

# Ship propulsion with water waves instead of sails in the Neolithic and Bronze Age

## A technological interpretation of ship representations in the Scandinavian Rock art

### Abstract

Motivating for this work is the discrepancy between the very late use of sails in Scandinavia compared to the rest of Europe and the archaeologically indirectly determined deep sea transports and hunts of a maritime-oriented, Neolithic and bronze age culture, of which more than 70000 petroglyphs with ship representations have been handed down. In addition, there are very few representations with paddlers or rowers, mostly in unphysiological positions and postures, despite the enormous number of petroglyphs, which are called „rock art“- because of their artistic presentation.

Since sailing technology is required for such extended voyages according to today's experience with replicas of prehistoric ships, the thesis is established that in the culture behind the rock art an advanced propulsion technology that is now forgotten was used instead of the sail - technical decipherable today by means of prehistoric iconographic material. This may have been expected according to Louis Liebenberg's evolutionary model for the development of technology in his book „Origin of Science“. It makes advanced technology development for hunter cultures in demanding environments probable, constitutes the modern humans even, especially if such hunting yields can only be achieved in this technol-

ogy way. The latter can be surely assumed for the coasts of Scandinavia due to archaeological finds. This model was already ethnological validated by Thomas Gladwin for the multihull ship stone age technology from Oceania and its navigation.

In order to confirm also a technology-carrying, inventive climate in this Scandinavian culture, the comparison with an egalitarian technophile, old European predecessor culture from the Danube region finds many parallels: Among others in animistic cultural habits of a water and ship cult with a wandering Mother Nature Goddess who ruled all water sources and was represented by animal pairs especially elk, which is also the mostly depicted animal in the rock art. Confirming such an approach, Scandinavian rock art is typically located in places that are, or had been in former times, overflowed by water. The difficult accessibility and visibility for human beings of some pictures gives rise to an interpretation of rock art as a medium for water information. Astonishingly this approach is today in principle technologically correct, because information storage in water has already been confirmed in research on space travel by the University of Stuttgart. Perhaps in this prehistoric culture a direct dialogue with mother nature should take place through water flowing over the pictures. In this sense

rock art may also have been understood in prehistoric times as a notably religiously connotated, water-orientated information technology, or, rather, the 'water prayer mill of the north'.

With the reading direction following the flow of the water, many detailed representations in the extensive rock art images can then be interpreted as short construction manuals for a special ship structure using water wave energy. The distinctive vertical strokes on most ship decks representations in the rock art images, are usually referred to as the number of paddlers symbolizing "crew strokes", because they are today not technically understood. By means of the used technical approach instead they can be mechanically determined as tiltable mounts attached to an inner skeleton structure of a skin-covered vessel. The energy to move the rock art ships is extracted from the water waves by means of these mounts which carry long pump like skin bellows. In addition, the derived inner skeleton structure for the rock art ships, explains also technically plausible the design of very long ships which can also be seen sometimes in the rock art.

The mechanical benefit of a skin vessel is supported by observations on a well-known skin-ship replica, the "Brendan Voyage", which crossed the North Atlantic in 1976. The fact that water wave energy usage for ships is principally possible was also demonstrated with an experimental catamaran, the "Mermaid II", crossing the Pacific in 2008.

Anthropomorphic representations, which appear especially in the more recent rock drawings, are explained now by means of the evolutionary technology development model by Liebenberg as metaphors. These are iconic pointers to advanced new technology, in the rock art turned up after the long use of the basic "crew strokes" technology - usually such pictures are interpreted today just as simple misshaped warrior images. Guided by means of these metaphors, pneumatic and hydraulic components and indications of detailed technology in the ships

can now be found in the rock art pictures and on Danish bronze artifacts looked over. The design and interconnections of bellows pumps reveals systems for pressure increase and pneumatic storage as well as hydraulic components to increase propulsion performance. The many pictures of "feet", "wheels" and "carriages" together with the "circles" in the rock art get so a technical explanation which also includes the "armament" and the non-physiological misshaped annexes and the long and strong legs of these anthropomorphic forms in the rock art. In addition, the displayed use of a special mobile hydraulic ram in the rock art by means of "bulls", technically recognizable in many pictures by means of special return lines or anthropomorphic metaphors with horns, helps to use stored pneumatic energy easily and self-controlled for automotive ship propulsion.

Probably due to this special automotive characteristic of these self-propelled vessels, their pictures can now be seen so predominantly with their parts and metaphors on the rocks, the last pointing to different used ship techniques -today novel.

These techniques reveals the technological and iconographic knowledge of this prehistoric people and technophile seafarers and in addition their performing of the rock art with usage of different symbolic abstraction levels.

Together with the overflowing, information storing water the rock art images can in this way culturally understood as a prehistoric technology system, informing the seas and the Goddess of all water - perhaps for the wellbeing of these special "quasi living" ships, thus confirming the assumed animistic but also technically orientated worldview behind the rock art.

Ship propulsion with water waves was the basis for a central prehistoric long distance mobility system.

The shown technological approach to the interpretation of rock art culture, with the technical analysis of the various depicted ships and their iconic environment, confirms that the maritime rock art culture

had an alternative, sail-superior, even culture supporting propulsion technology, for a very long time - widely used and innovatively developed - thus confirming the evolutionary model for technology emergence with anthropomorphic metaphors for special advanced techniques adopted in this paper.

What is more, new technological potential for today carbon free sea transport could be found in the prehistoric rock art.

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### **Schiffsantriebe mit Wasserwellen statt Segel in Neolithikum und Bronzezeit**

Eine technologische Deutung der Schiffe in der skandinavischen Rock Art.

Hausarbeit im Studiengang Kultur der technisch wissenschaftlichen Welt (KTW) WS 2019/2020 am *Institut für neuere Geschichte Abteilung Wissenschafts- und Technikgeschichte Technische Universität Braunschweig*  
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*The paper is in German – available by contacting the author.*

*The technical approach for (automotive) ship propulsion exhibit in rock art by means of the potential part (left) and the kinetic part (right) of water wave energy.  
Panel Simris 23, Simrishamn, Sweden. Photo and rubbing: Tanum Rock Art Museum.*

