

## DISCUSSION ARTICLE

### Ancient monuments on the brink

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The coastline of Denmark has a total length of 7314 km. Due to isostatic subsidence and marine erosion of the coast, some of the country's 32,000 scheduled ancient monuments are always in danger of being destroyed by coastal collapse. Then there are rivers and watercourses that, either in an original or in a restored state, create new courses or erode away the sides of river valleys where there are also ancient monuments.

This risk has always existed and will continue to do so in the future – especially under the influence of current climate change. The scheduled ancient monuments that are primarily in the danger zone are, for example, megalithic graves from the Stone Age, Bronze Age barrows, churches and castle mounds from the Middle Ages, coastal defences from the wars of the seventeenth to nineteenth centuries and more recent fortifications from the Second World War.

Since 1937, scheduled ancient monuments have in general been covered by legislation that fundamentally forbids any change to their state and which has traditionally been applied in restrictive fashion. Exceptionally weighty grounds are required for permission to be granted for changes to or, more drastically, actual removal of a scheduled ancient monument. For example, the entire network of natural gas pipelines was established without a single scheduled ancient monument being affected, and the motorway network has sinuously avoided all scheduled barrows that otherwise stood in the way. Damage caused, for example, by agriculture, forestry and tourism is taken seriously, and on reinstatement – often at the perpetrator's expense – efforts are made to preserve respect for ancient monuments and thereby preclude future destruction.

It is therefore a paradox that well-preserved ancient monuments located along the coast have for decades slowly but surely been allowed to degrade without this unique source material being secured through archaeological investigation. There are several reasons – both formal and practical – for this situation.

Until 1969, the costs of archaeological excavations were included in museums' running costs and other activities or were met by grants from foundations and special funding arrangements. With a change to the Nature Protection Act of 1969, a modification was introduced whereby public contractors and the state were obliged to pay for the investigation of non-scheduled ancient monuments that would otherwise be destroyed by development works. As for scheduled ancient monuments, funding was only earmarked for restoration – not for archaeological investigation – as the intention was of course that these monuments should be preserved. In the 1970s, 1980s and 1990s, archaeological investigations were increasingly carried out at public expense and, because there was no provision in the legislation that permitted the financing of investigations of scheduled ancient monuments, these investigations were by and large not carried out when monuments were undergoing destruction due to coastal erosion.

It was not until a change in the legislation in 2006 – in the form of the Museum Act – that it became possible for statutory public funds allocated to archaeological investigations also to be used for the investigation of scheduled ancient monuments. Even so, it is still not common for this action to be undertaken in the case of monuments threatened by coastal erosion.

There are several reasons for this. One is that the degradation often takes place over many years and the situation is therefore not immediately perceived as being acute. Even though experience clearly demonstrates that the monument will, at some point, inevitably collapse into the sea, there is a major obstacle to the recognition of the problem in that other types of sites are seen to be of a more acute character. As a consequence, ongoing processes and an autumn storm can suddenly result in a situation where the monument lies so close to the coastal cliff that – in practical and safety terms – an investigation would involve technical problems that in turn increase the costs involved.

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Another obstacle is that an archaeological excavation will inevitably result in the monument being to some degree erased from the landscape. This is something to which local people are often opposed. Denmark's coasts are subject to strict legislation aimed at retaining them in as undisturbed a state as possible, unaffected by anything other than nature itself. Nevertheless, extensive measures are taken in some places to delay, or even directly prevent, marine erosion of the coast. The removal of a barrow is very visible testimony to the fact that this negative process will continue nevertheless, merely at a slower pace. Moreover, the excavation of a barrow on a coastal slope may accelerate its degradation.

In continuation of this line of thought, it is often argued that 'nature must take its course'. This applies for example when wild animals such as badgers take up residence in a barrow and perforate it with their burrows. That is to say, some things are, from the hand of nature, unavoidable and we just have to accept this. Associated with this argument is perhaps also a hint of romantic decay and a fascination with the drama of nature. This was seen for example in discussions about whether the Jelling rune stones should be protected from further damage, resulting from the climate and vandalism, by being moved or covered up or whether they should simply be allowed to remain standing as they had done for centuries.

In order to illustrate the problem of ancient monuments on the brink, three cases are presented below, each exposed to the same threat but with three different outcomes.

On the island of Langeland, a long dolmen on a c. 5-m-high coastal cliff at Tryggelev nor was suffering ongoing degradation due to coastal erosion (Skaarup 1985, p. 174, no. 222). The kerbstones along one side of the dolmen had fallen down on to the beach many years previously and, following a fierce storm in 2007, the ortholiths and capstones of the chamber looked likely to follow them. In the interests of the safety of bathers on the beach, a local wish was expressed that the dolmen chamber be removed. The solution found was to move the actual chamber to a suitable site located 36 m away, 13 m back from the edge of the cliff, while the remnants of the mound around it were investigated (Figures 1 and 2).

On Asnæs, in western Zealand, one end of a long dolmen was suffering degradation above a 4-m-high coastal cliff, and in 1986 half of the 23.5-m-long remaining part was investigated and reconstructed (Gebauer 1990). Despite consolidation of the coast, the outermost part of the reconstructed section is now, almost 30 years later, again close to collapsing on to the beach. However, it will be still many years before the original parts of the dolmen come under threat (Figure 3).

On a 7–8-m-high coastal cliff on the Hindsholm peninsula in northeast Funen stands less than half of a



Figure 1. Until 2008, the chamber in a long dolmen at Tryggelev Nor on the island of Langeland stood on the very edge of the coastal cliff. The kerbstones had fallen down on to the beach long ago. The remnants of the mound were investigated and the chamber was moved 13 m back from the cliff edge. Photo: T. Dehn.



Figure 2. Manipulated photograph showing both the original and the new position of the dolmen on Langeland. Photo: T. Dehn.



Figure 3. Long dolmen on Asnæs, Zealand. The outer end was investigated and reconstructed in 1986. The inner, intact part of the dolmen will not come under threat for many years. Photo: T. Dehn.

Bronze Age barrow: Lars Jens' Høj (site no. 080112-88). At the end of the eighteenth century, it was still possible to plough between the barrow and the edge of the cliff, and its ongoing destruction has been recognised for 130 years. By 1884, half of the barrow had been eroded away. In 1938, there was a wish to investigate the barrow, although no such action was taken. In 1952, the barrow was not considered suitable for scheduling because it was on its way into the sea. In 1960, an investigation was once again considered, but this was not carried out due to the barrow's poor state of preservation. In 1974, it was estimated that 3/5 of the barrow remained. Back then – as now – kerbstones and remains of a grave platform of water-rolled stones at the base of the barrow were observed. In 1989, the barrow was scheduled.

The investigation in 2002–4 of an intact, well-preserved Bronze Age barrow, Skelhøj, yielded significant new information on the construction of Bronze Age burial mounds (Holst and Rasmussen 2013). In research terms, this paved the way for a further investigation of Lars Jens' Høj, whereby the structure of the barrow could be read in section. Despite the fact that funding was made available for an exploratory investigation in 2011/2012, the barrow, complete with its stone platform, kerbstones etc., is still undergoing degradation today, in 2014. As a consequence of this, parts of a bronze sword and two other bronze artefacts were found on the beach below the barrow in summer 2014. On this occasion, part of the coffin platform, made of small water-rolled stones, was investigated. Wood from the coffin was preserved around the *in situ* remains of the remainder of the sword. It was concluded that this represents remnants of the barrow's central grave (Figure 4).



Figure 4. Lars Jens' Høj on Funen. The degradation of this Bronze Age barrow has been acknowledged for 130 years, but in 2014 a passer-by found a piece of a bronze sword on the beach below. An investigation of the barrow revealed that wood from an oak coffin still lay *in situ* around the remainder of the sword. Photo by drone: M. Nielsen.

Lars Jens' Høj illustrates the paradox that half of a 3–4-m-high barrow, which – in research terms – can potentially contribute to solving an interesting problem complex, can be allowed to slowly degrade, while every year, as a consequence of development works, several ploughed-down barrows are investigated where only a maximum of 0.5 m of mound fill remains.

The above three examples – like those provided by the churches Mårup Kirke and Lyngby Kirke – illustrate the fact that in Denmark there is not as yet an established procedure for how ancient monuments subject to the negative effects of the powers of nature should be dealt with.

The different courses of events evident in the destruction of Mårup Kirke and Lyngby Kirke show that the opinions of the local community are important in respect to how the scientific resource that these ancient monuments represent is administered. A comparison between the two localities reveals the important difference that Lyngby Kirke was demolished as early as 1913 and some of the materials reused in a new church, while Mårup Kirke was left intact after a new church, Lønstrup Kirke, was built in 1928 to take over the parish church function. Back then, the parochial church council in Mårup wanted the church to be demolished, but the National Museum of Denmark took on the maintenance of the building in order to preserve it for as long as possible. In 1952, the church and churchyard were transferred to the National Museum as a scheduled ancient monument. As a consequence of the administration of scheduled ancient monuments being moved from the Ministry of Culture to the Ministry of the Environment in 1988, the Forest and Nature Agency took over the National Museum's properties that included scheduled ancient monuments; among these was Mårup Kirke. In both Mårup and Lyngby, the churchyards were taken care of, and also occasionally used, even after the churches ceased to function as such.

For many years, it was the practice at Lyngby Kirke that the receiver of wrecks and the sexton from the new church gathered up the skeletal remains that fell down on to the beach due to erosion of the coastal cliff and reburied them in the new churchyard. In 1946, the churchyard was scheduled as an ancient monument and in 1976 – by which time only a small corner of the churchyard had been lost – the question was raised in a feature article (Thomsen 1976) of whether the churchyard should be investigated archaeologically before it disappeared. In 1981, the author of this feature article asked the Minister for Ecclesiastical Affairs to promote an investigation before it was too late. In the light of this, Aalborg's diocesan authorities held a meeting in Rubjerg vicarage, at which all the ecclesiastical authorities, museums and scheduling authorities were represented. There was broad support at the meeting for the parochial church council's

wish that there should be no disturbance of the graves in the abandoned churchyard – either for the purposes of an archaeological excavation or for the relocation of the graves. Behind this view lay an acceptance of the fact that degradation of the cliff and, as a consequence, the churchyard was a natural condition of the place and part of its history. Despite the fact that, from an anthropological point of view, it was desirable to secure the skeletal material for scientific analysis, it was decided to respect the views of the local community.

The argument at Mårup Kirke has been slightly different. In the prolonged process that has taken place since the cliff approached the churchyard boundary in the 1990s (Dehn 1990), local groups have worked hard in support of the installation of coastal defences that could prevent or delay the disappearance of the church and its churchyard into the sea. The Danish Coastal Authority, the body responsible for coastal defences in Denmark, was however not willing to carry out this work. In 1994, the costs of partial coastal defences were estimated at 6.5 mill. DKK, with annual maintenance costs of 730,000 DKK. It was judged that this work would be able to secure the locality for 10–15 years. Nobody was interested in the dismantling and relocation option and, as mentioned earlier, there were no funds for a (buildings-)archaeological investigation, because this is a scheduled ancient monument. It is not the author's understanding that the dismantling of Mårup Kirke was the result of an intentional prioritisation of nature over culture by the Ministry of the Environment. Economic resources for a 'cultural solution' were simply not available, and the 'natural solution' was therefore the only one possible. It was even in accordance with the wishes of local people, with Mårup Kirke seen as a spectacular tourist destination, with associated opportunities for income. Neither is it the author's understanding that there was any conflict between Jutland and Copenhagen. The church was administered by the Forest and Nature Agency's local department, northern Jutland's state forest district, which set up a contact group with local interested parties.

Regardless of the course that events took in this process, posterity will undoubtedly appreciate that the matter nevertheless concluded with a successful buildings-archaeological investigation that considerably increased knowledge of medieval churches and, furthermore, made it possible for the church to be rebuilt in another location (Bertelsen 2009).

One of the crucial factors with respect to whether an ancient monument is simply allowed to be destroyed on the coast without intervention is the current antiquarian legislation. The two abandoned medieval churches are covered by the Museum Act, while the lighthouse Rubjerg Knude Fyr, which is of a later date, is not covered by any such legislation – not even the Building Preservation Act. One might therefore be tempted to

believe that society has made a choice with respect to the monuments it wishes to preserve and those it does not.

But this is not always clear-cut. The Cold War fortification Stevnsfortet was cut into the chalk cliffs of eastern Zealand in 1950–3 and comprises 46 rooms and 1.7 km of passageways running about 18 m below the surface. It was armed with cannon and had the function of controlling the southern part of the Oresund. Following the collapse of the Berlin Wall in 1989, this coastal fort lost its military significance and it was abandoned by the Danish Defence in 2000 (Pedersen 2013). Maintenance of the fort in an intact state involved expensive running costs relating to pumps and ventilators. There did not seem to be a willingness to meet this expenditure, so it appeared as though the fort would be sealed off and abandoned. However, in political quarters an interest was developing in the Cold War as history. A right-wing government had been elected in 2001 and the Minister for Culture at that time, Brian Mikkelsen, led the way in obtaining funding for the fort's preservation. In 2008, the fort reopened as one of several museums with a Cold War theme.

This is an example of 'the choice between preservation and destruction depends on the object and the context in time and space'; similarly, the narrative can be significant (Wienberg 2014, pp. 9–10). However, if the decisions that have been made in Denmark in recent decades with respect to ancient monuments threatened by destruction, including those affected by coastal erosion, are considered from a more general perspective, the author sees no evidence that nature has been prioritised over culture – rather the opposite (see below).

The examples presented above can give the impression that it has only been possible in exceptional circumstances to carry out the securing or investigation of ancient monuments threatened with destruction by coastal erosion. In spite of the deficiencies in the legislation and the lack of economic provision, this has, however, been achieved in a few cases.

A research project involving the systematic investigation of 24 medieval castle mounds, executed between 1982 and 2004 on the islands off southern Funen, was in part initiated because five of these sites were undergoing destruction as a consequence of coastal erosion (Skaarup 2005, p. 8).

The directly threatened part of a dolmen located in southern Funen, Damsbo Skjoldmose, was recorded in 1984 for private funds in conjunction with Niels H. Andersen's investigations in the Sarup area (Andersen 1985). Destruction has continued in the intervening period, but the initial investigation has unfortunately not been followed up (Figure 5).

The castle mound of Vesborg on Samsø, of which almost half has disappeared since its construction in the fourteenth century, was investigated in 2009 as part of the Danish National Museum's research project on Samsø's medieval fortifications (Etting *et al.* 2010).



Figure 5. The cleaned section in the coastal cliff, showing the most threatened part of the dolmen Damsbo Skjoldmose on Funen, 1984. Photo: J. Jeppesen.

None of these three investigations involved total excavation, merely limited investigations of the directly threatened parts in order to secure important information with respect to date, extent and construction. The arguments made in favour of granting investigation/excavation consent included the fact that these sites were undergoing degradation.

Archaeological excavation of threatened sites is, however, not the only option with respect to securing information. Another possible solution is to consolidate the coast along the critical stretch. This was carried out on Stevns Klint in 1928, after the chancel of Højerup Kirke collapsed into the sea. The cliff was reinforced with a supporting concrete wall and a pierre-perdue (rubble mound) at its foot. These measures were subsequently repeated and extended in 1954, 1962, 1974 and 1981 (Vesth 1991).

There is another example from Årup Hede, near Gram. In 1983, a barrow standing on the bank of the river Fladså was about to be undermined due to a change in the course (meanders) of the river (site no. 200201-113). The area was subject to a nature protection order, according to which no inference with natural developments, such as altering the course of the river, was permitted. The conflict was, therefore, clearly between obvious nature interests and the preservation of a virtually intact prehistoric monument. In this case, the relevant conservation authority – the Nature Conservation Board – granted a dispensation from the protection order, allowing work to be carried out to consolidate the river bank such that the barrow was not undermined.

A third case is that of the castle mound Hindsgavl Borgbanke, located on the Funen coast of the Little Belt

(site no. 080713-29). The first mention of the castle is in the thirteenth century, but it was abandoned when a large part of the site was destroyed by the sea in 1695. Since then, the castle has been a ruin. However, in conjunction with an initiative launched in 1987 to begin management works and allow public access, the possibility of consolidating the coast was also raised. Despite opposition from nature conservation interests in the form of complaints about a dispensation relative to Danish coastal protection legislation (*Strandbeskyttelseslinjen*), coastal defences were established in 1991. However, by 2004 these defences had already been destroyed by shipworms and unfortunately no economic resources were available for their replacement.

The consolidation of coasts and river banks is unfortunately not a sustainable solution. As a rule it merely postpones the decision to be taken by future generations. The actual works involved are expensive and it can be difficult to predict and evaluate their effects and consequences. For example, it is generally accepted today that coastal defences are degraded and non-scheduled settlement sites from all periods are also allowed gradually to disappear without being consolidated or investigated. It is the author's view that the value of these threatened ancient monuments as source material should be evaluated on an equal footing with all other ancient monuments and that they should be included in the prioritisation of economic resources for archaeological investigations, if long-term consolidation of these sites is seen as being unrealistic. The argument in favour of this is that these sites often hold the potential to yield completely different information from that provided by ploughed-down sites. Equally important is the fact that allowing destruction of these monuments without investigation has a negative effect on the general respect for other ancient monuments and efforts to preserve them as monuments in the landscape.

In spite of the cases outlined above, where archaeological investigations have been carried out or protective measures against erosion have been undertaken, it is not possible to speak of a generally accepted procedure with respect to dealing with ancient monuments in danger of being undermined by erosion of coasts and riverbanks. Over the years there appears to have been a somewhat haphazard approach to the question of how the degradation of an individual monument is dealt with: investigation, protection or complacency. However, experience shows that taking account of nature in the otherwise restrictive Nature Protection Act's coastal protection legislation is, in practice, not an obstacle to the securing of the information held in these monuments through acute investigation or protective measures.

In the author's view, 'creative dismantling' does not only take place in conjunction with cultural heritage sites that are degraded by the forces of nature. Is not every archaeological investigation a form of 'creative

dismantling', if the investigation is carried out to save information from destruction, regardless of whether this destruction results from natural forces or society's wish to build for example a motorway? Preservation of the original components of the cultural heritage and displaying them in another location – for example artefacts or a dolmen chamber – is also a possible option. Essentially, the academic or research-related result of an archaeological investigation is not dependent on whether the investigation was prompted by coastal erosion or another instigator of rescue excavation. One difference could, however, be the economic resources that are or are not available for this intervention. Their presence or absence is determined by the legislation and its administration, as well as the potential to avoiding destruction by making changes to the development works that present the threat.

Another difference relates to whether there is a visible monument that is part of the landscape, but this is also not always clear-cut. During the construction of a stretch of motorway between Fredericia and Vejle in 1992, an unrecorded, ploughed-down Bronze Age barrow with a diameter of 57 m was encountered; it had been built over a round dolmen (Holst 2006). It was too late to change the route of the motorway, so following investigation both the barrow and the dolmen chamber were rebuilt some distance away in conjunction with a motorway service station. This can be referred to as 'creative dismantling' or simply an ordinary example of an archaeological excavation followed by presentation of the results at a scale of 1:1.

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