

Water and fire as transformation elements in ritual deposits of the Scandinavian Neolithic

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ABSTRACT – *Flint axes are the most common Neolithic (4000–1800 calBC) artefacts found in southern Scandinavia. The vast majority of the tens of thousands that we know of have been recovered from former wetlands. In fact, detailed work in southern Sweden suggests that flint or stone axes were deposited in almost every single bog. There is also evidence that many axe blades underwent forms of treatment that involved transformation by fire, deliberate destruction and purposive deposition. These details of context, form and treatment suggest that axe blades were often of great symbolic significance to Neolithic communities, and implicated in the reproduction of the social world.*

IZVLEČEK – *Kremenove sekire so najbolj pogoste neolitske (4000–1800 calBC) najdbe v južni Skandinaviji. Velika večina od več deset tisočih znanih sekir je bila najdena na nekdanjih mokriščih. Natančno delo v južni Skandinaviji je pokazalo, da so bile kremenove ali kamnite sekire odložene v skoraj vsakem močvirju. Obstajajo tudi dokazi, da so bila številna rezila sekir izpostavljena obdelavi, ki je vključevala preoblikovanje z ognjem, namerno uničenje in namensko odlaganje. Ti podatki o kontekstu, obliki in obdelavi kažejo, da so imele sekire velik simbolni pomen v neolitskih skupnostih in so bile vpletene v reprodukcijo socialnega sveta.*

KEY WORDS – *South Scandinavia; Neolithic; axes; ritual deposits; wetland; heat treatment; fire*

Introduction

Studies of the creation of material culture and technology are well represented in research. But in contextual research, the ways artefacts went out of use should be as interesting and important an aspect as how they were made. There is a need to study the causes of destruction, both intentional and unintentional: worn out and discarded, deposited in graves, caches or ritual deposits *etc.* These make up an important part of the life cycle of an artefact, and this aspect is often perceived as a self-evident event. There are many possible reasons of social importance why an object was taken out of service. Many of the flint objects that have been discovered appear to be fully serviceable, yet they were incorporated into an occupation layer. They can also be tools that were taken out of service in accordance with special rules and norms, because they had been polluted when used on some occasion and were therefore separated from one social context, to be integrated

into another. In many cases, socially related processes of deposition constituted a precondition for increased demand for new raw material and the need for new tools. From the point of view of the market economy, this demand may have been decisive for the existence of societies in which this specialisation had become an important economic factor. Demand is also of great significance from a broader societal perspective for maintaining contacts and a high level of craft competence, since the demand for new tools meant that flint distribution and skills in flint knapping could be maintained.

The study of ritual deposits has played an important role in research on the prehistory of southern Scandinavia. A large number of deposits, including different types of tools, have been identified as Neolithic (*Jensen 2001*). Deposits have been found at monuments such as megalithic tombs and cause-

wayed enclosures – associated with the entrance in the former case – and in ditches or specific pits within the enclosure at the latter type of monument. However, most of the deposits have not been found in direct relationship to a monument, even if several originate in areas with a high number of megalithic tombs (*Ebbesen 1985*). Some of these have been found in mineral soil, but most were placed in wetlands.

The most important tool in deposits is the flint axe. Some types are represented by thousands or even tens of thousands of finds. Almost every farm collection includes one or more axes, frequent among which are pieces from the Early Neolithic and the later part of the Middle Neolithic. The axe is also the most common tool in graves. Details of context, form and treatment suggest that axe blades were often of great symbolic significance to Neolithic communities, and implicated in the reproduction of the social world.

In the final part of the Neolithic, the axe seems to be replaced by the dagger as the most important flint tool in graves (*Jensen 2001*). Pottery is also of importance in deposits – if the megalithic tombs are included. Other find materials include amber artefacts, and copper tools which constitute a very small category (*Jensen 2001*).

Wetland deposits

Wetland finds play a very important role in prehistoric research in southern Scandinavia in general, and during the Neolithic in particular (*Larsson 2001*). Wetlands have been an important source of information due to the large number of water basins, from large lakes to small kettle holes, formed during the deglaciation in southern Scandinavia.

A considerable number of lakes were substantially filled with organic litter and became bogs during the Atlantic period. In the Subboreal period, which corresponds to the beginning of the Neolithic at 4000 calBC, many bogs dried out. However, this description of wetland transformation is obviously very general, and wetland development was dependent upon a range of local factors, such as topography, hydrology and catchment size, so that even in the same land block, wetlands will have the potential to exhibit diverging developmental histories.

Population aggregation and early forest clearance caused fuel shortages, and from the late 18th centu-

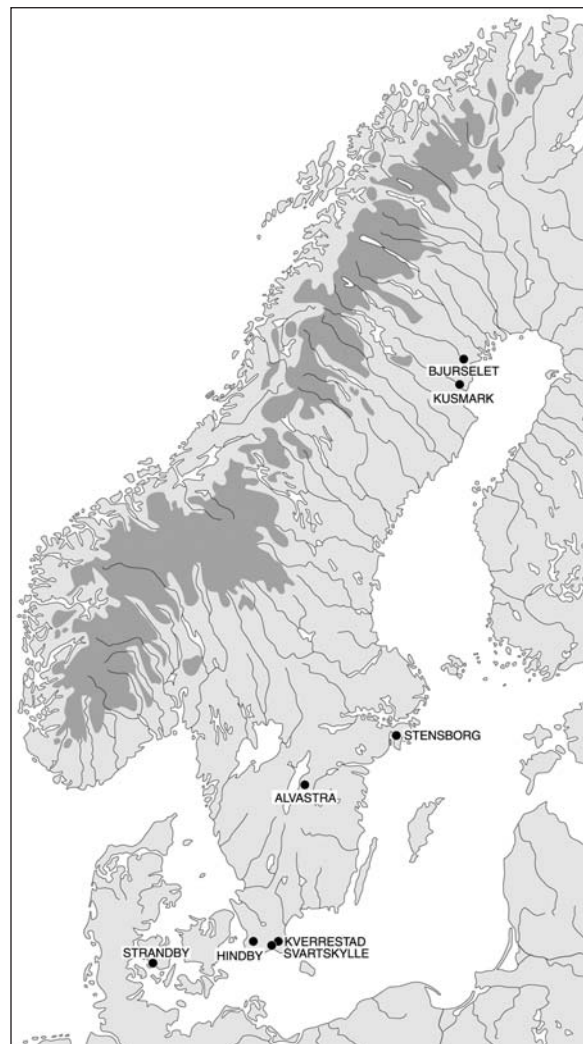


Fig. 1. Scandinavia with the location of the sites mentioned in the text.

ry, peat cutting was introduced on a large scale (*Kristiansen 1974*). In order to gain more arable land, many wetlands were also drained, a process that began in the second half of the 19th century and is still taking place today. This process has consequently caused a radical change in the total area of the wetland landscape.

Since Swedish cartographic sources are extremely rich by international standards, we can gain a good idea of the extent of wetlands during the period immediately preceding the large-scale drainage endeavours of the last century and a half. If we compare the situation in the 18th century, for which we have particularly numerous and detailed map sources, very few wetlands have survived in today's landscape. A study of the drainage system of a small river in the western part of Scania, the southernmost part of Sweden, shows that in the early 19th century, wetlands covered 29% of the drainage system (*Wolf*

1956). By the 1950s, the wetland area had been reduced to about 3%, and today the figure is even lower (Fig. 2).

Deposits of artefacts in bogs were recognised during peat digging in the 18th and 19th centuries (Nielsen 1985). In the late 19th and early 20th century, a large number of artefacts were retrieved in southern Sweden. During the two World Wars and shortly afterwards, peat cutting was intensive. Until the late 1940s, most of the cutting as well as drainage work was carried out manually, which meant that artefacts and sites were easily recognised. Today, peat cutting is of minor extent and completely mechanised.

The role of the wetland as a place of contact with the spiritual world was clearly much accentuated during the Neolithic. A study of the find contexts of more than 600 Neolithic hoards in Denmark has shown that at least 80% have been found in former wetlands (Nielsen 1977; 1985) (Fig. 3). The Danish study is based on deposits that included two or more flint or stone objects, but a large number of single

finds have also been found in wetland contexts (Karsten 1994). Additionally, in a study of depositional contexts in Scania, some 370 hoards have been identified, and the proportion found in wetlands is similar to the figure for Denmark (Karsten 1994). However, in Scania as well, in addition to the hoards, there are more than 900 recorded single finds.

In some instances, a number of artefacts were deposited within a limited area over a period of time, often amounting to hundreds of years. Intact tools constitute the most common kind of find, but in some instances these objects might simply represent the most visible element of deposits that may have included a range of additional artefact types of less durable or obvious nature.

A case study

In order to generate a more detailed and holistic understanding of the impact of votive deposition for Neolithic society, an area in the southernmost part of Sweden was chosen, including the neighbourhood of the author's residence in southern Scania (Larsson 2007). A complex range of landscape features, the understanding of which is fundamental to the analysis of wetland deposits, defines the research area. The landscape is mainly undulating in character, consisting of clay with a high proportion of lime. The landscape extends almost to the coast, and is delimited on both sides by sandy plains (Fig. 4). Due to the nature of the topography of this area, wetlands are plentiful and, consequently, the land suitable for settlement is somewhat limited. The number of Neolithic artefacts from the area of study in museum collections is low (Karsten 1994).

The wetlands have been considerably reduced in both area and number in recent decades. However, an important data set is preserved in a military reconnaissance map from around 1815, prior to the implementation of large-scale drainage endeavours. The map gives a unique insight into the size and distribution of wetlands, several of which have been totally drained today. In most of these cases, the former wetland

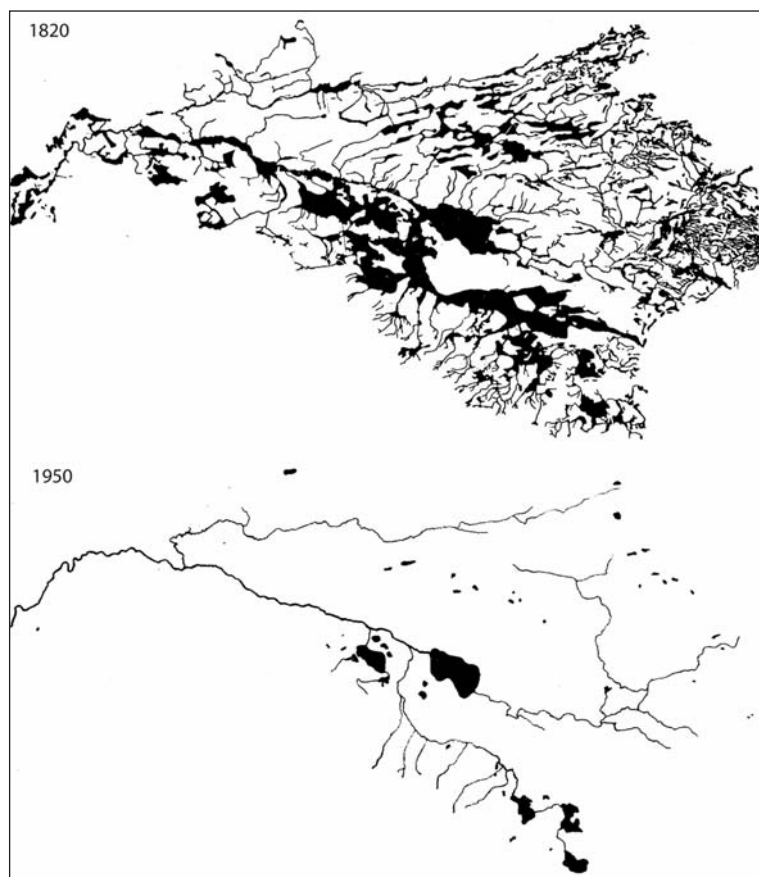


Fig. 2. The drainage of wetlands between 1820 (29% of all land) and 1950 (3% of all land) within a river drainage system of southernmost Sweden (after Wolf 1956).

area can still be monitored, as these areas are distinguished by darker soil, which remains visible today as a result of the high humus content of the plough-zone.

Because of the undulating topography, the view of the landscape varies considerably, with excellent views from hill-tops and a restricted field of vision in the areas between the hills. This change can take place within less than a hundred metres, and can significantly affect a person's perception of the landscape. These changes in the landscape imbue it with a kind of monumentality in itself, and in this regard it contrasts markedly with the surrounding plains. In this topographic setting the wetlands are usually rather small, or else long and narrow, and they occupy discrete areas between the hills (Fig. 5).

The settlement remains of the Neolithic are situated on small hills, more especially on those that are made up of well-drained material (Fig. 4). Unfortunately, ploughing has heavily damaged all of these sites, but most are of limited extent, usually covering an area of less than 1000m².

Field surveys, along with information gained from several farm collections, means that a considerable number of archaeological deposits have been identified as located in wetlands (Fig. 4). Judging by the yellow to red patination of artefacts in the farm collections, an even larger number of artefacts were found in wetlands, although it should be noted that no information on the circumstances of discovery is available.

Most of the finds from museums as well as farm collections are intact tools (Fig. 6). However, during surveys, several fragments of axes and also daggers have been found. While some of these might have been intentionally split, some axe fragments have a pattern of breakage consistent with their having been broken during use (Olausson 1983.Fig. 26).

The simplicity of the deposits makes it difficult for the layman to identify some of the objects as belonging to intentional votive deposits. It is possible that similar votive deposits in other bogs have not been noted except when they occur in more easily recog-



Fig. 3. A deposit of thin-butted flint axes (after Jensen 2001).

nised votive forms, as is the case with the more characteristic deposits of flint axes or daggers.

The excavation of a small bog, Hindby mosse in south-western Scania, presents the remains of votive practices running through the Late Mesolithic, most of the Neolithic and into the Bronze Age (5000–1500 calBC) (Berggren 2007). There are examples of axes deposited in pairs in the bog, but it is more common to find combinations of tools, some of which had been broken before deposition. In addition, the bones of animals or humans have been recovered, such as a deposit of a burnt fragment of an axe, a human bone, and three canine teeth of pig (Berggren 2007.241). These remains show that in some cases sorting of the ritual deposits was carried out, as well as deliberate fragmentation by cracking and burning before deposition. While these deposits are the most difficult to recognise, the possibility exists that they may well have constituted one of the most common kinds of deposit, and that failure to identify them has severely distorted the record.

From the perspective of the Neolithic period, the case study shows that almost every wetland was used for some form of ritual deposition. Compared to Continental Europe, where deposits in rivers and lakes are rather well known, the equivalent number

in southern Scandinavia contexts is small, with only two instances reported within the research area, where artefacts have been found in small brooks.

Most of the wetlands considered here contain either one or a couple of artefacts, and in the larger wetlands on the plain a considerable number of artefacts have been found.

In view of the fact that we are dealing with wetland deposits, it is conceivable that people stood on the shore and threw the objects out into the water. However, in many of those cases where a more detailed account is given of the precise context of axes that were found close together, the finder has observed that they were carefully placed in a special arrangement within the wetland. Axes have been found close to, and sometimes on top of each other, with the edges directed downwards or in a circle (Rech 1979.Abb.2). This substantiates the observation that such artefacts were carefully placed in the water, rather than being thrown out into the basin.

Landscape and society

In certain respects the cosmology relating to wetland deposits was active throughout most of the Neolithic, and in later periods as well. Some wetlands appear to have been imbued with ideas of a sacred character over many centuries, and in some cases millennia (Stjernquist 1997). Artefacts were often deposited within a delimited area of the bog, even though individual finds may comprise artefacts covering a considerable time-span (Karsten 1994).

Depositing artefacts within a delimited area of a wetland during intervals of several centuries means that knowledge of the ritual importance of the site survived for generations. Knowledge of the physical as well as the metaphysical components of the landscape was passed on over long time scales with no visible manifestation in the material culture. Clearly, a detailed knowledge of the landscape included legends, tales and stories passed on from one generation to the next. During certain periods, this relation to the wider worldview

is marked by acts of ritual practice involving the material culture. However, it is apparent that for long intervals the knowledge was passed on with no visible reaction by the Neolithic societies in question, in terms of active votive deposition, and this factor perhaps best reinforces the observation that these locations held a significance that was not only spiritual.

In this context, changes might have been happening in society, when people had a need to disrupt as well as establish links with much earlier societies. Bringing the old offering sites back into use during the later part of the Middle Neolithic might have been a way to re-establish contacts with earlier generations. The sites represent a connection with societies of the past based on legends, and could function as a means of legitimisation, as well as a means of emphasising a different value system from that of the society that had just been replaced.

As repeated deposition of artefacts took place within a limited area of the wetland, which was shallow and in some cases seasonally dry, there would have been some residual knowledge of the excellent condition of the tools that had been placed as offerings

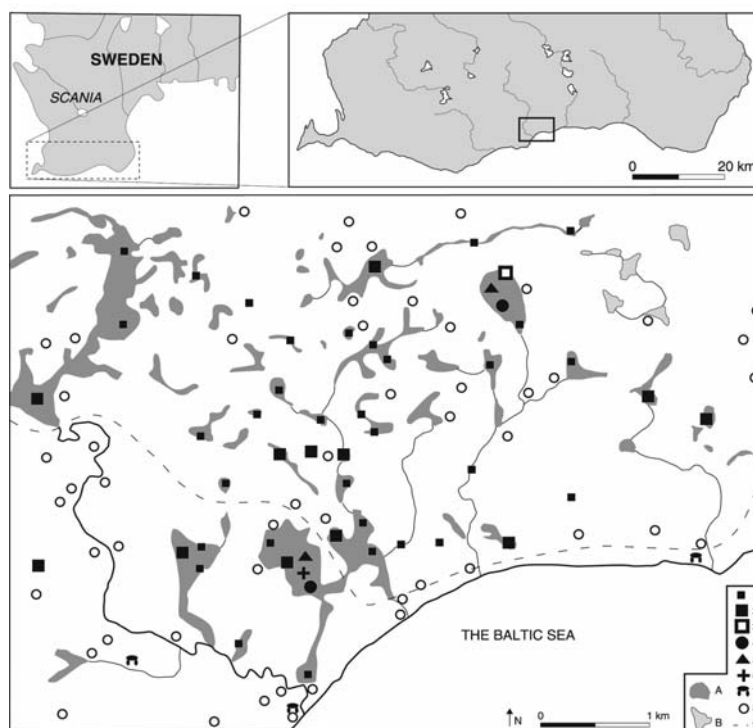


Fig. 4. Wetland deposits within the research area in the southernmost part of Sweden. See legend. 1 deposit of a single artefact. 2 deposit of at least two artefacts. 3 deposit of several artefacts. 4 deposit of artefacts made of antler and bone. 5 deposit from the Bronze Age. 6 deposit from the Iron Age. 7 megalithic tomb. 8 Neolithic settlement. 9 extent of the hummocky area. A wetlands and B lake.

several generations earlier. The deposition or transformation of artefacts in water would presumably invoke a subtle quality and confer special value on the artefact. This must have been the primary intention behind wetland offerings. Wetland deposits could have been visible during dry summers, when the harvest might have been severely affected, and the appearance of earlier deposits during times of drought might well have been an important stimulus to reinforce connections with the metaphysical world.



Fig. 5. Wetland in between the hills within a south Swedish hummocky landscape.

In the cosmology of certain societies the cosmos consists of three worlds: the underworld, the earth and the sky (*Helskog 1988*). The underworld is usually connected to water, so the wetland might have been regarded as a liminal zone between the underworld and the physical world. Water is life-giving for all organisms, and wetland deposits might be related to underground spirits connected with fertility, where the wetland was regarded as a point of bodily access to the hidden soul, *i.e.* to the underworld. Ritual deposition in wetlands might have been a regular practice, where the desired effects were long-lasting, but not immediately noticeable. We can envision a situation where change is not visible, unless the offerings cease. Several of the wetland offerings may be viewed as unfinished projects, especially where the deposition period extends over several generations.

According to palaeoecological studies, most Neolithic wetlands were partially covered or encircled by small trees and bushes (*Larsson 2000b*). The depositional context of a small wetland, with a dense vegetation of bushes and trees surrounded by steep hills, focusing on a small part of the sky, produces a location tailor-made for secret deposits made by individuals or a small group. The situation is quite different from that of larger wetlands on a plain, where deposition could be watched by a large group of people. The first example is a ritual act in which the most important part is to create contact with members of the underworld or upper world. In the larger wetlands, it should be anticipated that at least some of the deposits were made in order to let several people take part in an act of ritual deposition, which was initiated and performed by particular members of society. The latter form of offering ceremony might be related to activities taking place in

relation to burials in megalithic tombs, or offerings in connection to these monuments. Such ceremonies are well attested by the large quantity of pottery and flint tools found outside the entrances to such tombs (*Strömberg 1968; 1971; Tilley 1996*).

Ritual deposits within the hummocky landscape are usually rather small-scale, the more substantial deposits being found in the larger wetlands on the plain, but in a context that exhibits a close connection to the adjacent hummocky landscape. This might indicate that wetlands in different kinds of landscapes could have had special importance in the metaphysical world, and the fact that they are still used during later parts of the prehistoric period could also attest to their continued ritual and symbolic importance.

The hummocky landscape, with numerous small wetlands, had a limiting effect in terms of population size and the potential for communities to expand their resource exploitation areas. This might mean that conflicts between any new settlers and the people already inhabiting different farms were minimised, thereby reducing the potential for stress in the society. Therefore, it was not necessary to mark relations between people by means of monuments in the more marginal landscape, but this does not mean that ceremonies of different kinds did not take place. These ceremonies were performed as both more individual or personal ritual deposition in small wetlands, or as larger societal expressions of ritual behaviour on the plains. They clearly functioned with the landscape, acting as natural monuments in regions where monumental architecture

was either an impractical or unnecessary form of societal ritual expression and legitimisation.

Transformation by fire

A special form of fragmentation is the effect of fire. Finds from settlement sites indicate that the ritual burning of flint artefacts was well known throughout the Neolithic. Fire alteration of tools is relatively frequent at sites throughout the Neolithic (*Karsten 1994; Malmer 2003.41, 74*). The burning of flint axes could be accidental, but at several sites the percentage is too high, often higher than 20%, to be viewed in such mundane terms (*Karsten 1994.159*). Most sites show marked differences in terms of the tool types affected by fire. There is also evidence that the burning of axe blades was its self highly structured (*Larsson 2000a; 2000b; 2002*). The alteration of flint by direct exposure to fire provides different products of fragmentation from those seen on many sites. Simple exposure to high temperatures usually results in the fragmentation of flint artefacts into very small pieces. This is not what we find with many burnt axes, which are often recovered as larger-than-expected fragments. This suggests that axes were often heat-treated before they were placed on the fire (*Larsson 2000b*). The intention was not to destroy the axes entirely, but keep them in parts as large as possible, even after their transformation by fire. At almost every site, axes are more affected than any other type. This phenomenon is independent of chronology, occurring from the earliest Early Neolithic to the latest Late Neolithic. Alteration by fire, however, seems to be most common during the Middle Neolithic, including the late Funnel Beaker Culture and the Single Grave Culture.

Creating and constructing requires profound practical knowledge. Destruction, or should we say, different means of transformation, does not require the same physical competence, but rather a feeling, sometimes a profound sensitivity, for the manipulation of emotions and impressions among the members of society, in order to turn an act of destruction into an act of reproduction. There are several aspects that may be considered within the processes of deposition and destruction.

One aspect relates to tools affected by intense fire. Intentional destruction of tools is rarely observed among the wetland deposits. In a few cases, flint axes, which make

up the predominant group of deposited tools, have traces of fire (*Stjernquist 1965; Knutsson 1988*).

Fire-damaged flint axes are found in connection with megalithic tombs (*Jørgensen 1977*), as well as in pits and trenches associated with causewayed enclosures. The fragmentation of flint axes has been regarded as the result of ritual acts in which fire played an important role (*Andersen 1997*).

It is of special interest to identify a relationship between the fabrication of axes and destruction of the same kind of tool. At some causewayed enclosures of the late Early Neolithic and early Middle Neolithic (about 3400–3200 calBC) (*Andersen 1997*) as well as palisades of the 'second generation' (*Svensson 2002; Brink 2009*) from the late Middle Neolithic (MNA–MNB at about 2900–2600 calBC) waste from flint axe fabrication as well as fire destruction has been documented (*Runcis 2008*). There seems to be a direct link between the birth and death of axes (*Strassburg 1998*) related to monumental enclosures.

Mass destruction of axes by fire

A special and so far rare type of site with examples of fire-altered flints has been found on a plateau within an area of approximately 70x70m at Kverrestad, south-eastern Scania (*Larsson 2000b; 2002*). Excavation revealed a number of pits varying in size and depth, in which flint and stone artefacts affected by fire had been deposited together with a considerable amount of fragmentary pottery. The largest pit was about 4m long, the shortest measuring less than 0.5m. Finds were made throughout the fill, which shows that the artefacts had been deposited during the entire process of filling in the pits. Frag-



Fig. 6. An Early Neolithic battle axe and a Late Neolithic flint axe from a small bog.

ments of about a hundred thick-butted concave-edged axes and chisels were found, as well as arrowheads and other flint and stone tools (*Larsson 2000b*) (Fig. 7). A small number of burnt human bones, intentionally cracked into small pieces, were also found, providing another example of the combination of humans and axes. The finds are dated to the late part of the Battle Axe Culture, at about 2300 calBC. As an interesting aspect of the 'life cycle' of axes, the axes at Kverrestad included rough, unpolished examples, only shaped into form, as well as examples with very well executed polish over the entire body.

The choice of axes for burning, as recorded at settlement sites, is also obvious among the finds at Kverrestad. While more than 90% of the axe finds display changes by fire, approximately 65% of the scrapers, approximately 50% of the tanged arrowheads, and approximately 30% of the arrowheads made by pressure-flaking show the same alteration by fire. These marked differences indicate intentional selection - some tools required treatment by burning more than others. Similar evidence has also been found at Svartskylle, some 17km west of Kverrestad (*Larsson 1989*), and at Strandby, southern Funen (*Andersen 2000:34*). These two sites are dated to the Early Neolithic/Middle Neolithic transition and the earliest Middle Neolithic. On both sites, preforms as well as polished flint axes were found.

But why was burning of flint used in activities of ritual significance? There is a very marked difference in the attitude towards burning, compared with deposition in water. In the former case, the destruction of the artefact is easily visible at the point when the practical function of the tool ceases to exist. Fire is the destroyer, but also the creator. Slash-and-burn clearance of the forest creates arable land. Destruction by fire could have had a direct visual as well as an auditory impact.

That flint axes are linked to fire could be explained by a special relationship between fire and flint. A

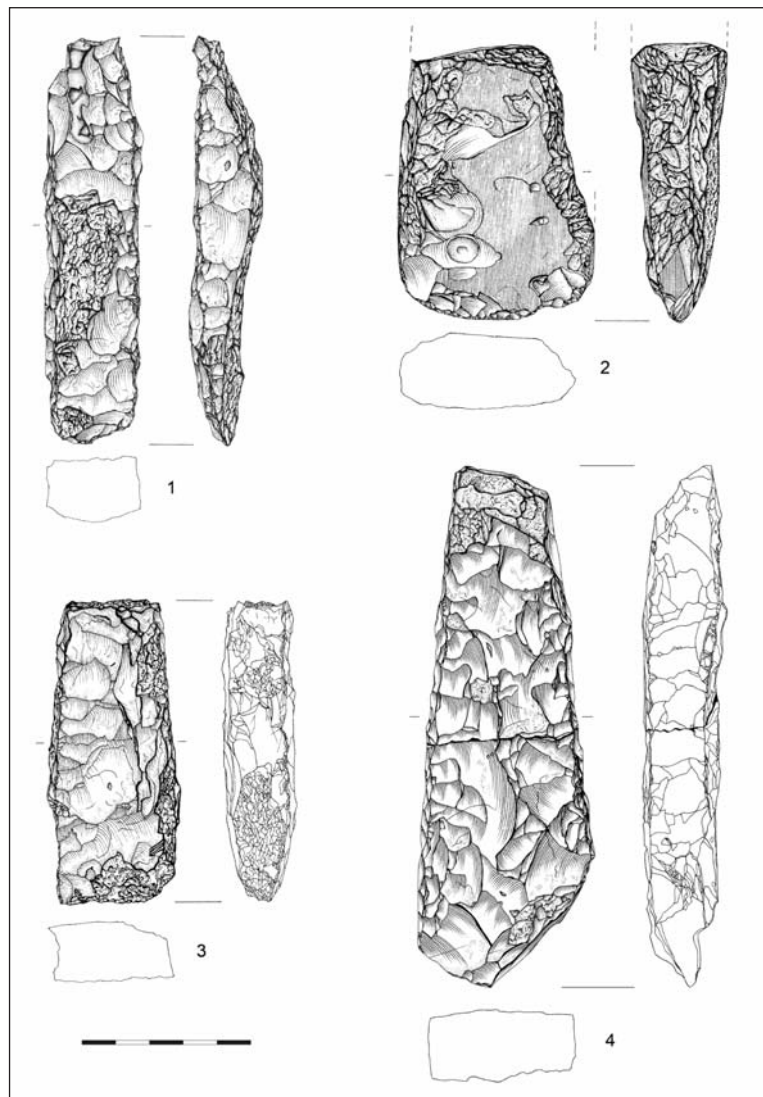


Fig. 7. Flint axes (2–4) and flint chisel (1) with traces of heat from Kverrestad, southernmost part of Sweden. Drawing by Björn Nilsson.

common way of making fire was to use flint and iron pyrites. The sparks seem to originate from the flint, and the view that fire was incorporated within the material might have led to the acceptance of this relationship as part of the worldview.

The intention was not to destroy the axes entirely, but to keep them in parts as large as possible, even after their transformation by fire. At almost every site, axes are more affected than any other type.

Ritual burning has a public, direct, evocative and even magical appearance (Fig. 8). Experiments have been conducted by exposing newly-made flint axes to different forms of fire, including direct as well as indirect heat in large and small fires, in order to learn what happens to flint at different temperatures. In order to obtain large pieces of burnt flint,

such as are found at the sites, it must be treated in two evocative, but less public stages. First, the flint has to be heat-treated. In the second stage, the flint could be directly placed on a fire. The flint undergoes a colour transformation from natural black or grey to white. This shows that the majority of flint tools were handled carefully in order to obtain a colour change with a minimum of destruction. The artefact undergoes remarkable change during the process. The changes are similar to the cremation of a human body.

Fire as transformation in the northernmost part of the Funnel Beaker Culture

In Scandinavia, mass destruction by fire has been identified at a small number of sites. One site in particular provides a lens through which to study the ritual significance of Neolithic axes. Stensborg, on the northern border of the Funnel Beaker Culture in the Mälardalen region, lies some 30km south of Stockholm and has been the focus of field collection over the past twenty years (Broström 1996). During the early part of the fourth millennium BC, the site was situated on an island in a large archipelago. At 35m above the present sea level, the settlement was located close to a deep and narrow inlet. A large number of tools were found on a field sloping towards what is now a valley. This collection, the largest from central Sweden, includes several hundred cracked stone axes and a considerable number of fragments of flint axes damaged by fire (Broström 1996:69) (Figs. 9–10). The collection also includes slate objects from northern Sweden. The range of raw materials and forms of treatment represented at the site is unparalleled.

Stensborg is located at least 600km north of the southernmost part of Sweden or eastern Denmark, where flint of suitable size and quality for making thin-butted axes was available. Here at least, the distances involved may have conferred a particular importance on the thin-butted flint axes recovered from the site, an importance reflected in their subsequent treatment. All the thin-butted stone axes were found as fragments, a few also showing marks of exposure to intense fire. They were intentionally cracked into pieces and the edges of some are heavily damaged, as if repeatedly hit against a rock. Wear and repair traces on a number of these suggest that, whatever else they may have meant, they nonetheless saw practical use. The flint axes from the site, none of which have been recovered intact, all showed traces of exposure to fire. It is difficult to arrive

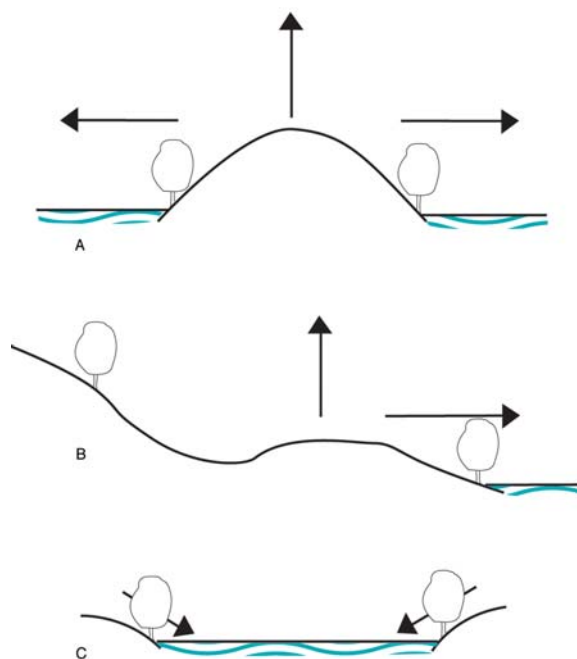


Fig. 8. The topography of the site with mass destruction of axes by fire (A–B) in relation to a bog in a hummocky landscape with wetland offerings (C).

at an estimate of the size of axes based on more than five hundred fragments, although at least some were of a size comparable to the larger examples in southern Scandinavia. Numbers are also difficult to calculate, although there might have been as many as twenty. From the shape of the fragments, it is estimated that about 70% were thin-butted, while the remainder were point-butted. In southern Sweden, the point-butted axe is rarely found damaged by fire.

In the course of excavation at the site, several small pits were discovered. They included parts of flint axes damaged by fire and broken parts of stone axes. The pits had been dug into clay, filled and finally covered with clay, which made them hard to detect. Large quantities of grain had been burned and placed in the pits.

The slope might have functioned as an assembly area where certain rituals were performed. It had a specific setting, with a considerable depth of water just beyond the shoreline, meaning that vessels could easily approach. On the opposite side of the slope, a ridge marked the limit of the site. On both sides, to the south and north, the site was delimited by steep-sided ravines eroded by small brooks. The field was thereby well enclosed by natural obstacles.

In southern Scandinavia, causewayed enclosures are situated in locations partly surrounded by natural

obstacles. However, artificial obstacles are added, such as palisades and pit systems. One can envisage other kinds of enclosure within smaller social systems that might be surrounded only by natural obstacles, and Stensborg might be one such example.

The finds from this site show a marked difference from finds at ordinary settlement sites. The large number of axes might instead indicate a relationship to other kinds of sites in southern Scandinavia, where axes played an important role in activities that have for a long time been regarded as ritual deposits.

The phenomenon of burning is also evident in other parts of Sweden. For example, the pile dwelling from the Middle Neolithic at Alvastra, western Östergötland, includes remains of ritual activities (Fig. 11). The site is dated to about 3100 calBC and includes artefacts characteristic of the Pitted Ware Culture, as well as the Funnel Beaker Culture (Malmer 2003.103). Among the entire flint axes and large pieces of axes, several examples show effects of fire alteration (Browall 1991). A large number of hearths as well as strike-a-lights have also been found (Browall 1986). In the dwelling, carbonised grains as well as apples and hazelnut shells are frequent. Burning was of special significance at the site. At sites in northern Sweden, such as Kusmark, evidence of flint alteration by fire has also been found. In this area, flint was a very exotic raw material, because it had to be transported more than 1000km from the south. The fragments from Kusmark are remains of axes or chisels affected by fire (Knutsson 1988.86). The largest find of axes, at Bjurselet, contains about two hundred blades of the same type as at Kverrestad. The finds have been identified as ritual deposits, as the axes had been placed in special arrangements (Knutsson 1988.Fig. 40). Some of the Bjurselet axes had been deliberately affected by fire (Christiansson 1989.21).

The sociotope of fire

What is being expressed at Svartskylle, Kverrestad and Stensborg differs from the destruction of single artefact or a number of artefacts by fire evidenced at settlement sites and megalithic tombs. This type of deposit is found throughout the entire Neolithic,

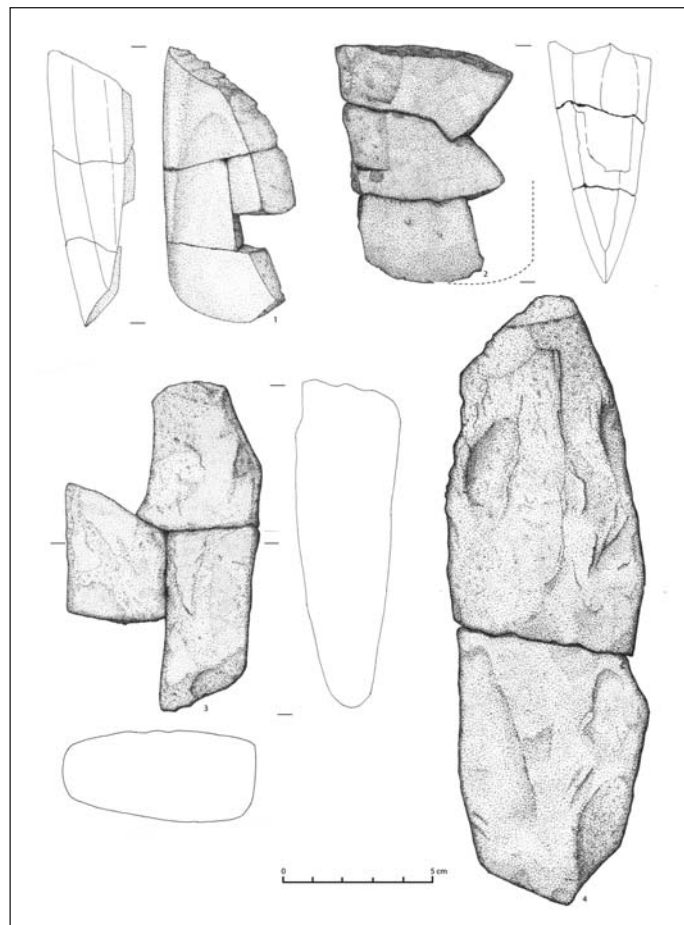


Fig. 9. Stone axes from the settlement site Stensborg, middle Sweden. 1 fragments of stone axe with hollowed edges, 2-3 fragments of thin-butted stone axes and 4 preform of a stone axe. All stone axes are intentionally damaged, and the edge of no. 3 is blunt. Drawing by Krister Kam Tayanin.

but on certain occasions the act achieves an imposing effect.

Tools destroyed by fire that lie outside the megalithic tombs can be regarded as offerings to the ancestors or deposits through which the ancestors act as agents for further contacts. Deposits that included the element of fire, as at Kverrestad, Svartskylle and Stensborg, place the actors in direct contact with the metaphysical world without a detour via ancestors.

The cosmology that dictated burning, just like that relating to wetland offerings, was active throughout most of the Neolithic. The fact that the offerings at Svartskylle and Kverrestad are the result of short-term activities indicates that they should be regarded as completed deposits of mass material. These seem to have been of exceptional size and intended to impress humans as well as metaphysical beings. The contact that people intended to be established between the physical and metaphysical worlds was

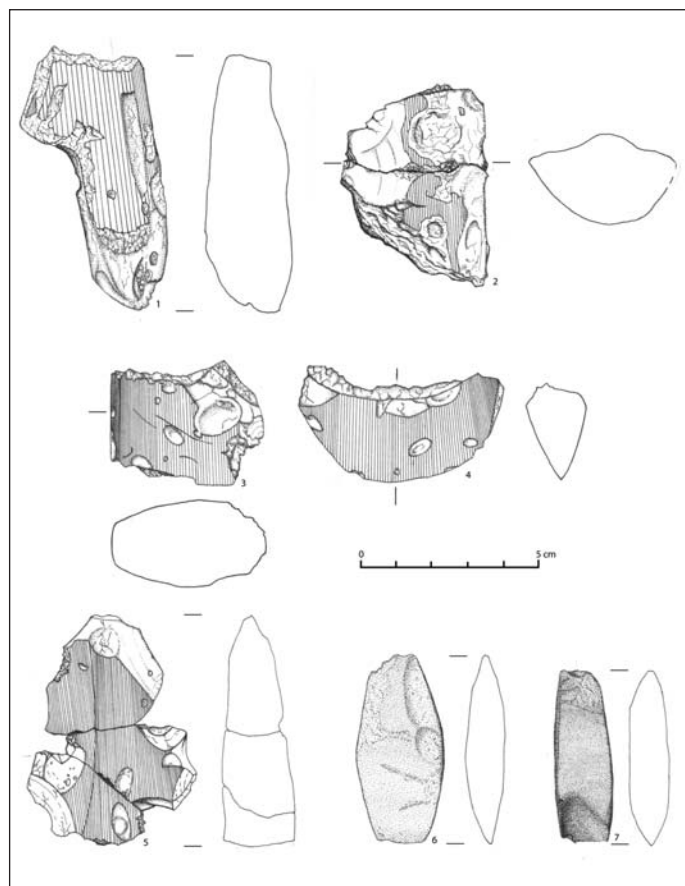


Fig. 10. Flint axes (1–5) and stone chisels (6–7) from the settlement site Stensborg, middle Sweden. Drawing by Krister Kam Tayanin.

to a great extent impressive and imposing. The transformation by fire of material culture must have been very obvious and the wealth represented by the number of tools and exotics included must have been considerable.

In view of the high quality and great number of axes, there must have been knappers who spent a considerable amount of time producing axes, *i.e.* true flint-knapping experts. Blacksmiths were regarded in late prehistory as possessing the knowledge not only to master iron, but also to master forces of the immaterial world (Østigård 2007). A similar status was accorded to the knowledge and action of the bronze smelter (Goldhahn 2007). The flint-knapping specialist who made the axes might have acquired the same position. The knapper, like the axes, became positioned in a zone between the living society and another world, that of spirits and deities. Those involved in the birth of particular axes may also have been involved in their death, transforming blades as part of the transformation of the deceased, effecting their transfer to the world of the forefathers.

These arguments bring us back to Stensborg. The stone knapper(s) at the site might have taken the lead when certain axes were to be transformed, most probably during assemblies of people from farms across the island of Södertörn. These assemblies may have been held for many reasons, but they most likely included mortuary rituals that involved the cremation of bodies, this being the common rite across Mälardalen at the time (Hallgren 2008). The evidence from the site suggests that, among other things, the process of transforming the body also involved transforming key items of material culture and, in the case of flint axe blades, this also involved prior heat treatment. This prior treatment was in most cases not a public, pyrotechnical event with a huge fire, the cracking of heated flints and splinters flying out of the fire. Rather, it was a slow and largely silent process. It might even have been conducted away from the public gaze. The subsequent result, a slow colour change without intense cracking, may thus have been all the more remarkable for those attending the more open and public moments of particular cremation ceremonies. The distribution of axe fragments over most of the slope at Stensborg indicates that after their transformation by fire, a number

were deposited in shallow pits, some of which were later destroyed by ploughing.

The patterning at Stensborg reflects the operation of cultural choice according to a very particular logic. The process of heat treatment does not seem to have been applied to other materials on the site or at earlier sites in the region. The large number of simple chisels found on site were not fragmented or heated (Fig. 10.6–7). These could have been used in the building and decorating of wooden structures that were provided for the public events. They were easy to make and were probably deposited after use without the kinds of treatment accorded to many of the flint axes. Because of their associations, the flint axe blades required a different kind of treatment, one that involved a very specific technique. This knowledge of what heat treatment involved was one element in a body of ideas that was brought to the north as part of the knowledge involved in know-how (Pelegriñ 1990) – the manufacturing of the thin-butted flint axes. Another idea would have been how the axe was generally used in deposition, or rather the transformation of an important part of the

material culture to an immaterial world. The handling of the objects undoubtedly involved special acts, perhaps combined with songs and dances. The specialist flint knapper was the possessor of that information, transmitted from generation to generation, providing him or her with a special status.

Conclusion

Many more examples could be presented to confirm that the ritual use of flint axes in Scandinavia was structured by norms and conventions. What is interesting here is that these conventions cut across other boundaries of cultural diversity and are sustained despite changes in the form of axe blades themselves and over a period of about two millennia. Stability seems to have been more important than innovation. The meaning of ceremonies, or at least the knowledge of how ceremonies involving axes should be performed, was transferred from generation to generation without much change. During the Neolithic, the intensity of axe deposition changes considerably. Rather few axes were deposited during the early part of the Early Neolithic (EN I, 4000–3500 calBC). A considerable intensity of axe deposition in wetlands is evident in the late Early Neolithic and earliest Middle Neolithic (EN II–MNI, 3500–3100 calBC). This is when megaliths and causewayed enclosures are built, probably indicating extensive internal stress within and between societies. Far fewer depositions in wetlands take place in the middle part of the early Middle Neolithic (MNA II–IV, 3100–2800 calBC). However, that is a period when axes are deposited within and outside megaliths, emphasising the deposition with the dead or outside the tomb of the ancestors. Quite a number of wetland depositions occur during the later part of the Middle Neolithic (MNB, 2500–2200 calBC). There seems to be a desire to link society to a specific period several centuries earlier. During the Late Neolithic (LN, 2200–1800 calBC) axes are still deposited, but they are replaced in their role as the most important object for individuals by daggers.

In certain cases, as many as fifteen axes might be deposited in one instance in wetlands. However, the

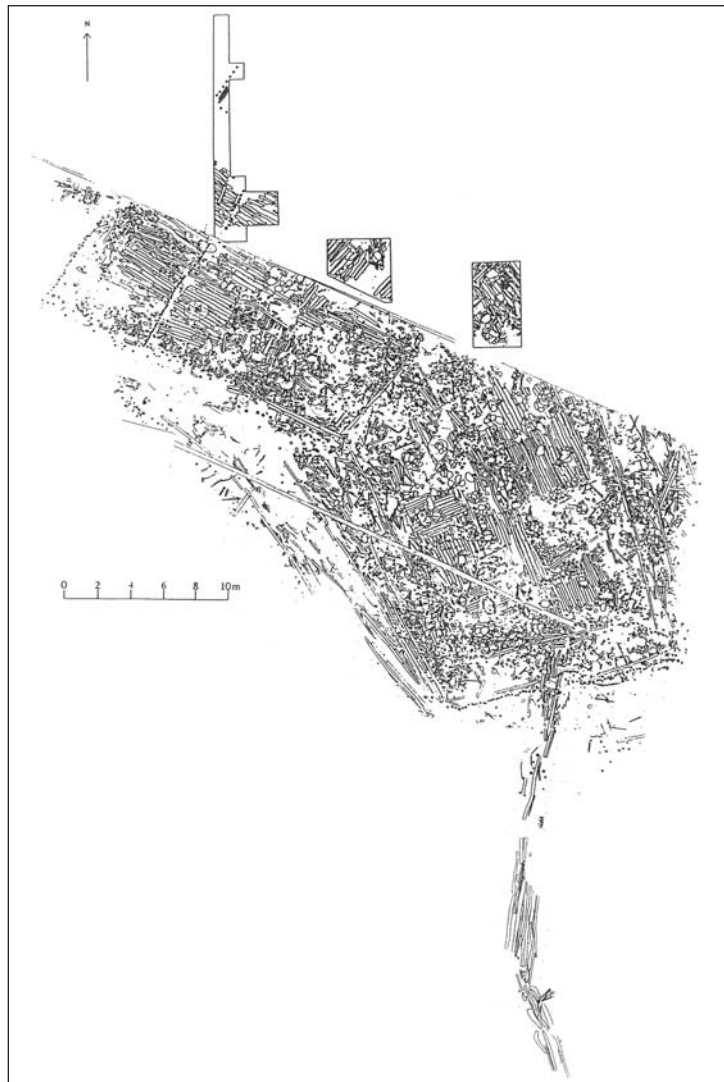


Fig. 11. *The wooden platform from Alvastra, dated c. 3100 calBC (after Browall 1986).*

largest depositions of axes take place in combination with the use of fire. This type of sacrifice of a large number of axes, including rare objects, may have been practised on special occasions, probably in combination with external or internal threats. It could have been an act which was meant primarily to legitimate power by impressing representatives of another community.

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