

# Ale's Stones

## A Monument of Recycled Boulders?

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### Abstract

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The largest still existing stone ship in Sweden is Ale's Stones in Kåseberga, south-east Scania. Since 1989 small investigations have been carried out in order to obtain information about chronology, function and relationship to the habitation in the surroundings. Today, we have a great many indications of a dating of the monument to the Late Iron Age–Viking Age.

After a presentation of the project, its organization and a brief account of the results this article will discuss problems concerning the construction of Ale's Stones. There are some complications as the ship-setting has been restored on two different occasions. In spite of this the excavations have provided positive aspects. On many stones we noticed cupmarks in quite different positions. Most remarkable and surprising, however, was the discovery of cupmarks quite near the bottom of several boulders, far below the surface. This means that these special cupmarks were not visible to people visiting or using the site. However, the boulders must have been transported from other places not too far from the Kåseberga ridge, and they may have been taken from ancient monuments such as Neolithic passage tombs, cemeteries or cult places presumably from the Bronze Age, at a time when it was no longer taboo to remove stones from the place. Furthermore, the origin of the stones will be discussed briefly.

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## Introduction

In this article a short report will be given on the investigation of Ale's Stones. Several problems are to be considered in the project, not only dating and construction but, above all, the religious and/or political meaning of the monument. Some of these problems have been

preliminarily discussed in local periodicals. When the investigations are completed, they will be treated exhaustively in a publication available for international readers.

In this connection the main purpose is to pay attention to the cupmarks on several boulders, especially those below the surface of the ground. According to our hypothesis, these cupmarks



Fig. 1. Ale's Stones from the north-east. Photo: Curt Roslund.

belong to an earlier period than the ship-setting, and the boulders are supposed to have been moved to the ridge and used for the construction of the ship-setting. How to explain all the others with their position on various parts of the boulders is a problem to be treated later.

Ale's Stones (*Ales stenar*), situated on the Käseberga ridge in the parish of Valleberga, south-east Scania, is one of the most well-known prehistoric monuments in Sweden. This stone ship is extremely large, 67 metres long, 19 metres wide and consisting of 59 stones including the so-called rudder stone outside the south-eastern stern, most of the stones being thick and some of them very high. Above all, the view over the Baltic Sea from the site and the surrounding landscape is exceptionally beautiful (Fig. 1). It has been estimated that, every spring and summer during the last ten years, more than

400,000 tourists have visited the place. However, this invasion of visitors is a rather new phenomenon.

Ale's Stones has been restored twice, the first time in 1916 and then again in 1956. On both occasions the ship-setting was in very bad condition and therefore it was necessary to remove great quantities of sand and earth from the site and to erect fallen boulders and so on. Especially the restoration in 1956 was executed in such an insensitive way that the original surface could have been destroyed totally or, at any rate, to a great extent.

Archaeological excavations have never been carried out here. But the place with the monument was mentioned as early as 1515 and afterwards several times in texts and on maps (Åberg 1960, pp. 39 ff.; Strömberg 1990, pp. 39 ff.). In these connections the ship-setting has

been given various names. One place-name scholar explains the *Ale* in the name as the denomination of a cult place from a period somewhat earlier than the Viking Age (Ljunggren 1960, pp. 3 ff.). Another researcher, a member of the Hagestad Project, asserts in a detailed analysis that the name means the large stones on the ridge (Areskoug 1978, pp. 54 ff.). A third one cannot help us to choose between these two interpretations (Pamp 1990, pp. 21 f.).

After the first restoration Oscar Montelius wrote an article about Ale's Stones in which he suggested a dating to the Viking Age for this type of large monument. He admits, however, that some other ship-settings were constructed during the Bronze Age and somewhat later. We are told about the different kinds of structures, which could be called "ship-settings" built either of slender standing stones or large thick boulders, or "stone-settings in ship form" with smaller recumbent stones (Montelius 1917, pp. 41 ff.). Later on these different kinds of structures as well as boat graves have been discussed in many connections (see for instance Capelle 1986, pp. 1 ff.; Ohlmarks 1946; Müller-Wille 1970, pp. 7 ff.; Strömberg 1961, pp. 51 ff.; 1962, pp. 82 ff.).

## Reasons for an investigation

After some preparations a project called "Ale's Stones and the Kåseberga Ridge" was initiated in 1989. There were two reasons for this:

(1) For many years the parish of Valleberga with Kåseberga village and Ale's Stones has been included in the Hagestad Project, an investigation of long-term settlement development in the coastal region of south-east Scania. Important parts of the results as well as surveys were gradually published in a series of monographs and articles (some of them quoted in Strömberg 1980, pp. 47 ff. and 1995c).

In the 1980s it had been considered urgent to do at least some minor investigations at the ship-setting in order to obtain information about

certain construction elements and perhaps get indications for dating. The dating was, of course, especially important for the treatment of problems concerning the connection between the habitation in Hagestad and the neighbouring area as well as the big monument. At the same time it would be possible to find traces of at least seasonal sites from different prehistoric periods on the ridge. These would be a complement to our finds from the same ridge in the southern part of Hagestad. We had already studied stray finds from Kåseberga in museums and private collections and then found some artefacts of flint, bronze and other material not far from the ship-setting but also at some distance.

(2) In the 1970s Curt Roslund of the Department of Astronomy, Chalmers University of Technology in Gothenburg, studied different types of ancient monuments from an archaeoastronomical basis. His measurements of Ale's Stones resulted in a theory that the stones had been set on the peripheries of two opposing parabolas. This very large stone-setting could have helped people living in the neighbouring villages to use the stones to find the precise time of the summer solstice during the Late Bronze Age or Early Iron Age (Roslund 1979, pp. 6 ff.). However, he did not maintain that this had to be the only reason for building the monument.

Some years later, in the 1980s, a discussion about the dating and function of Ale's Stones started, particularly in newspapers but also in periodicals. With reference to Stonehenge, the usual dating to the Late Iron Age–Viking Age was rejected, and instead it was suggested that Ale's Stones may have been built during the Bronze Age as a kind of sun calendar. Other writers had no opinion about the dating but argued for an investigation that could solve the chronological problem as well as give an explanation of the function (Strömberg 1987, pp. 30 ff.).

## The investigation

In 1989 we received permission to carry out investigations at Ale's Stones. However, when the fieldwork started this year, it was planned in a very modest way. The main reason was that the restorations had probably diminished our possibilities of finding undisturbed layers or undamaged burial structures. Another reason was that we had the intention not to cause any large interference to a monument of this dignity.

A reason of a more practical nature was that we had to dig small trenches of a size that could be filled in during the same day. Early next day the first groups of visitors were supposed to arrive. Another important problem was that a large area around the ship-setting was used as grazing for a number of bulls and cows. That too meant that no trenches could be left open at the end of the day. Finally, the financial resources were very scanty, so we had to do very small excavations or other kinds of investigations every year and have not yet been able to finish the fieldwork.

From the beginning the project was conducted from the Institute of Archaeology in Lund with collaborators from various subject fields. Curt Roslund, already mentioned as a specialist in *archaeoastronomy*, wanted to accomplish his programme of measurements at Ale's Stones and the neighbouring areas. He has taken part in the fieldwork on various occasions and written articles about his view of the structure. According to his new measurements it would have been possible to see the sunrise from the rudder stone at the summer solstice about 300 AD, if there were no trees over Borrby east of Käseberga ridge. But if there were 15-metre-high trees, we have to change the chronology to 300 BC (Roslund 1991a, p. 181).

A group of *geologists* in Lund under the leadership of Jan Bergström had studied the material in all the stones in order to achieve a reliable basis for a coming investigation (Bergström *et al.* 1988, pp. 1 ff.). Professor Bergström, now at the Swedish Museum of



Fig. 2. Stone No. N1, inside with cupmark. Photo: Jan Bergström.

Natural History in Stockholm, has further taken part in our discussions particularly concerning the origin of the boulders. At an early stage of the investigations we spent a lot of time in a careful study of every single boulder, hoping to find well-preserved *cupmarks* as well as weathered items (the first cupmarks were discovered before we started the project, see for instance Fig. 2). After the documentation it was valuable for us to discuss various problems with Bergström. For example, he helped us by rejecting our interpretation of a "figure" from the Bronze Age as a natural transformation of the surface by weathering (Strömberg 1991a, fig. 4).

During the first season we discovered several cupmarks near the ground and even at a lower level. Later we found cupmarks quite near the bottom of the stones, far below the surface of the ground.

Rabbe Sjöberg from the University of Umeå contributed an investigation of the condition of the boulders, which means whether or how much the surface has been damaged by *weathering*. He used a Schmidt Test Hammer. According to his hypothesis, the sides of the boulders facing the sea would be more weathered than those facing inland. Also stones covered with sand for a long time or lying down would show a lower degree of weathering. The results have been published in a report (Sjöberg 1993). However, there are some complications to consider, whether an unknown number of boulders were taken from, for instance, graves where the stones were either protected from or exposed to the winds for a long time. This will be discussed later on.

One of our first desiderata was to map the *phosphate* in the soil in a rather large area, particularly outside the ship-setting, in order to find out if there could have been intensive activities of some kind somewhere. Kjell Persson of the Archaeological Research Laboratory in Stockholm analysed our samples (Strömberg 1990, pp. 86 ff.).

Among other investigations made at Ale's Stones or of material from this site, the following may be mentioned:

- 1 Analyses of *cremated bones* by Professor Ebba During, Osteological Research Laboratory in Stockholm
- 2 *Radiocarbon* analyses in Uppsala and Lund
- 3 Small tests with *georadar* by Peter Ulriksen of Lund Institute of Technology
- 4 Minor investigations by *metal detector* with assistance from the National Heritage Board in Stockholm
- 5 A test with *lichenometry* made by Danerud and Lundell at Chalmers, Gothenburg (1991).

Altogether we spent considerable time on the Käseberga ridge, excavating or doing other sorts of investigations including reconnoitring tours in the area. During that time we were introduced to many visitors from all the world and we also noticed that there were various activities at Ale's

Stones such as theatrical performances, musical arrangements, poetry programmes as well as weddings and other festivities. The explanation often was that the wonderful landscape combined with an extraordinary monument would be an appropriate background for all these meetings (Strömberg 1995a, pp. 17 ff.).

During the same time we often discussed how to explain Ale's Stones, and some visitors had ideas about the reason why the stone-setting was built just here. A great number of explanations were cited. This resulted in an article about old and new interpretations (Strömberg 1995b, pp. 1 ff.). Later B. G. Lind, an independent scholar from Malmö, maintained that the ship-setting is a sun calendar from the Bronze Age (Lind 1996). However, his theory has not been acknowledged by established archaeoastronomers.

## Summing up the results

### *Boulders, packing stones and cupmarks*

After the first season at Käseberga a publication was devoted to Ale's Stones with articles by, among others, members of the project (Bergström 1990, pp. 23 ff.; Roslund 1990, pp. 113 ff.; Strömberg 1990, pp. 33 ff.). Later several papers were published about various aspects of the subject (e.g. Roslund 1991a, pp. 179 ff.; 1991b (together with Strömberg), pp. 1 ff.); 1993, pp. 5 ff.; Strömberg 1991a (together with Roslund), pp. 1 ff.; 1991b, pp. 159 ff.; 1992, pp. 19 ff.; 1994a, pp. 13 ff.; 1994b, pp. 73 ff.; 1997a, pp. 51 ff.; 1997b, pp. 9 ff.) Even if the fieldwork and research of other kinds are not brought to an end, a number of results will be mentioned briefly.

The packing stones around many boulders have been studied carefully. The raw material is sometimes the same as in the standing stones, but often also small stones from the seashore. As regards the boulders, see below in this article. There must undoubtedly have been very elaborate planning behind the construction.

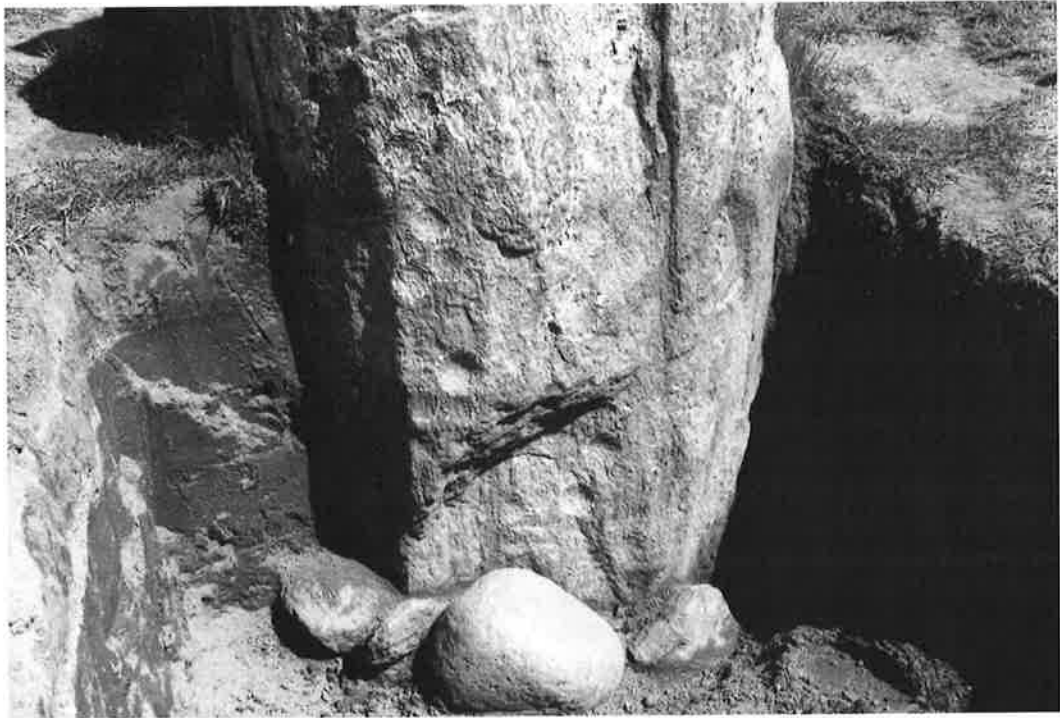


Fig. 3. Stone No. 25 with cupmarks also near the base. Photo: Märta Strömberg.

To be able to study the lower part of the standing stones, not only the packing stones, we carried out small excavations at a number of boulders, sometimes from the inside of the ship-setting, occasionally from the outside. Our intention was initially to choose stones which are supposed to stand in their original position because we would then have a chance to find artefacts of different kinds.

It was also important to look for cupmarks or other signs on the boulders and to compare the surface in this protected position with that of the surface above the ground (Fig. 3). However, we soon decided to use another strategy and also do some investigations at a few of the other stones. The reason was that it would be interesting to compare the results from these both categories. There are cupmarks on at least a dozen boulders, but the investigation is not completed and we must therefore put off the report. Obviously cupmarks are represented on many stones and we find them on different places, such as on the

top, near the bottom, on the inside as well as the outside of the stones. Furthermore, they are sometimes very well preserved with a smooth surface, in other cases with a rough surface (Figs. 4a and 4b). Most of them are of the same size with a diameter of a few centimetres.

## Excavations and radiocarbon dates

There are now six radiocarbon dates (published by Strömberg & Roslund 1991 a/b, pp. 1 ff. and Strömberg 1997b, pp. 9 ff.; see Fig. 5) from Ale's Stones and quite near the monument. No. 1 comes from a point not far from the rudder stone, which according to Roslund is supposed to have been important for the construction of one of the parabolas. Charcoal from a young oak was found by the excavation. The calibrated result was 545–745 AD or about  $650 \pm 105$  (U-a 1581). No. 2 derives from the centre of the ship-setting. In a trench we found a large pit



Fig. 4a. Stone No. S 27 with at least twelve cupmarks.



Fig. 4b. Stone No. S 27 with cupmarks marked with crayon. Photo: Klas Hyltén-Cavallius.

with earth and charcoal from beech, calibrated date 820–980 AD (U-a 2578). No. 3 was taken at some distance from No. 1. Charcoal from hazel was dated to 640–790 AD (U-a 2579). No. 4 comes from an excavation at an undisturbed boulder, No. 24 on the northern long side. Charcoal was found under the stone together with a fragment of a cremated bone, probably from a human being, and dated to 540–650 AD (Lu-4126). No. 5 derives from carbonized food remains in a decorated urn, found in the southern part of the ship-setting, and the date was 540–650 AD (Lu-4123). The last dating in our series is No. 6, which derives from the same urn but consisted of a filling with charcoal and some cremated bones. The result was 330–540 AD (Lu-4124).

In these cases the laboratories in the first place (one Sigma) reported on a measurement

involving a confidence of 68.2% which means a possibility of one to three that the real date will not fall within the dated time range (cf. Strömberg 1997b, p. 14). All the C-14 dates and their different calibrations, even with a confidence of 95,4% (two Sigma), will be discussed in a special paper and then in connection with the structures from where the samples were taken. In the meantime the number of C-14 dates may also increase by continued investigations. Until we have the opportunity to bring the research to an end we must refrain from too specified statements.

However, the radiocarbon dates inform us about some of the activities in this area from various parts of the Iron Age to the Viking Age. A reliable conclusion would be that there was either a cemetery or a cult place (or both) during the Migration Period and at least in the Early

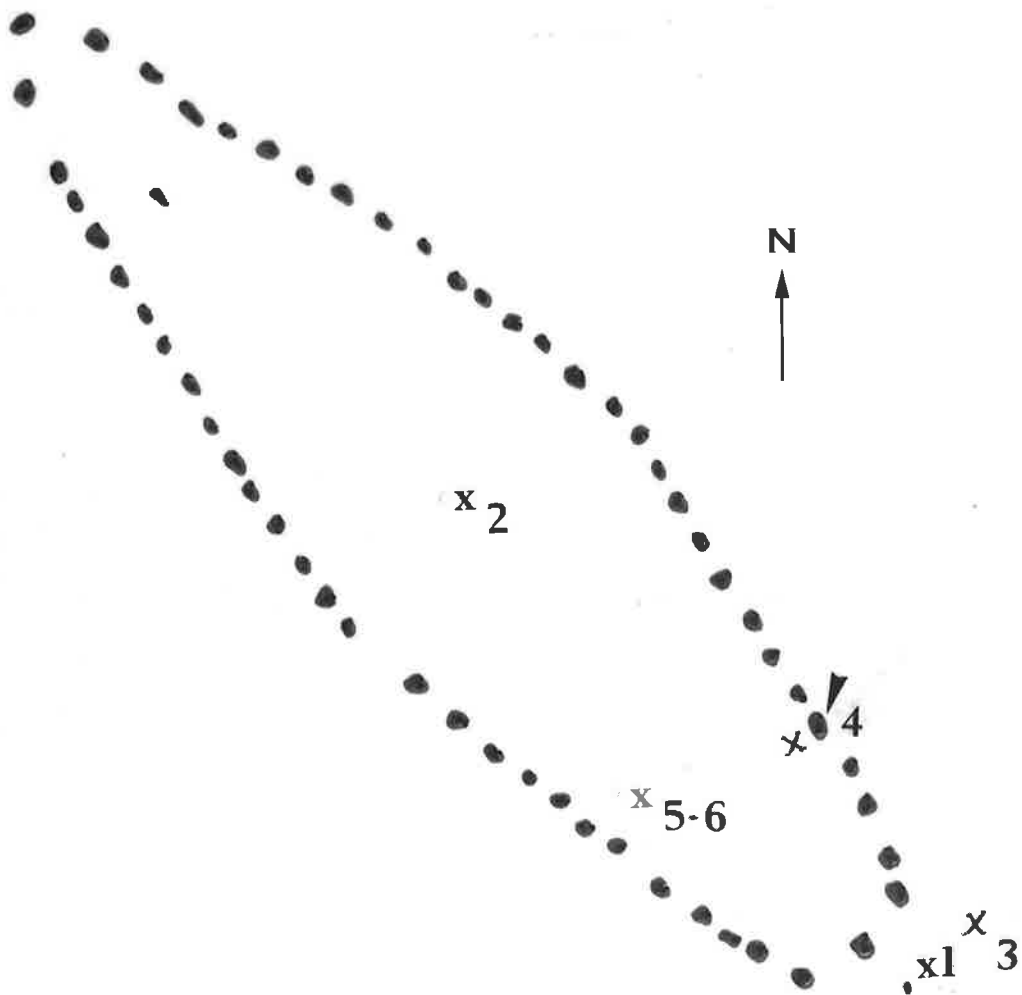


Fig. 5. Radiocarbon dating has been done on six different samples from the locations indicated.

Vendel Period. This may explain the existence of the urn with the cremated bones, which perhaps could derive from a funeral pyre. The stone-setting was then constructed during the Late Vendel Period or perhaps during the Viking Age.

Finally, another dating has to be mentioned. It comes from a disturbed layer with finds from the 20th century and some soot and charcoal. B. G. Lind, mentioned above, had been allowed to take part in a small excavation. A spot 60–70 centimetres from the northern stern was chosen.

He asked for permission to use the charcoal for a radiocarbon dating. In the project we had, at the time, no resources for this purpose and furthermore we hesitated about using material so closely connected with damaged layers. The result of this was  $4600 \pm 140$  BP with the following calibrations: one Sigma 3613–3600 and 3519–3094 BC; two Sigma 3657–2913 BC (LuA-4012). In my opinion this must be a date from a disturbed Neolithic fireplace and it has nothing at all to do with the ship-setting. We have already found a great number of artefacts



from seasonal habitations in different parts of the Kåseberga ridge, quite near and even within the ship-setting, long before the building of Ale's Stones.

## Large ship-settings in south Sweden

Ale's Stones is not the only large stone-setting in the form of a ship. In connection with the information of the radiocarbon datings some ship-settings were mentioned (Strömberg 1997b, pp. 18 ff.). At Kabusa not far from Kåseberga a large stone-setting of this kind, now covered with earth, has been discovered. Three large ship-settings were also investigated at Färlöv north-west of Kristianstad. Standing stones have been taken away but several foundations were left undamaged. One of these ship-settings was 80 metres long, which means that it was larger than Ale's Stones, even if the standing stones probably were not of the same size. The results of the radiocarbon datings suggest that they were built during the Vendel Period and Viking Age (Björk 1999, pp. 67 ff.). Another ship-setting, "Stenkyrkan" at Vinberg in Halland, has recently been discussed. It could belong to the same category of large monuments (Artelius 2000, pp. 190 ff.). These are most interesting places to compare with Kåseberga. However, there could be more than one explanation for the function of these sites. This important problem cannot be discussed in this short paper.

## The organization for the building of Ale's Stones

*Reusing stones from sites with ancient monuments?*  
If we use the radiocarbon datings as a basis for conclusions about the point of time when Ale's Stones was built, we have to consider how people managed to realize this project. About 60 large boulders and an extremely large number of packing stones had to be transported to the ridge. The very high stern stones were taken from a place on the coast of south-eastern Scania.

But what about all the other stones? And who organized this great project?

For some reason, perhaps chiefly a political aim combined with other purposes important to the people living in this area, it must have been urgent to carry out this enormous manifestation. We have to calculate with a great number of men for the realization of the task. A possible solution of the problem might have been to divide up the work. That would mean that small groups from the various farms and/or villages in the neighbouring area had to transport boulders of the right size up to the ridge.

Was it possible to arrange this in a satisfactory way? To a certain extent we can answer this question with a yes. But it was difficult to find the boulders. There is a place called Tuvorna north of the village in Valleberga and in neighbouring villages, 6–7 kilometres from Kåseberga. There are thousands of stones. Jan Bergström and Karl-Axel Kornfält, who both have long experience of the bedrock of Scania, have investigated this deposit and they have found that the stones in Tuvorna are of a quite different nature from those in Kåseberga. They did not have the same dimensions. The geologists therefore find it quite impossible to believe that the stones have been taken from Tuvorna (letter from Bergström, 12 October 2000).

Consequently, the boulders in the ship-setting must have been transported from other places. A hypothesis would be that at least some of them were taken from graves or cult places at various sites. Perhaps sometimes from megalithic tombs? In Hagestad there are a number of such tombs, but in Valleberga, the same parish as Kåseberga, we have found only one place with a few remains from a megalithic tomb. In such graves we often find cupmarks on some of the large stones (in Hagestad a great number of cupmarks on two of them). Another possibility would be Bronze Age monuments of different kind with cupmarks.

This is only a hypothesis but interesting to consider. Ale's Stones has several cupmarks on the lower part of the boulders and most of them

could not be seen from the ground. However, more important is the fact that some of these cupmarks near the base of the boulders seem to be well preserved while others were in poor condition. From this we can draw the conclusion that these two categories together represent a rather long time and were not made on the ridge just before the construction of the stone-setting.

We can imagine that it was not "permitted" to remove these stones from a place where people still carry on religious ceremonies. If so, it must have been taboo to take them away. But after some time it might, for various reasons, have been possible to make such encroachments, which in this case means that the stones would be transported to another place with activities planned by more than only a small community. A monument as large as Ale's Stones, as well as the very special location separated from the habitation in the plain area north of the ridge, indicate that the ship-setting was meant for purposes with reference to a coalition of a number of villages in the region.

However, it also has happened that the stones in graves from another somewhat earlier period in the Iron Age were later taken away in order to be used in new stone-settings. This is for instance demonstrated in the very large cemetery at Lindholm Høje in Jutland (Ramskou 1976).

The problems in connection with the construction of Ale's Stones have been briefly discussed in this paper. They will be treated in more detail as soon as we have come further with the investigations.

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