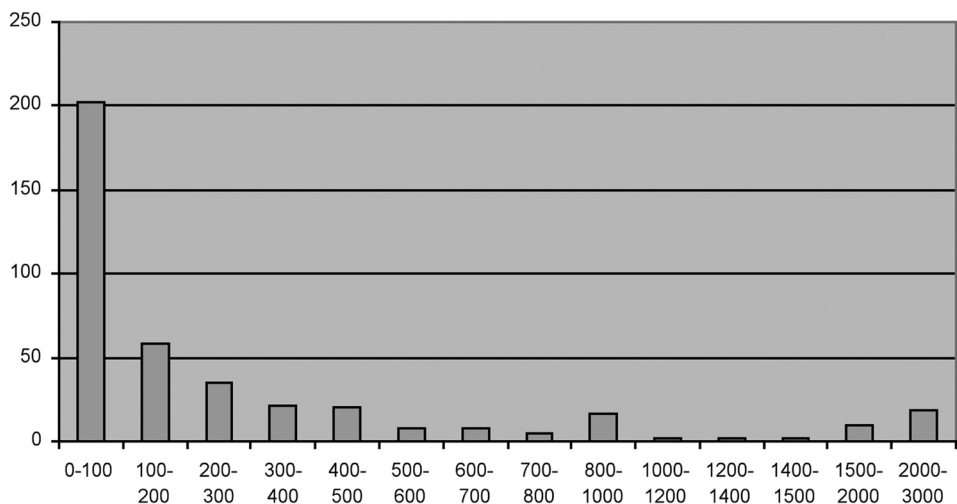


Table 1. The horizontal distance between the rock art sites in Tanum and the Bronze Age shore-line, at 100 meter equi-distance.

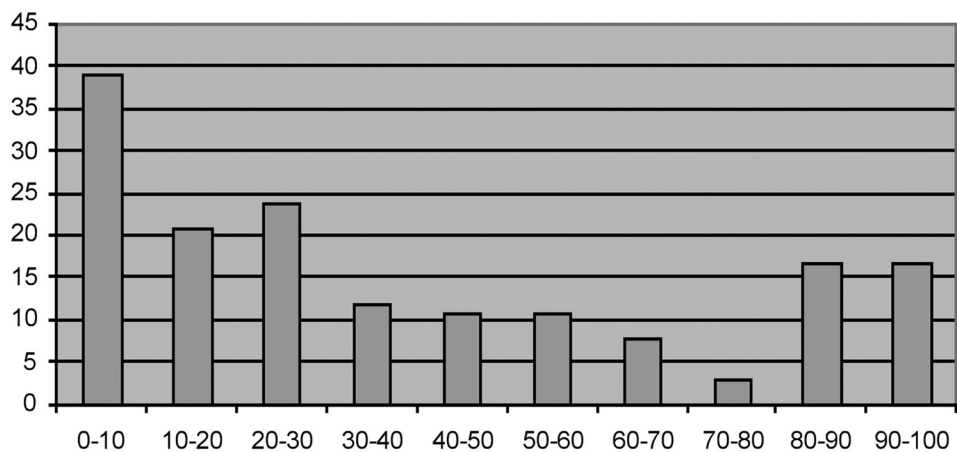
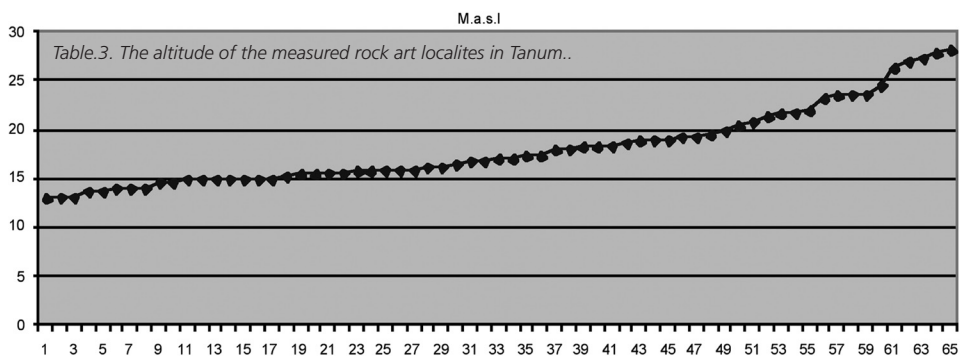


Table 2. The horizontal distance between the rock art sites in Tanum and the Bronze Age shore-line, at 10 meter equi-distance.



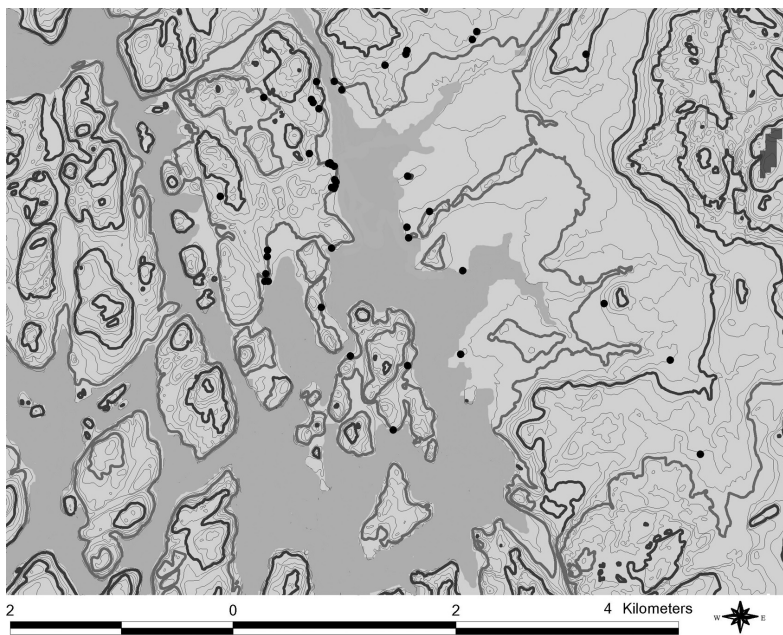
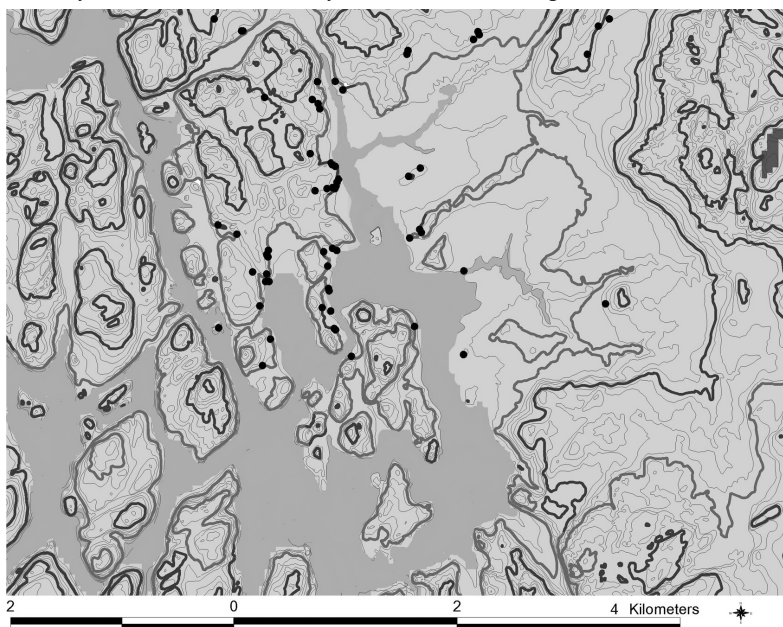


Fig. 6. The low situated area of Tanum during EBA period I-II, with rock art localities (black dots) containing motifs from this period and a shore- level at approximately 15-16 m.a.s.l.

Fig. 7. The low situated area of Tanum during MBA period III-IV, with rock art localities (black dots) with motifs from this period and a shore- level at approximately 13-14 m.a.s.l.. Note that the rock art activity seems to increase considerably and tends to follow the regression of the shore- level.



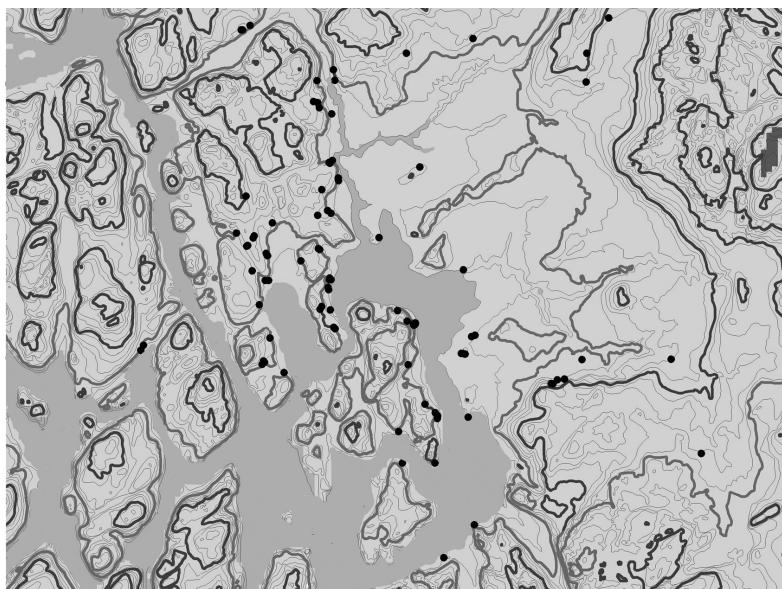
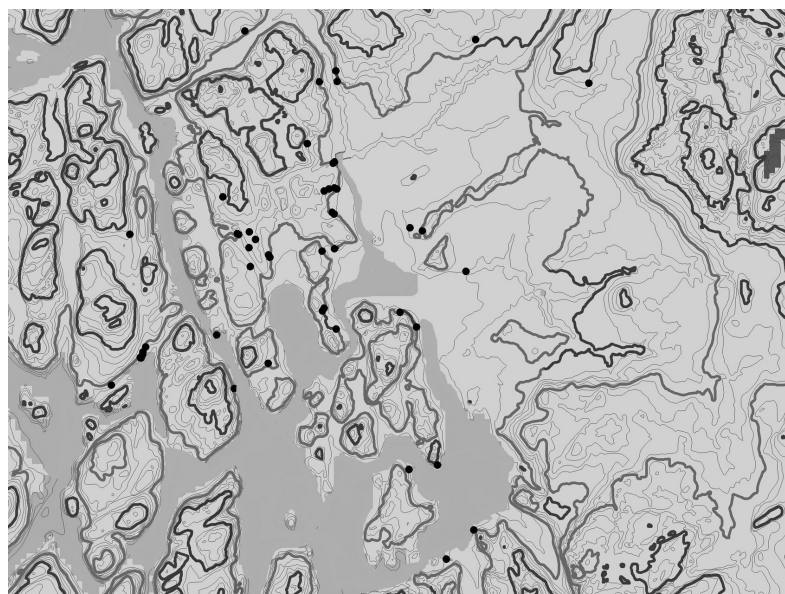


Fig. 8. The low situated area of Tanum during LBA period V-VI, with rock art localities (black dots) with motifs from this period and a shore- level at approximately 11-12 m.a.s.l.. Note that the rock art activity peaks during this period and tend to follow the regression of the shore- level.

Fig. 9 The low situated area of Tanum during PR1A, with rock art localities (black dots) that from this period and a shore- level at approximately 10-11 m.a.s.l.. During this period the low situated areas west of the large plain area became the subject of the making rock art, as for the areas Orrekläpp and Halvordsröd. All in accordance with the regression of the shore- level



2 0 2 4 Kilometers



Meeting and Memory praxis 1500-300 BC

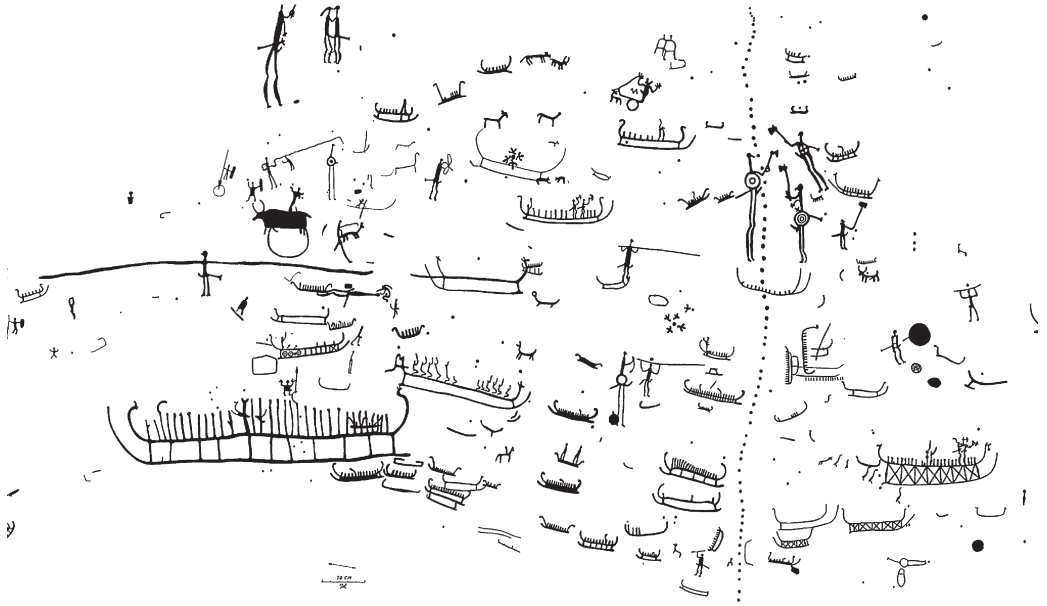


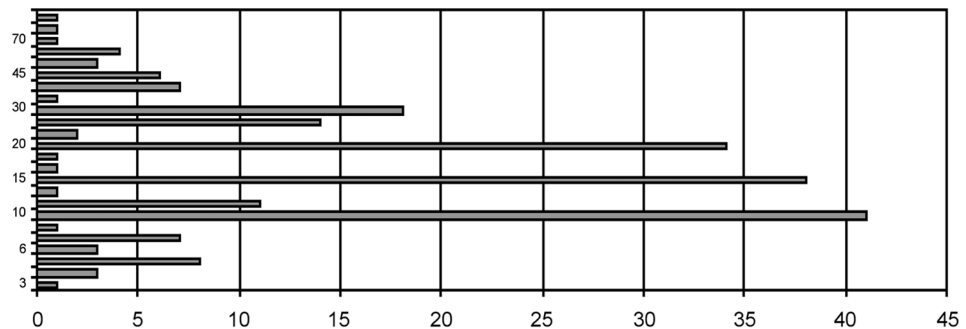
Fig. 10. The Vitlycke panel, Tanum 1, with rock art from EBA period II-PRIA. This may illustrate the hypothesis about meeting and memory praxis, i.e. that some panels were initiated and used close to the sea and later reused and up-graded regardless to the presence of sea. Documentation performed by Bengtsson 2005.

conditions. At many places, as for Vitlycke, Aspeberget, Tegneby and Litsleby, it seems as if panels were altered, merged, re-vitalised and upgraded during later periods (Fredell 2003, Coles 2005 c.p Högberg 1995, Milstreu & Pröhl 1996.) Two concepts may be used to articulate these actions namely, meeting and memory praxis. Initially, some rock art sites were first made close to the sea, in order to

either illustrate, connect or reflect the conditions, structure or ideals at sea. When the seascape was transformed into a landscape, some of these sites became remembered, renegotiated and re-altered into upgraded places of memory and tradition (fig 10).

Another conclusion of importance is that only a minority of panels with rock art,

Table.4. The table demonstrates the inclination of the rock art panels in Tanum.



Parish	Area	Localities	M.A.S.L	Reference
Kville	S. Torp	15640208	15.65	(Fredsjö1981:273)
Kville	Hakeröd	15640228	15.58	(Fredsjö1981:293)
Kville	Hakeröd	15640226	14.20	(Fredsjö1981:302)
Kville	Hakeröd	15640227	15.20	(Fredsjö1981:301)
Kville	Edsten	15640112	14.45	(Fredsjö1981:36):
Kville	Edsten	15640113	12.80	(Fredsjö1981:38)
Kville	S.Ödsmål	15640172	13.88	(Fredsjö1981:172)
Svarteborg	Rom	16030013	13.20	(Coles 2005
Svenneby	Nasseröd	16040006	14.80	(Fredsjö1971:15)
Tanum	Gerum	16060311:	14.73	(Högberg 2000:36)
Tanum	Tyft	16060234 :1	13.07	(Högberg 2000:27)
Tanum	Knäm	16060468	17.93	FMIS
Tanum	Orrekläpp	16060369	13.64	(Högberg 1995:99)
Tanum	Orrekläpp	16060241	14.13	(Högberg 1995: 91
Tanum	Tyft	16060234 :2	13.75	(Högberg 2000:27)
Tanum	Tyft	16060425:1	13.21	(FMIS)
Tanum	Tyft	16060425:2	13.01	(FMIS)

Table 5. The following table encompasses the abstracted 15 qualitative examples of rock art localities that may contribute in a dating discussion in relation to shore displacement respectively comparative chronology.

due to their angle and degree could have worked and functioned as communicative signs over a wide range of area. A majority of the panels has an inclination of 10-20 degrees which means that these must be perceived from close distance. Only those with a 40 degrees inclination or more may have fulfilled this function, which in this case constitutes a minority of the panels in question, about 5 percent (Table. 5). These facts may falsify theories that emphasises the wide range visibility and function of the rock art in the landscape (Nordbladh 1980, Nordenborg Myhre 2004). But this function could have been possible within a range of 0-30 metres. Panels with a heavy inclination at the sea shore may therefore have been best perceived from a position achieved from a boat that passed or aimed at these particular panels as kind of a landmark. There are some rock art-sites made on vertical or almost vertical panels as for Tanum 17,19, 232,311, 344 (Högberg 1995, 2000 Milstreu & Pröhl 1996) that may have been designed

to be seen from the seaside. The seascape would also rather have connected and united areas with rock art (fig. 6-8).

The study also clearly demonstrates that out of all the figurative motifs of the investigated panels the ship depictions are doubtless the dominating ones, especially on lower grounds (c.p Bertilsson 1987). Of the non figurative motives the cup mark is the most frequent which often occurs in equal or more numbers than the ships (Bertilsson 1987). Another general rule of setting is that the localities with cup marks only seems to be most frequent on higher terrestrial grounds, close to prehistoric dwelling sites (fig. 5).

In a wider south Scandinavian context cup marks seem to have been sited considerable closer to the Bronze Age settlements than the figurative motifs (Walhgren 2002, Ling 2004, Ling 2005, Bengtsson 2004, Eriksson 2005, Kristiansen & Larsson 2005 Goldhahn 2005).

The specific setting of rock art in relation to shore displacement

In the following part I will give an account of some of the most significant low situated rock art localities with typological datable ship depictions which fulfils both general and specific criteria's of Flemming Kaul's ship chronology (Kaul: 1998). Thus, the succeeding analysis aims towards a more narrow examination of the ships in the landscape in relation to shore displacement and comparative chronology.

Out of a body of 70 measured rock art localities with over 400 ship depictions have further 17 localities with a total number of 132 ship depictions been abstracted. The altitude and content of these localities makes these into qualitative examples that will be used in a discussion regarding these ship types chronologies in relation to shore displacement respectively comparative chronology. Consequently the following localities in table 5 have been sampled.

On the whole this study supported Kaul's comparative chronology and demonstrated a clear chronological correspondence between the typological estimated ship depictions on the panels in relation to the regression of the ancient shore level. However there are some examples of ship depictions that clearly diverge from Kaul's schema and these observations may actually contribute to modification of the chronological conception of rock art in Bohuslän.

The situation and content of two localities, Tanum 311 and Kville 172, are of special interest of the analysis. I will therefore describe these more thoroughly than the others.

The "Runohäll" at the Ryk area (Tanum 311)

One of the most outstanding rock art panels in Tanum is the one called "Runohällen". It is located in the Ryk area some 30 metres away from the Gerum river. The panel is facing south-east and is rather large, 9 x 6 m (NE-SW) and parts of it slops considerable, up against 50-60 degrees. It consists of no less then "82 ships, 36 human

figures, 23 animals, 14, foot soles, 3 ring crosses, 2 circles, 1 mast like figure, 3 obscure figures and 119 cup marks" (Högberg 2000:36, c.p fig 11). Some remarkable figures and combinations of animals are also manifested on the panel, as the scene with several interconnected animals but also an extremely large bull like figure and a sun-horse connected to a ship (Fredell 2003:164, Kaul 2004) One of the most discussed motifs is a complex pole figure with different kinds of lines and humans attached to and it has traditionally been interpreted as an archaic depiction of a "may pole (Baltzer 1881, Almgren 1927, Almgren, B 1987, Bertilsson 1987, Hygen & Bengtsson 1999, Fredell 2003, Kaul 2004)

Some of the ship carvings on the panel have been subjected to brief dating suggestions. Some scholars have claimed that ship features from period I and onwards occupies the panel (Kristiansen 2002, Fredell 2003) others have suggested that ship features from period II and onwards are represented (Almgren 1987, Bertilsson 1987).

The low altitude of this large and complex rock art panel is, indeed, a very unusual setting, especially compared to other complex rock art sites within the Tanum area (c.p Bertilsson 1987:148). Moreover, the panel has been connected to the sea during the entire part of the BA. The measurements of the motifs on the panel showed very low values, the lowest of them all was a ship depiction at 14,7 m.a.s.l and the highest one, another ship depiction, at 16,2 m.a.s.l (fig. 11). Now, if we recount the height values obtained by the GPS on this panel and relate these to the parameters concerning the shore displacement of the area, the following statement could be made. Out of the shore displacement as a parameter the panel could be divided stratigraphically into three chronological phases; (i) The upper part of the panel rose from the sea during the transition between EBA period I-II. During this time the shore level was closer to 16-16,5 metres higher than today which includes the general fluctuation of high tide of 0,5 metres and it would have been possible to make the ships at the very top of the panel (fig. 11). (ii) During

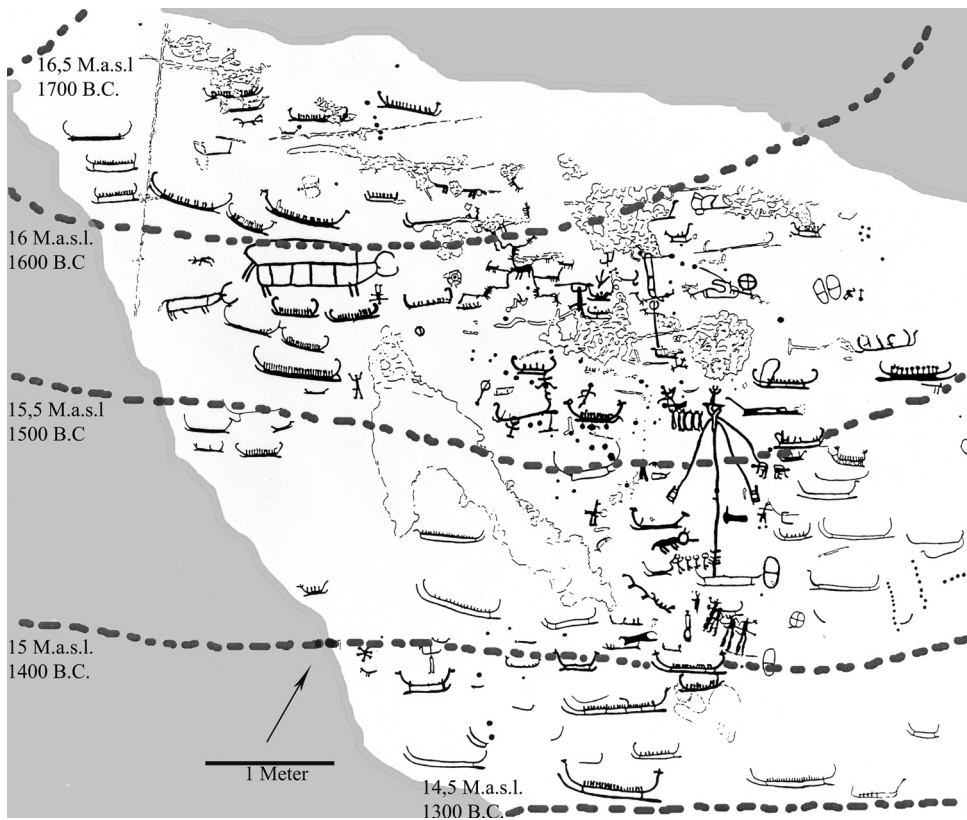


Fig. 11. The figure demonstrates "The Runohäll", Tanum 311, with the measured terrain curves. Documentation performed by Milstreu, G. & Prohl, H.

the preceding phase EBA period II the sea level had retreated to approximately 15-15,5 metres. At this time it would be possible to carve on a large part of the surface. However the high tide at 0,5- metres may have caused an interruption of the carving activity. Bearing this in mind it might be more logic to assume that the lower part of the panel was made when the shoreline had retreated from the entire surface. (iii) During the next phase EBA period III, the sea had retreated from the entire panel down to an altitude of 14-14,5 m.a.s.l (fig. 11). The lowest of the engravings would although still have been sited just at the water's edge.

If we make a closer examination of the motifs on the panel in relation to the two independent dating methods, comparative chronology and shore line dating, the following state-

ment could be made. The most frequent and dateable of all depicted features is doubtless the ship. However there are also plenty of other features and scenes, as bull figures that often occur on panels with EBA features but also human figures with weapons and head gear that altogether point at a late date, presumably LBA period V. During the LBA the sea level had retreated to 12 m.a.s.l. It is therefore impossible to use the shore line as a deductive dating parameter of the LBA features of the panel.

We have to concentrate on the earlier ship images which in this case, pleasingly enough, are the most dominating features on the panel. At a first glance it seems as if the panel has ship depictions from the EBA period Ib, but a closer stylistic examination of these

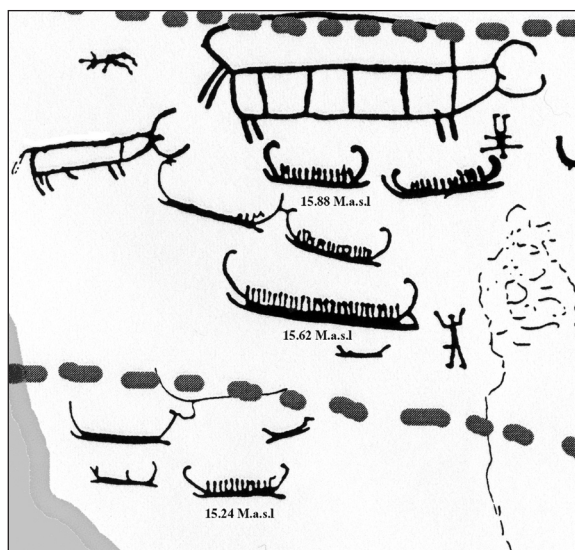
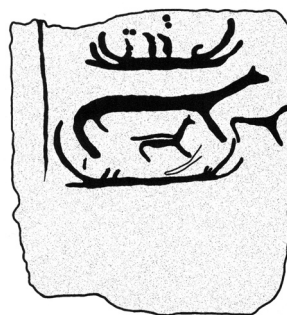


Fig. 12. Cluster I, situated beneath the large bull at the higher left part of the panel with the measured ship carvings. They all have inward turned stems, horizontal or slightly upturned keel extensions and some holds paired crew strokes. After Milstreu, G. & Prohl, H.



Häll N° 6 0 40 cm

Fig. 13. Slab 6 of the Sagaholm barrow. Note the similarities between the ship from this slab and the ship features towards the left part of fig. 12. After Goldhahn 1999.

ships and their relation to the ancient shoreline suggests another chronological conclusion. The ships at the top left of the surface, above the "bulls" shows these traits, as for the inward turned stems, the two paired crews, the slightly upturned keel extensions. But some of them are also attributed with animal heads which points against a later date, presumably EBA II-III.

Beneath the large bull there is a cluster of 7 ship carvings of great interest (fig. 12). The all have inward turned stems, horizontal or slightly upturned keel extensions and some holds paired crew strokes. The ship just under the bull measures 15, 88 m.a.s.l and the lowest ship in this cluster measures 15, 24 m.a.s.l. If we now compare these with the Kaul's chronological scheme they seem, at first glance, to fit with the Rørby ship of period Ib (Kaul 1998:88). However, a closer examination shows that the stems at some of these ships are almost vertical, and that the keel extensions are not horizontal as for the Rørby ship, but instead rather upturned. Moreover, on the left part of this cluster

there are two ship carvings that shows great resemblance to the ship images on the slabs of the Sagaholm barrow, dated to EBA period II-III (fig. 13, c.p Goldhahn 1999: 144, 150). Nevertheless, the altitude of these ships in relation to the BA shore- level suggests a maximum date of EBA period II rather than period I (c.p Fig. 4), particularly when taking in to consideration the tidal fluctuation of the sea -level. However, the strongest argument for this later date is actually another similar ship situated on a lower altitude at the panel. This ship has accordingly been cut over by another ship depiction that shows strong stylistic resemblance to the ships of the Wismar-horn (Glob 1969, Rostholm 1972, Kaul 1998).

The situation and shape of this ship will for sure contribute in a dating discussion. The ship is almost identical with the ship features beneath the large bull (fig 14. c.p fig. 12). It is situated 14, 95 m.a.s.l. and. during the beginning of period II the altitude of the shoreline would have been closer to the 15 m.a.s.l. With the high and low tide in mind it would be more reasonable to assume that

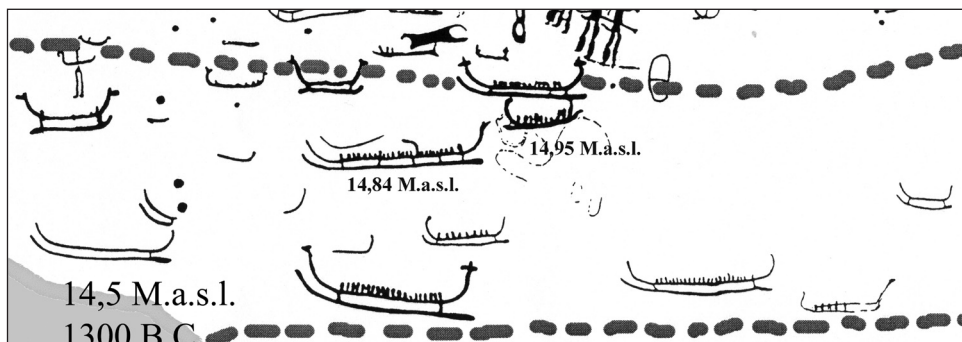


Fig. 14. Cluster II, The lowest cluster of ship carvings on the panel. Some of these ships show strong resemblance to the ship renderings at the Wismar-horn. After Milstreu, G. & Pröhl, H.

this ship was made above this fluctuation, when the sea level had retreated to 14 - 14,5 m.a.s.l. The conclusion of this is that the over-cut ship may be related to EBA period II or to an early phase of period III, when the shore line was closer to 14 m.a.s.l.

This particular ship showing so many similar traits with the ship features of cluster 1: as for inward turned almost vertical raised stems, slightly raised keel extension, a line between the stabiliser and the aft stem, similar crew strokes, suggests a dating from the same era, in this case period II-III. The major cause for this dating assumption would be the altitude of the BA shore level.

Of greatest interest is also that several ships of "Wismar" style occupy the lowest engraved area and the lowest of them all shows a striking resemblance to the ship types of the Wismar-horn (fig. 14, 15). If we agree with the estimated date of the Wismar-horn to period III (Glob 1969: 49-55, Malmer 1981:33, Randsborg 1993: 98-99, Kaul 1998:92) and look at the condition of the rock art panel and at the shore line at this epoch foresees this us with the following interpretation. During period III the entire engraved area became free from the sea because the shore line had retreated further down to an altitude of 14 m.a.s.l. In this context may the ship features, at the top left on the panel with strong resemblance to the ships from the Sagaholm slab no. 6, contribute to the chronological interpretation of the panel (Goldhahn 1999: 144, c.p 13).

Consequently, in relation both to comparative chronology and shoreline dating, it seems as if a majority of the ship features on this panel primarily originates to a late phase of EBA period II or III. Even if there is a great time span between some of ship features most of them seems to have been carved during EBA period III. But the first rock art seem to have been initiated during EBA period II. Apparently became this carving structure a tradition that followed straight through the Bronze Age, most probably in due to the maritime position of the panel that subsequently could have functioned as a significant landing-place.

In concluding the observation made at the runohäll the following statement could be made.

- Out of the shore displacement as a parameter the panel could be divided stratigraphically into three chronological phases: (i) The upper part of the panel was raised from the sea at EBA period Ib. (ii) During the preceding phase EBA period II would be possible to carve on a large part of the surface. (iii) During EBA period III, the sea had retreated from the entire panel down to an altitude of 13,5 - 14 m.a.s.l. (fig. 11). However, the lowest of the engravings would still have been sited just at the water's edge.
- The maritime situation and content of this panel indicates different forms of maritime movements, traditions, interactions, positions, initiations, or ideals. The panel may also have functioned as strategic meeting

Fig. 15. Photo of the lower part of the engraved panel with the lowest "Wismar" look a like ship. Photo by Johan Ling



Fig. 16. Photo of the panel Kville 172 by Å Fredsjö

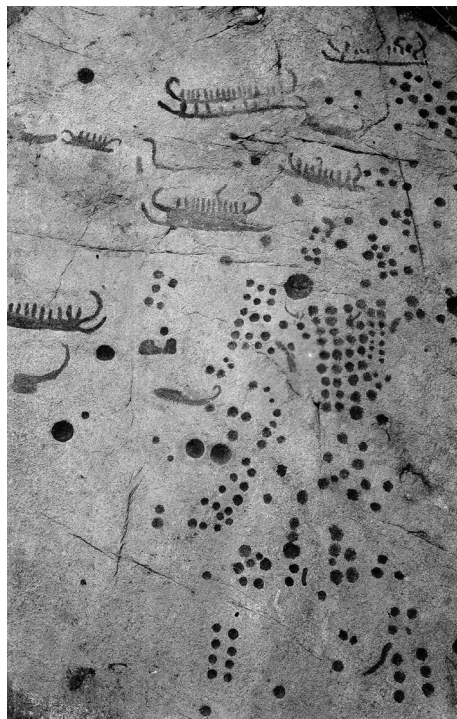
points between land going and sea going communications. All these conditions, features and images may speak in favour of that the panel was used a reused for many different maritime purposes over a long time.

The low situated rock art site in Kville, (Kville 172)

This interesting rock art panel is located in Kville parish, in the area of S. Ödsmål and it is doubtless one of the most important rock art panel of this study.

The panel Kville 172 is situated at the edge of a mountain foot, adjacent to the low situated large clay soil plain in Ödsmål, just 2 meters NW from a beck. It encompasses 7 ship figures, 3 other figures (a weapon? and a razor?) and 230 cup marks (Fredsjö 1981:172-173).

Some of the cup marks are rather large, about 10 cm in diameter. It seems as if the figurative and non figurative rock art on this panel is placed after a general structure or



code (fig. 16-17). Hence, the majority of the cup marks are arranged to the lower part of the panel and the ship figures on the higher. The ship depictions show typical as well as atypical features and traits.

Thus, 3 of the ship depictions have clearly inward curved stems, a chronological trait typical for the EBA, 1 ship has outward turned stems and on the last 2 ship depictions the stems are neither out- nor inwards, but rather neutral. The 3 ship depictions with inward curved stems are subsequently attributed with rather high raised keel extensions, not as high as the common ship types of the LBA but at the same time more accentuated than the horizontal or slightly upturned keel extension of the EBA (Glob 1969, Rostholm 1972, Malmer 1981, Kaul 1998:88). This dating assumption will further be argued for in relation to shore-line dating.

The measurements of the figurative ship depictions resulted in the following sequence counted from the lowest and upward (fig. 17). The lowest ship had a value of 13.88 m.a.s.l.

The subsequent ship, the rather broad one with inward turned stems which altogether reminds of the ship depiction found at from Truhøjgård in Denmark (Glob 1969, Kaul 1998) showed a value of 14.01. The ship with outward turned stems showed a value of 14.12 and the large ship above this, depicted with a feature between the aft stem, the so called stabiliser, showed a value of 14.16 m.a.s.l. The highest ship of them all showed a value of 14.23 m.a.s.l.

These highly interesting values may indeed contribute to this study most central quest, which is to be able to deduct the comparative ship chronology with shore-line dating.

Fig. 17. The figure demonstrates the obtained altitudes of the measured ship carvings of the panels Kville 172. Documentation by Fredsjö 1981.

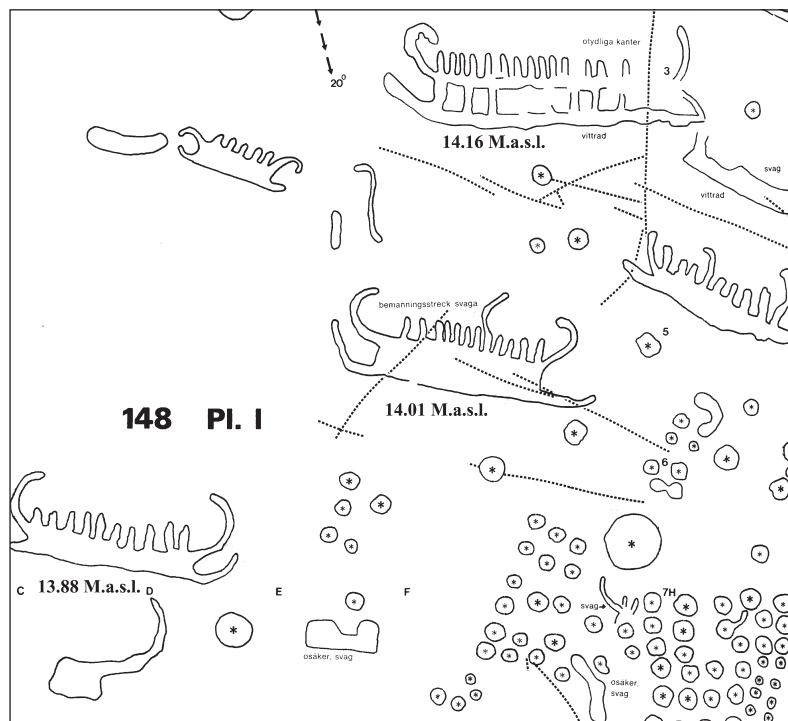




Fig. 17b. Truehøjgård in Himmerland, Jutland, Denmark.
Photo by Kaul/Milstreu.

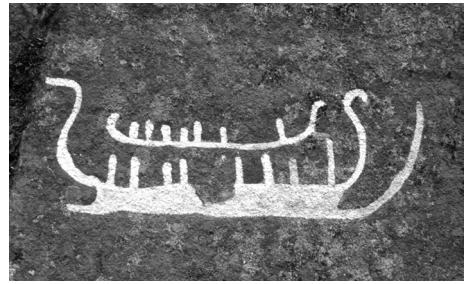


Fig. 18. The ship carvings of the panel Tanum 425 situated 13,20 m.a.s.l. The large lower ship is attributed with outward turned stems that end up in birdlike heads and an almost vertical keel extension. Photo by Högberg

Out of the shore displacement the panel could be divided stratigraphically into three chronological phases: (i) The upper part of the panel was raised from the sea at transition between EBA period II-III, when the sea level was closer 14- 14,5 m.a.s.l. the highest situated ship depiction could then have been pecked. (ii) During the preceding phase EBA period III, the sea level had retreated to approximately 13 m.a.s.l and it would thereby been possible to carve on a large part of the surface. (iii) During EBA period IV, the sea had retreated from the entire panel down to an altitude of 12,5 m.a.s.l (fig 18). The lowest of the engravings would although still have been sited just at the water's edge.

The deduction of the ship types by the shore displacement data resulted in the following general conclusion. It seems as if a majority of the ship features on this panel primarily originate from EBA period III. However the first carvings may have been initiated somewhere between EBA period II-III. Consequently, some traits of these ships has earlier been assumed to indicate a specific chronological period, EBA period I-II, as for the rather broad ship with inward turned stems which reminds of the ship depiction from Truhøjgård in Denmark (Glob 1969, Rostholm 1972, Kaul 1998:88). The stabiliser on the highest ship depiction has also been claimed to indicate EBA period I-II (Kaul 1998:88, Kaul 2003: 110), but these observation indicates rather a later date, presumably EBA period II-III.

A tentative ship chronology of the landscape

In this last section I will first of all try illustrate the most significant ship carvings of the study in relation to shore displacement simply by placing them into the new shore displacement schema of the Tanum area. This figure illustrate in a concrete way that ship the ship carvings on the highest altitude have inward curved stems and horizontal or highly upturned keel extension. On the later ship carvings, the more upturned keel extension distinguish them from the earlier ships. This is the case with the ship carvings from Kville 172.

The keel extension becomes even more accentuated during LBA period IV-V, as for Tanum 425 and Svarteborg 13 (fig. 19-20). It then seems as if the stems are a less significant chronological feature than the keel extension, because inward turned stems occur also on localities with typical features of LBA, as on Tanum 62 (Fig. 19b, C. Bertilsson, G. Milstreu, RockCare 2000) and Kville 228 (Fredsjö 1981:293).

Due to their altitude these particular localities could also be deduced from period I-II. Other Scandinavian examples with ship features, as for the Hjortekrog grave context, demonstrate similar chronological traits (Kaul 2005: 124). Flemming Kaul has also stressed this fact regarding the bronze items (Kaul 1998).

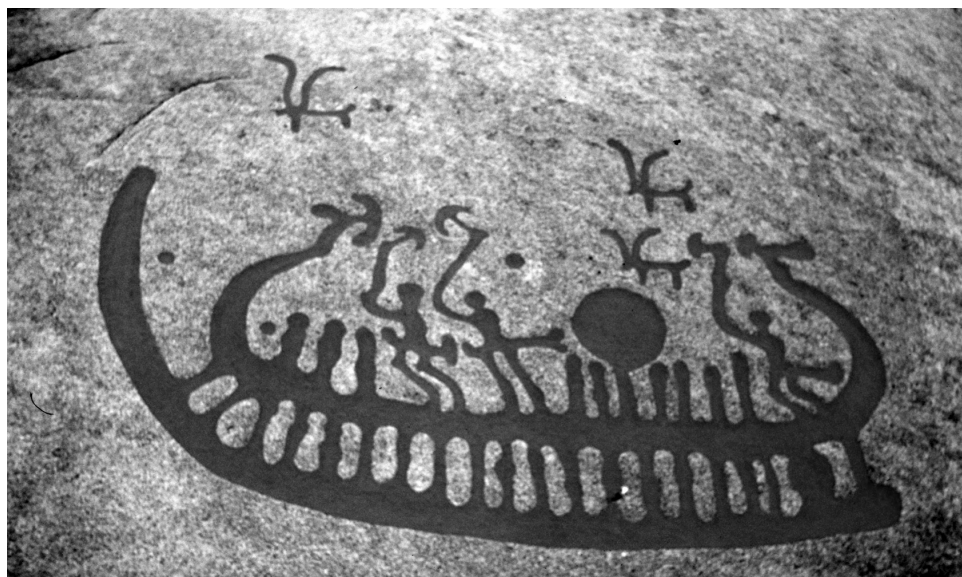


Fig. 19. The ship carving in Svarteberg, Svarteberg 13, at 13, 20 ma.s.l with typical traits of LBA period V. In relation to the shore- displacement this may first have been made during LBA period IV. Photo by Högberg

Nevertheless, the lowest ship carving with outward turn stems that end up in an animal head, could first have been made, due to the shore displacement, during period IV. The ship feature from the locality Tanum 425 illustrates this. It is also attributed with a bird like animal head, a typical trait of period IV (Kaul 1998:89).

Finally the lowest of all the measured ship-depictions, at 12.80 m.a.s.l., demonstrated some very specific forms. They are symmetrical and attributed with a bifurcate stems in for and aft. These traits are assumed to be typical chronological features of the PRIA (fig. 20, c.p Kaul 2003: 192-195). However due to shore displacement these ships could have been made as early as the transition between LBA period IV-V, these observations cannot therefore confirm an instant PIRA dating of these ships. In favour of this assumption, however, is the fact that localities with typical PRIA features, as symmetrical "Hjortspring" like ships (fig. 21) and riders with rectangular shields, are situated at the outmost lower altitudes, as for Tanum 241, 369, 474. I have also noticed that single-lined

Fig. 19b. Tanum 62. Photo by G. Milstreu.





Fig. 20. The lowest of all the measured rock art localities, Kville 114. The lowest ship carvings of the panel measure 12.80. The ship is symmetrical with bifurcate stems in for and aft, a typical trait of PRIA. After Fredsjö 1981



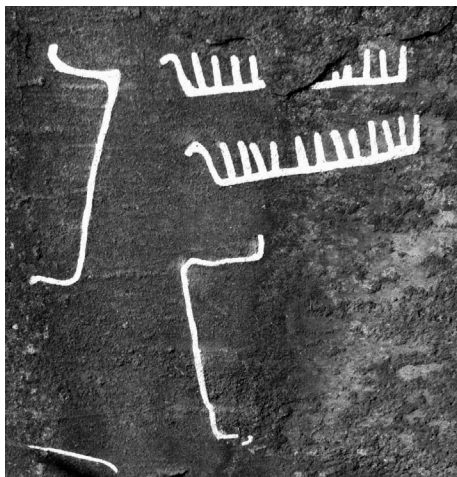
Fig. 21. Two symmetrical "Hjortspring" like ship carvings from the panel Tanum 369, situated 13.6 m.a.s.l.

ship features are represented on the lowest panels, 234, 425:2.

Another observation of importance concerns localities with ship carvings provided with typical traits of the earliest phase of EBA period I, traits similar to the ship depiction at the Rörby sword, dated to period 1b (Malmer 1981, Vandkilde 1996). This fact regard localities as Tanum 22, 66, 1740 (Högberg 1995, 1998, Milstreu & Pröhl 1996.), Kville 156, 157, Svenneby 21, 30, 40 (Fredsjö 1981,

1971). None of these localities are situated beneath the 19 m.a.s.l and this observation is important as well as interesting. Another interesting fact is that that there are ship carvings on these high altitudes, that are very similar to some of the Norwegian ship carvings (fig. 22) that has been connected to LN II period (Mandt 1991, Sognnes 2001, 2003, Nordenborg Myhre 2004).

Fig. 22. The panel Tanum 67 with ship carvings similar to some of the Norwegian ship carvings that have been connected to LN II period (c.p Mandt 1991, Sognnes 2001, 2003, Nordenborg Myhre 2004). Photo: Milstreu.



Why are all these early ship carvings sited on such high terrain parts? Why has none of these typical ship carvings not been placed closer to the sea shore, as the later ship features from period II-PRIA. Could this condition indicate that these ship types were made before the Bronze Age, made by the shore during the Late Neolithic period? This would, indeed, be a logical assumption especially if one considers the high amount of LN material in these areas. It would also suggest that the depicted ships were bases on a real ships and already existing knowledge and tradition of ship building (c.p Kaul 1998).

Wouldn't it also be logical to assume that the open air rock art as the ship carving were first made and articulated in the landscape and this process sanctioned acknowledged these into functional social and ritual symbols which later ended up on bronze items and graves. However, there are no other material evidence, as for depicted ships on items, graves etc, that could support this kind of assumption. But if the altitude of the

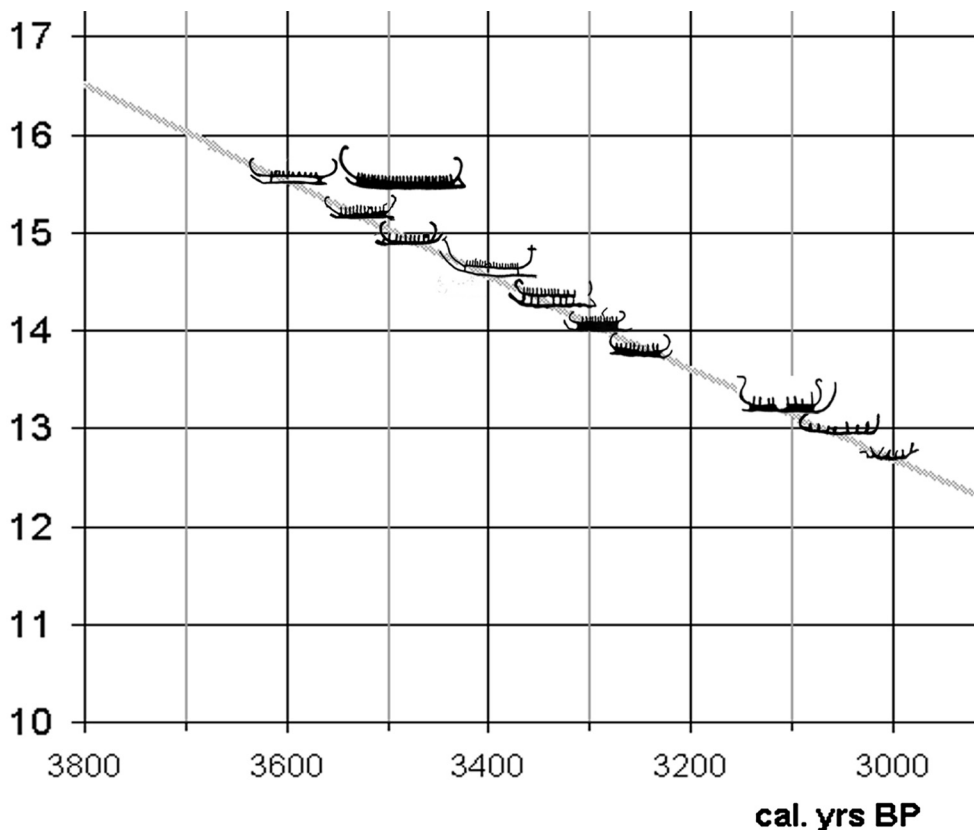


Fig. 23. The lowest of all the measured ship carving in relation to the new shore displacement curve. The figure is based on the major parts of Berntssons shore- line figure of Tanum(c.p Fig 4). Note this figure does not demonstrate the general altitudinal distribution of these ship types in the landscape, only the lowest ship carvings. Photo by Pröhl/Milstreu.

rock art in the subjected areas didn't have anything to do with the age of the rock art why are so many ship features from EBA- LBA respectively PRIA sited on specific altitudes, the former on higher grounds and the latter towards lower grounds?

I will end this attempt with a tentative ship chronological synthesis of the landscape illustrated by the (fig 24). The concept of chronology that I have outlined so far is then primarily based on the altitude of the ship types in relation to shore displacement. Even if this generalisation holds some chronological relevance of rock art in Bohuslän I'm reluctant to the process of remove or abstract ship features from their landscape context.

I will rather recommend study the context of motifs on these panels and the situations of the specific panels in relation to shore displacement.

Conclusion

The landscape has been the point of departure of this study and I will also conclude this attempt with issues and statements regarding the landscape/ seascape.

I have subsequently tried to conclude some of the most essential results of this study.

- The obtained height data of the rock-art sites demonstrate a close spatial connection to the sea shore during the entire BA. A majority of the rock art sited seems to have

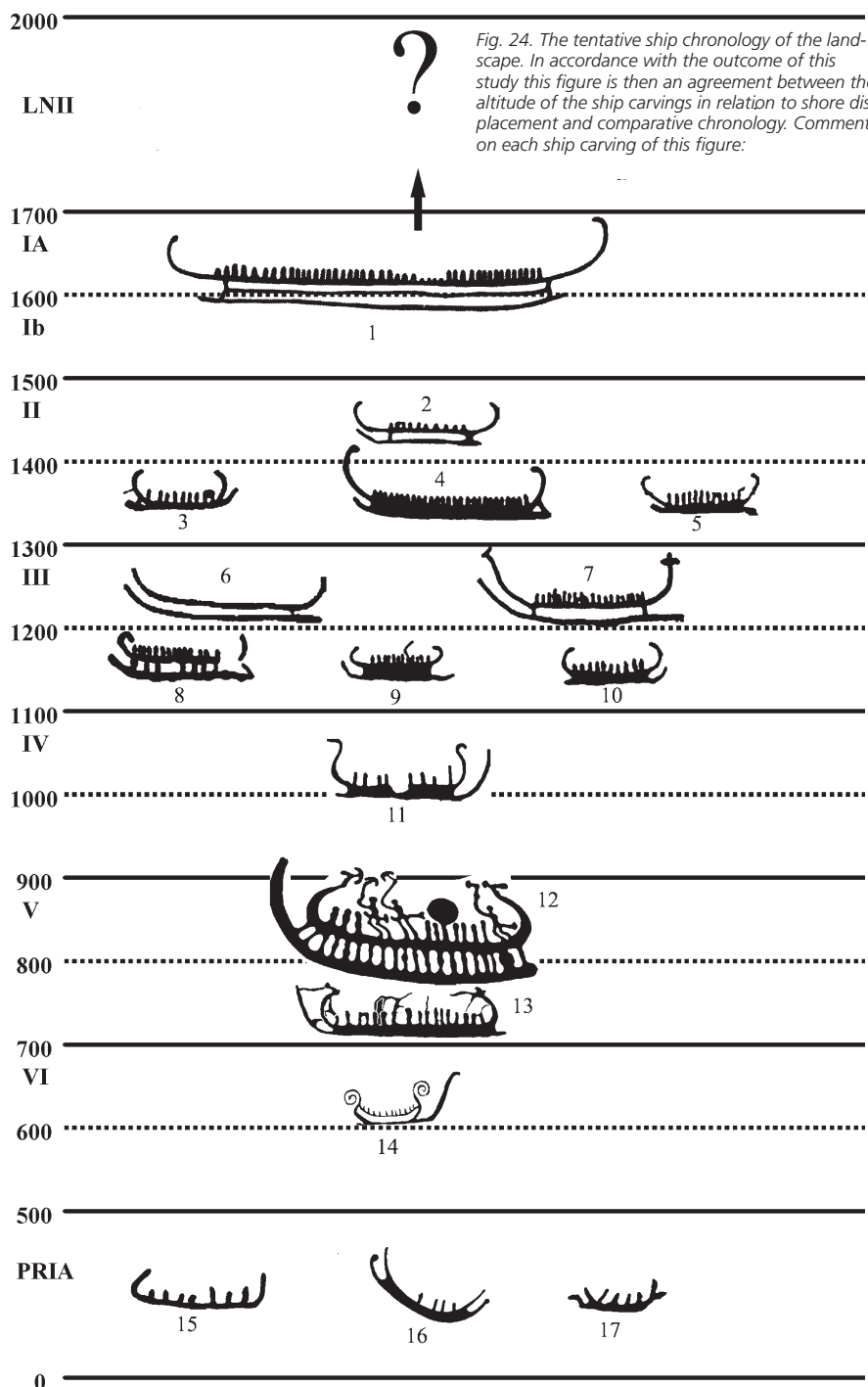


Fig. 24. The tentative ship chronology of the landscape. In accordance with the outcome of this study this figure is then an agreement between the altitude of the ship carvings in relation to shore displacement and comparative chronology. Comments on each ship carving of this figure:

1: Period I

Tanum 22:2 situated 27 m.a.s.l.

Other examples: Tanum 66,1740, Kville 156,157, 56, 157, Svenneby 21, 30,40.

Keel extension, prow: Horizontal or slightly upturned
Stern: Stabiliser oval to its shape made horizontal or slightly downwards

Stems: Inward turned a, half circular bowed stems that ends up in dots.

Features in the ship: Crew lines; some are pair wise with one feature in the stern and one in the aft.

2-5: Period II

Tanum 311: 2 situated 15, 69 m.a.s.l, 3:15, 66 m.a.s.l. 4:15, 23 m.a.s.l., 5: 14, 95m.a.s.l.

Other Examples: Tanum 1, 66, 468, Kville 210, 162,163

Keel extension, prow: Slightly upturned

Stern: Line that conjoins the stabiliser with the stem, stabiliser oval to its shape made horizontal or slightly downwards, stabiliser horizontal or slightly downwards

Stems: Inward turned and convex bowed stems. Noticeable is that these are not half circular as the ship features form period I instead these to be bowed or hooked shaped. However, similar to the period I ship tend also the stems from period II to end up in a point or dots.

Features in the ship: Crew lines; some are pair wise with one feature in the stern and one in the aft, the rest pair wise

6-10: Period III

Tanum 311: 6 situated 14, 69 m.a.s.l, 7: 14, 66 m.a.s.l, Kville 172 8:14, 14 m.a.s.l., 9:14, 02 m.a.s.l., 10: 13, 88 m.a.s.l.

Other Examples: Tanum 1, 3, 65, 66, Kville 172,162,227

Keel extension, prow: Upturned , a trait of more chronological significance than the stems

The more upturned keel extension distinguishes them from the earlier ships. This is the case with the ship depictions from Kville 172 .

Stern: Often a straight line or stabiliser .

Stems: Inward or Out ward turned bowed stems that sometimes ends up in animal head.

Features in the ship: Crew lines; some are pair wise with one feature in the stern and one in the aft, the rest pair wise, Other features starts to occur in the ship as lures and lure blowers, warriors and paddlers as for Tanum 1,6 18, 89

11: Period IV

Tanum 425;situated 13.20 m.a.s.l

Other Examples: Tanum 1,12, 326, Kville 224, 227

Keel extension, stem: Heavily upturned, almost vertical

Stern: Often a straight line or stabiliser

Stems: Out turned bowed that often ends up in animal heads, aquatic bird or horse.

The lowest ship depictions with outward turn stems that ends up in animal head could first have been depicted, due to the shore displacement, in period IV. The ship feature from the locality Tanum 425 illustrates this. It is also attributed with a bird like animal head which is a typical trait of period IV

Features in the ship: Crew, armoured warriors, battle scenes acrobats, adorants, animals, etc

12-13: Period V

Svarteberg 13:12 situated 13.20 m.a.s.l, Kville 112: 13: 14, 45 m.a.s.l.

Other Examples: Tanum 1,325,326 Kville 59, 216, 227

Keel extension, stem: Vertical or almost vertical.

Stern: Often a straight line or slightly down turned stabiliser

Stems: Elaborative out turned that ends up S shaped animal heads, often stylized horses with spiral shaped head with ears.

Features in the ship: Crew, armoured warriors, battle scenes, acrobats, adorants, animals, etc.

14: Period VI

Kville 208: 14: 15.65 m.a.s.l.

Other examples: Tanum 1, 61,62 Kville 216

Keel extension: Vertical or heavily upturned, distorted, stem and keel extension integrated . symmetrical in shape with the stem.

Stems: Out turned that ends up S shaped animal heads, stylized horses with spiral shaped head and ears.

Features in the ship: Crew lines, armoured warriors, animals.

15-17: Period PRIA

Tanum 425:2: 15: 13 m.a.s.l., Tanum 369: 16:13,64 m.a.s.l, Kville 11: 17: 12,84 m.a.s.l.

Other examples: Tanum 30, 75,76,474

Keel extension: Hull.Symmetrical hull and keel extension, same features in for and aft.

Stems: Out turned and symmetrical some are attributed with a bifurcate stems in for and aft

Features in the ship: Armoured warriors, animals.

been sited closer between 0-100 metres from the sea shore.

- The ship depictions, positions and formations have the greatest impact and dominate the panels not only by their size and frequency but also with their elaborative styles and utterances. The content and situation of the panels may speak in favour of the fact

that these were meant either to reflect the actions, conditions or ideals at sea. Some sites were probably meant to be seen from the sea, at least from a close distance.

- The prevailing seascape during BA would thus have connected and united areas with rock art and made these sites considerable more accessible than today.

- The strategic maritime setting of the rock art in a transitional shore zone may reflect different forms of maritime movements, interactions, positions, initiations, ideals and traditions. Some of these panels may also have functioned as strategic meeting points between land going and sea going communications.

On different symbolic and pragmatic levels the seascape may have inspired and affected the making, the utterance, the position and the content of rock art in the area 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 been sited in different types of landscapes and its prehistoric functions and relations should be regarded as complex and full of nuances (Helskog 1999, Nordenborg Myhre 2004, Goldhahn 2005). But it is important that we try to define and distinguish the different patterns and relations of rock art (Bengtsson 2004). A task of great interest would be to analyse and discuss the differences and similarities regarding content and context between the “terrestrial” and the “maritime” areas of rock art in Bohuslän and its relation to other prehistoric remains. A pattern of interest is that complex rock art sites tend to be situated accessible and communicative locations in the landscape, away from the settlement. This trait holds both for the “maritime” rock art as well as the rock art on higher grounds, while less complex localities tend to be sited closer to settlements and graves (Bengtsson & Strid 2005). I began this attempt by discussing the difficulties in analysing and understanding areas with rock art that’s been severely affected by the land up lift. However, the outcome of this fieldwork has given that I see more of the potential and possibilities of this phenomenon instead of all the problems. This study has then resulted in some answers but moreover it has left us with more questions. Why was the making of rock art such intense during the Bronze Age? What societal stress, action or interactions may have caused the making of these elaborative images and utterances? And how correspondence the rock art with to

the others prehistoric remains in this specific landscape/ seascape?

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Acknowledgement

Many thanks to Chris Sevara who made the GIS measurement and GIS applications of the rock art locality Tanum 311 but also for contributing to the improvement of the text. Thanks to Joakim Goldhahn for constructive critique and for contributing to the improvement of the text.

Footnotes

1. Initially the coordinate system used for measurements was RT 90 7,5 gon west. This system was further compared with the other major system RT 90 2,5 gon west. For this purpose several fix points within each area were measured and correlated. In all areas these systems corresponded within the sources of error allowed for this study, a common distributed error of about 5 cm considering longitude, latitude and height.

2. On the higher parts of the granite hills several cairns (163), stone settings (292) and barrows (112) are to be located (fig.xx). There are only 2 gallery graves within the area which is considerable few in comparison to the grave types from the later periods. From this area derives as well a considerable number of settlement finds (178) as well stray finds (76) and hoards (54) mainly dated from the Neolithic to the Iron Age. Several flint artefacts have also been recorded within the area dated from the LN I to EBA II, as for 81 daggers, 14 triangular arrowheads, 88 sickles and saws. (Bertilsson 1987, Algotsson & Swedberg 1997). A total number of bronze items 18 have been registered from the entire parish. The bronze items ranges from the transition of SN II to LBA VI (Bertilsson 1987, Algotsson & Swedberg 1997, Herner 1999, cf. Vandkilde 1996).

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