

# Pottery Manufacture at a Neolithic Causewayed Enclosure near Hevringholm, East Jutland

by BO MADSEN and RENO FIEDEL

This article has two purposes. The first is to present an important new findspot belonging to the Funnel Beaker culture, and the second is to put forward the main subject matter of this article: a hitherto unknown type of feature which turned up quite unexpectedly during the excavation. This type of feature is (optimistically) to be expected during future excavations on similar sites.

## INTRODUCTION

In the last century Store Brokhøj was the site of what was apparently a large tumulus. Now the site consists of overgrown sand diggings (fig. 2,A). The locality to be discussed lies immediately to the east of Hevringholm manor (1) on the northwestern part of the Djursland peninsula, only four kilometres from the well-known complex of megalithic sites at Tustrup (Kjærsum 1957). On this hummocky north-west-south-east oriented plateau c. 30 m above sealevel, the Randers Culture Historical Museum in 1985–86 excavated the remains of a causewayed enclosure around Store Brokhøj, dating to the earliest part of the Middle Neolithic (2). It was during this work that the remarkable feature to be described was found. From the point of view of excavation this feature required a much more intensive investigation than is normally allocated to settlement pits filled with pottery during the large and expensive settlement excavations of the present day.

## THE FEATURE

### *Survey and Sondage*

A surface concentration of potsherds and burnt clay daubing was found during intensive survey of the field

north of Store Brokhøj; this led to the excavation of a sondage (fig. 3). This revealed parts of respectively the eastern and westernmost sections of the feature. To the east was uncovered the outline of a zone filled with potsherds and large quantities of burnt clay daubing in a matrix of partially washed out sand containing charcoal. The sondage to the west of the pottery zone confirmed that the feature extended to the west in the form of a limited area of different coloured deposit around a stone setting. These observations, and not least the state of manufacture of the large quantities of pottery, led to a full-scale excavation being carried out in November and December 1986.

### *Observations during excavation*

Feature AAA (fig. 2B) turned out to comprise four main elements: an oblong pit (AAM) in which was a tight concentration of burnt clay daubing and potsherds (C); a stone setting (AX); and a charred tree-trunk (SX) (fig. 4). It was decided to excavate a series of transverse sections across the unknown feature, with a local section through C. This decision – together with the adverse weather conditions – meant that it was impossible just to empty pit AAM. A rectangular trench was therefore laid out around the feature. The various components are described in the following.

### *Pit AAM*

The pit was oriented ESE-WNW, and was placed as an extension of the ditch system to the west, lying only 1.5 m from its eastern edge (fig. 2C). Below the 0.25 m deep plough horizon, the outline of the pit was a long oval, 4 m long and 1.5 m wide. The depth of the pit was 0.6 to 0.7 m, and its sides were sloping or (along the north side of the stone setting) partially vertical. The subsoil con-

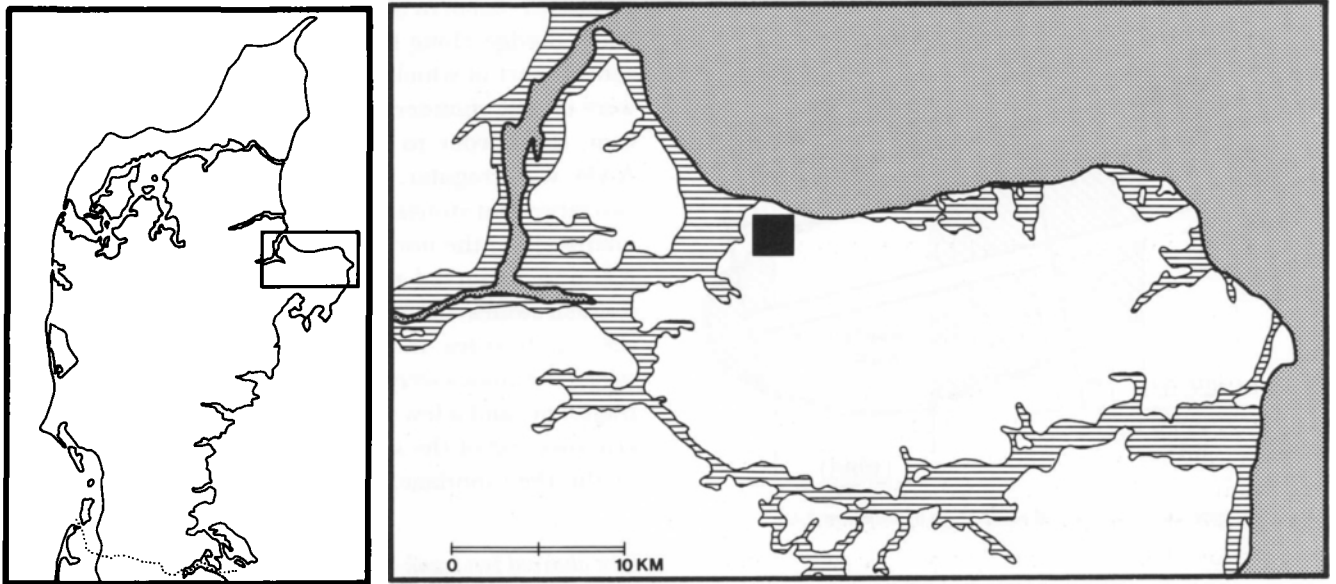


Fig. 1. The location of the causewayed enclosure in relation to the Littorina land – sea configuration.

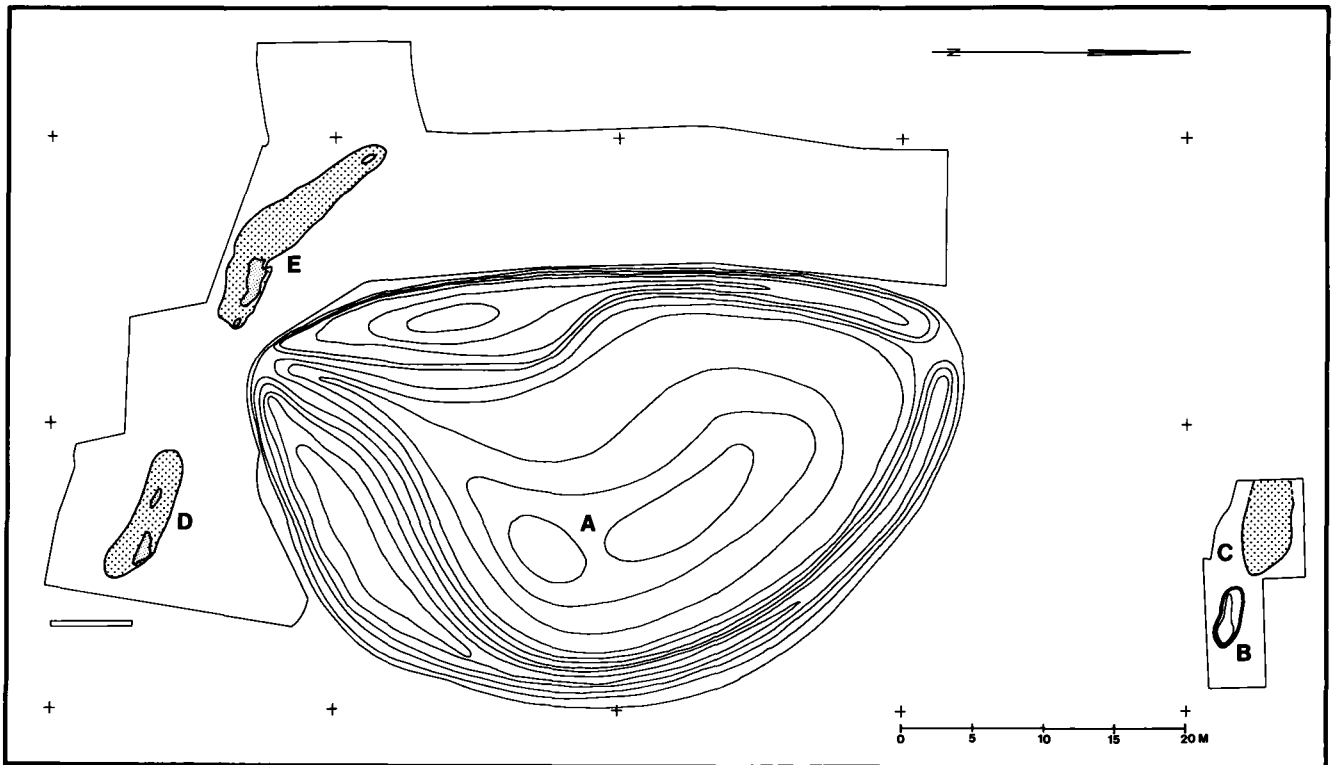


Fig. 2. The excavation area. A: Sand pit. B: Structure AAA. C, D, E: Remains of ditch system.

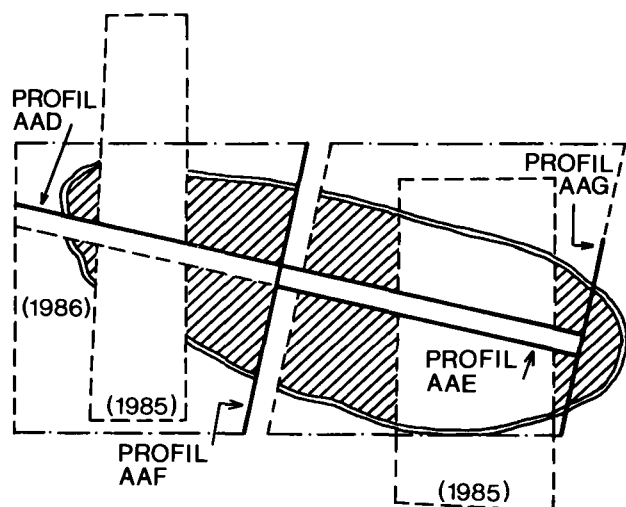


Fig. 3. The extent of sondage and excavation in structure AAA.

sisted of clay with a little sand, and in several places it was difficult to follow the transition to this. The bottom of the pit was flat, although irregular, and inclined slightly downwards towards the east.

#### *Pottery concentration C*

This consisted of sherds, sections of vessels, and nearly complete pots, intermingled with large quantities (more than half a cubic metre) of lightly or heavily burnt clay daubing with clear impressions of heavy wattling. Among this scattered fragments of burnt stone and two burnt flints were also found: a waste flake and a core. These finds, together with areas of lightly humified sand slightly stained with charcoal, filled a pit at least 0.4 m deep, which formed the entire eastern end of AAM. To the west, the boundary between the pit and the stone setting AX and the tree trunk SX was unclear, partly because of disturbances caused by the hasty excavation of the sondage in 1985 (fig. 3). Area C is roughly the shape of a horse's hoof, and covers c. 1.2 m<sup>2</sup>. The broader western side is 1.3 m in length, while from west to east it measures 1.3–1.4 m. The bottom of the pit is flat, and is formed by a stone setting – the easternmost part of stone setting AX.

#### *Stone setting AX*

The position can be seen in fig. 4A and to some extent in the section in fig. 4B. The concentration comprises

stones 0.1–0.3 m in diameter, and has a straight, clearly marked edge along the northern side of pit AAM, the central part of which was slightly concave. The stones were mostly rounded, and formed no recognizable pattern; the border to the west and south, towards pit AAM, was irregular. In the top of the stone setting were two larger flat stones, 0.3 and 0.4 m long, positioned immediately to the north of the charred tree trunk SX. In AX were observed many burnt, partly fragmented or reddish stones – several with traces of burnt material on their undersides. In the washed out grey sandy fill between the stones were observed a few scattered charcoal fragments and a few pieces of burnt daubing. The westernmost end of the stone setting was a little disturbed by the 1985 sondage.

#### *The charred tree trunk SX*

This surprising find came from the southern side of AAM, near the bottom of the pit. The completely charred tree trunk was preserved as a 1–2 mm thick layer of charcoal without any visible woody structure. The upper side, however, displayed a three-dimensional wood structure with longitudinal lines. The trunk was preserved to a length of 2.2 m and was 0.45 m wide. SX clearly had a concave, trough-shaped cross-section (fig. 4B). The edge/outline of the trunk were encountered at a level of 0.02–0.04 m above its base. Charcoal traces showed that the trunk must originally have continued to the centre of the base of C, so that it would thus have had a full length of nearly 2.5 m. The trunk is resting on a few burnt stones, and along its northeastern edge is covered by the stone setting AX. Just where the trunk ran into C two flat stone slabs were observed. These stone slabs, now standing at an angle, were supported by smaller stones resting on the edge of the tree trunk; together with the two slabs (mentioned above) which were found immediately to the northwest, they seemed to have formed a covered duct (fig. 5). This duct, some 0.2 m wide and 0.1 m high, was filled with material from C.

The two stone slabs from the top of the stone setting, and so not in their original position, without doubt formed a westerly extension of this construction.

The whole of the eastern metre of the tree trunk was covered and partly filled by large potsherds and in particular fragments of clay daubing. It is clear that the tree trunk is a part of a partially stone-built construc-

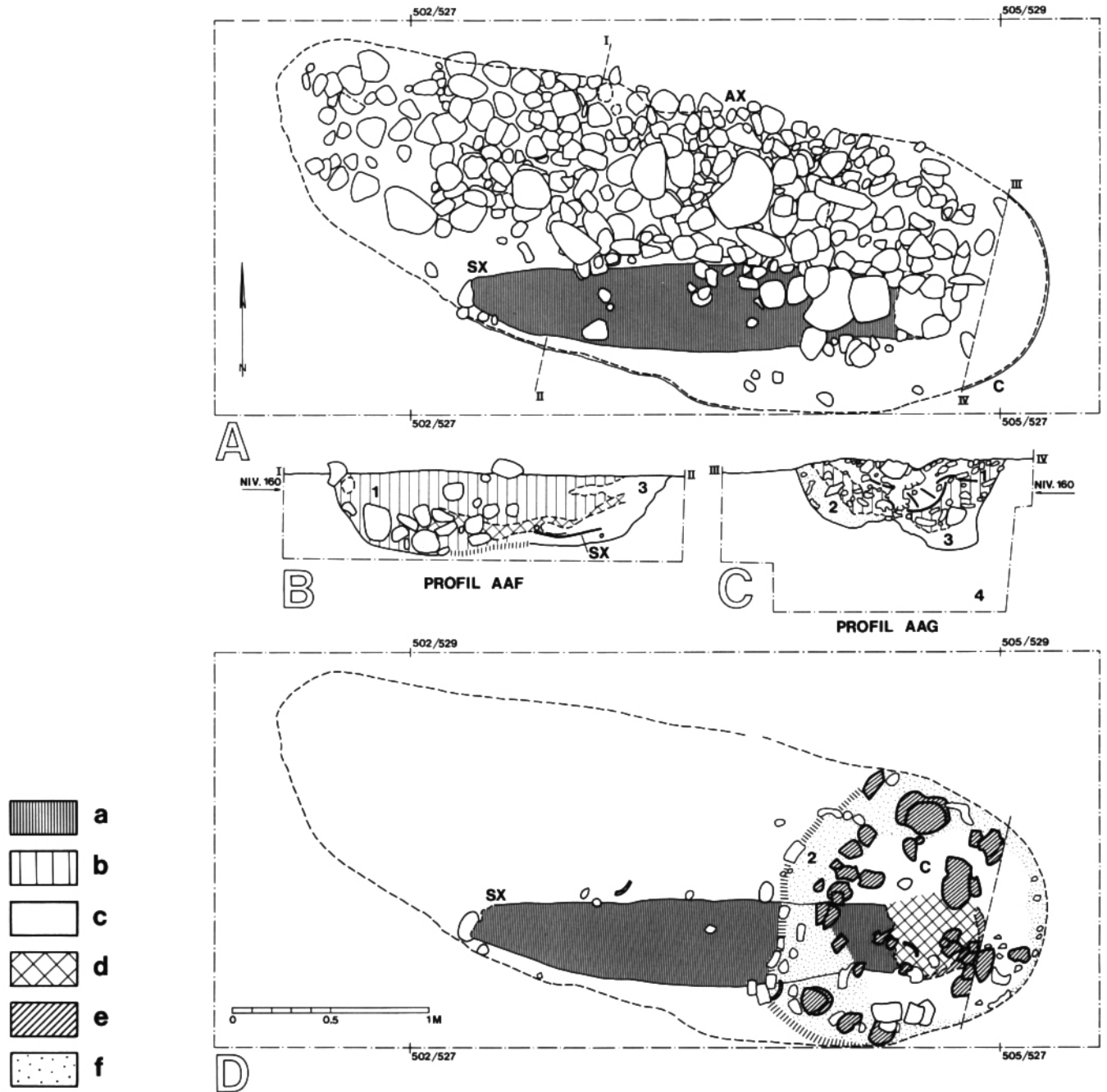


Fig. 4. Excavation plan. A: Structural remains of AAA. B, C: Sections. D: Plot of ceramic finds in area C. – Legend: a, charred wood; b, grey sand; c, burnt daub; d, charcoal; e, pottery fragments; f, white and ash coloured sand. (G. Rasmussen del.)

tion, which formed a duct running beneath C; this is also visible from the section through C (fig. 4C).

#### *Stratigraphy and distribution of finds*

Feature AAA is dug down into the sandy clay subsoil which covers the whole of the north side of the Store

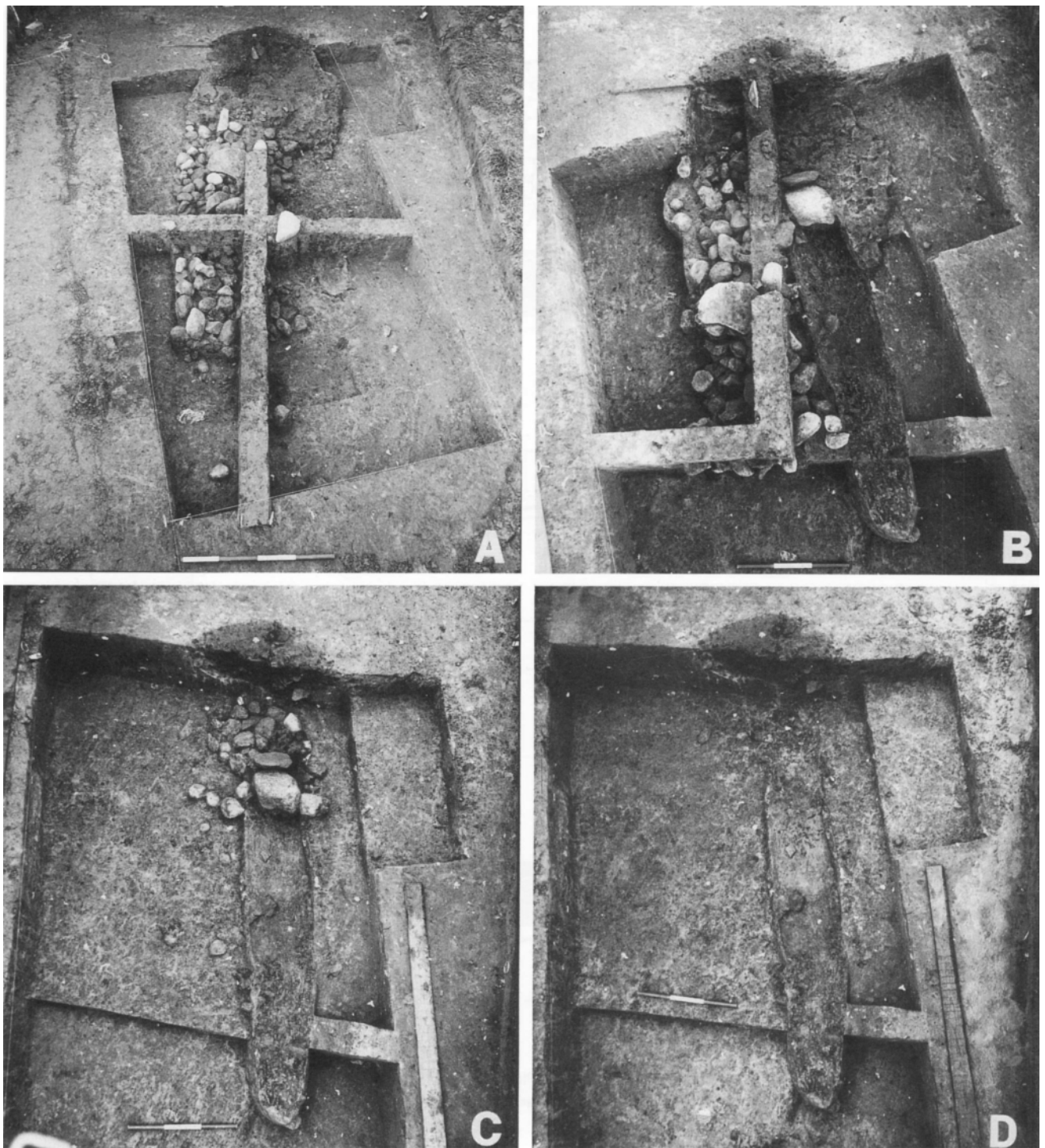
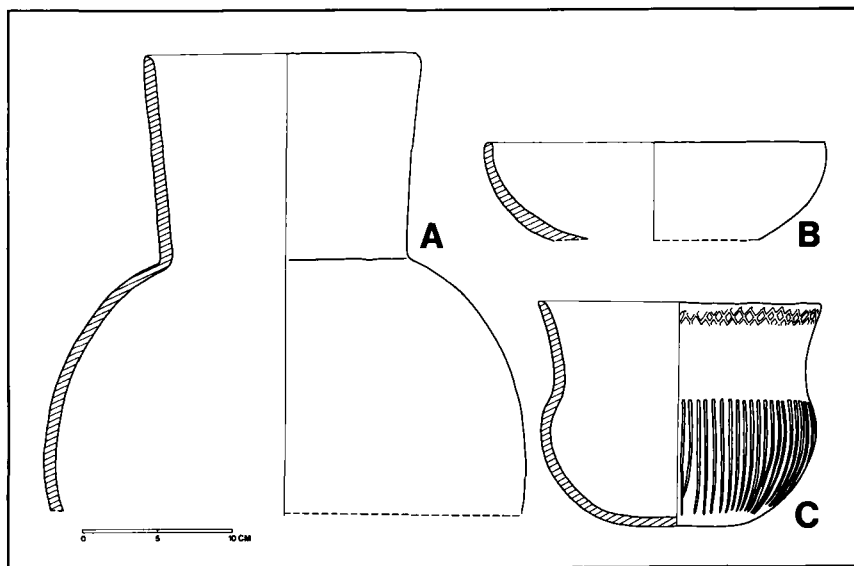


Fig. 5. The excavation in progress. Structure AAA seen from the west. (photos: K. Nijkamp)

Fig. 6. Examples of pottery finds from structure AAA, area C. Scale 1:5.



Brokhøj hill. This subsoil contains hardly any stones or boulders. The primary fill of the pit consists, as mentioned, of washed out grey sand with a few scattered fragments of charcoal, and a complete lack of humified soil. Downwashed or collapsed subsoil was observed in several places along the edges of the pit (fig. 4C, layer 3). The grey sand, layer 1, could be seen as far down as the base of the pit, both in and under the stone setting. The section through the tree-trunk SX (fig. 4A, points I to II), which is a view from the west, shows the relationship between the tree-trunk, the stone setting, and the base of the pit. The trunk is placed 0.05–0.10 m above the diffuse base of the pit. Along the whole length of the trunk a zone of scattered charcoal fragments was observed between the trunk and the bottom of the pit. Traces of charcoal were also visible somewhat higher in the pit, running from the northern edge of the tree-trunk in among the stones of AX. The interior concavity of the trunk outside C was also filled with the grey sand. Very close to the charred wood, an ashy sand layer only a millimetre thick was observed.

The section through C (fig. 4C) between points III and IV (fig. 4A) shows the structure of this pit-like concentration of clay daubing and pottery. The edge of the pit is marked on the surface by a diffuse zone of grey to white sand, layer 2, which along the northern side can be traced right down to the bottom. The interior of the pit, consisting of potsherds and burnt clay daubing in a

matrix of partially washed out dark sandy fill containing charcoal staining, revealed a depressed, concave structure. The clay daubing lay tightly packed in C, with the largest pieces in the centre. Despite careful exposure, no definite patterning was visible in the distribution of the clay daubing, which lay completely randomly. In layer 2, the greyish white sand, the clay daubing was more scattered, although it was burnt completely red in a way very similar to the potsherds found in this zone along the edge of the pit (fig. 4D). Potsherds and vessel sections lay throughout the entire pit. In the central part were sherds of a large undecorated lugged jar (WZ) and most of a richly decorated lugged beaker (XR). High up in C, near its northern edge, was a complete side of a funnel beaker (TB) of type D (Becker 1948), with its base uppermost.

The many vessel sections along the edges of the pit were mainly bases, strongly reddened in firing, of crumbly consistency, and with a black interior. In the bottom of C there were also a few sherds of unfired or weakly fired ware.

### Dating

Feature AAA is a structural unit, and can be dated by the pot types it contains. A preliminary evaluation of the pottery from C (analysis of the assemblage has not yet been completed) reveals sections and fragments of

15 vessels, of which a selection is illustrated in fig. 6. On the basis of shape and decoration this pottery aligns itself with the Fuchsberg group, which appears in Schleswig-Holstein, on the island of Funen, and in eastern Jutland, at the transition from Early to Middle Neolithic at c. 3400 BC (recalibrated) (Andersen and Madsen 1977). The vessel types from feature AAA are excellent examples of this cultural context, and contain (apart from those mentioned above) a small undecorated bowl.

#### INTERPRETATION

As the excavation of area C progressed it became clear that the feature was not a normal pit filled with potsherds and other refuse from a settlement. The large quantities of clay daubing, burnt red, yellow and brown, were in themselves noteworthy. The ceramics also displayed a degree of variation in ware, colour and surface unknown from settlement contexts. In particular their surfaces and interiors showed extreme variation in colour and hardness, from red with grey areas and black core, via yellowish-brown ware with a more common dark brown core, to apparently unfired pottery.

If these observations are linked to the charred remains of the trough-shaped treetrunk and the existence of a stone-covered duct under pit C, then feature AAA (and in particular area C) must be interpreted as the remains of a structure for firing pottery.

What we do not yet know with any certainty is whether the Store Brokhøj 'kiln' is a unique undertaking, or reflects a more widespread technology involving the firing of pottery in a partly sealed kiln and the attempted control of temperature and atmosphere. The second is the more likely of these two possibilities, and we must regard the treetrunk as being not merely deliberately utilised, but as an apparently vital element in the operation of the kiln. The stratigraphic situation indicates that feature AAA was used for several firings, and that the heat source was placed outside the entrance to the kiln itself (C) – the shape of which (possibly a cupola: Bjørn and Hingst 1973, p. 110) cannot yet be described.

Finds of kilns – or of features interpreted as kilns – are not completely unknown within the Scandinavian Funnel Beaker culture. Apart from a series of inexpertly or inadequately documented cases (Bjørn 1969, p. 60; Silow 1962 p. 27; and Davidsen 1978 p. 61) there are

three Scandinavian examples of features interpreted as pottery kilns (Strömberg 1978, p. 97; Larsson 1982, p. 71; and Nielsen 1984, p. 34). In the present context a particularly interesting find comes from the causewayed enclosure at Sarup (Andersen 1976); this is a 2 m long oval pit, no. A 258, containing sherds from at least 44 vessels of MN II date, which represent, according to the excavator, the results of an unsuccessful firing. A thick layer of burnt clay daubing was observed on top of the eastern part of this ceramic material. In the bottom of the pit was material resembling occupation debris, with partially burnt finds of flint and bone.

A deeper understanding and technical interpretation of the hitherto unknown kiln type from the Hevringholm causewayed enclosure must be based upon: 1) future excavation of similar features; 2) an archaeometric and morphological analysis of the pottery from the kiln chamber, along with that of samples from other finds of unsuccessful firings; and 3) an experimental testing by reconstruction of the components and totality of the feature.

#### THE CAUSEWAYED ENCLOSURE

Only a small area of the site has so far been excavated, namely just over 1200 m<sup>2</sup>. This is mainly to the south of the tumulus (fig. 2). So far three elongated pits have been uncovered, each up to one metre deep, two to the south and one to the north of the tumulus. These are interpreted as ditch segments. Traces of narrow trenches containing post rows up to 1.5 m deep have been found in the southern area. So far they form no recognizable pattern.

Despite the limited excavation area, however, the features and finds mean that the site must be classified as a so-called causewayed enclosure. The best locational parallel is the site of Bjerggårde, near Horsens in Eastern Jutland (Madsen 1982), but it is still too early to examine the size and plan of the Hevringholm site.

The Hevringholm site lies in a generally sandy and clayey region with few stones and boulders and little morainic flint. This may be why there are virtually no flint artifacts on the site. Only in connection with a single small pit containing shells and charcoal in the west of ditch segment E did worked flint appear, together with bones and pottery.

The most remarkable finds from the causewayed en-



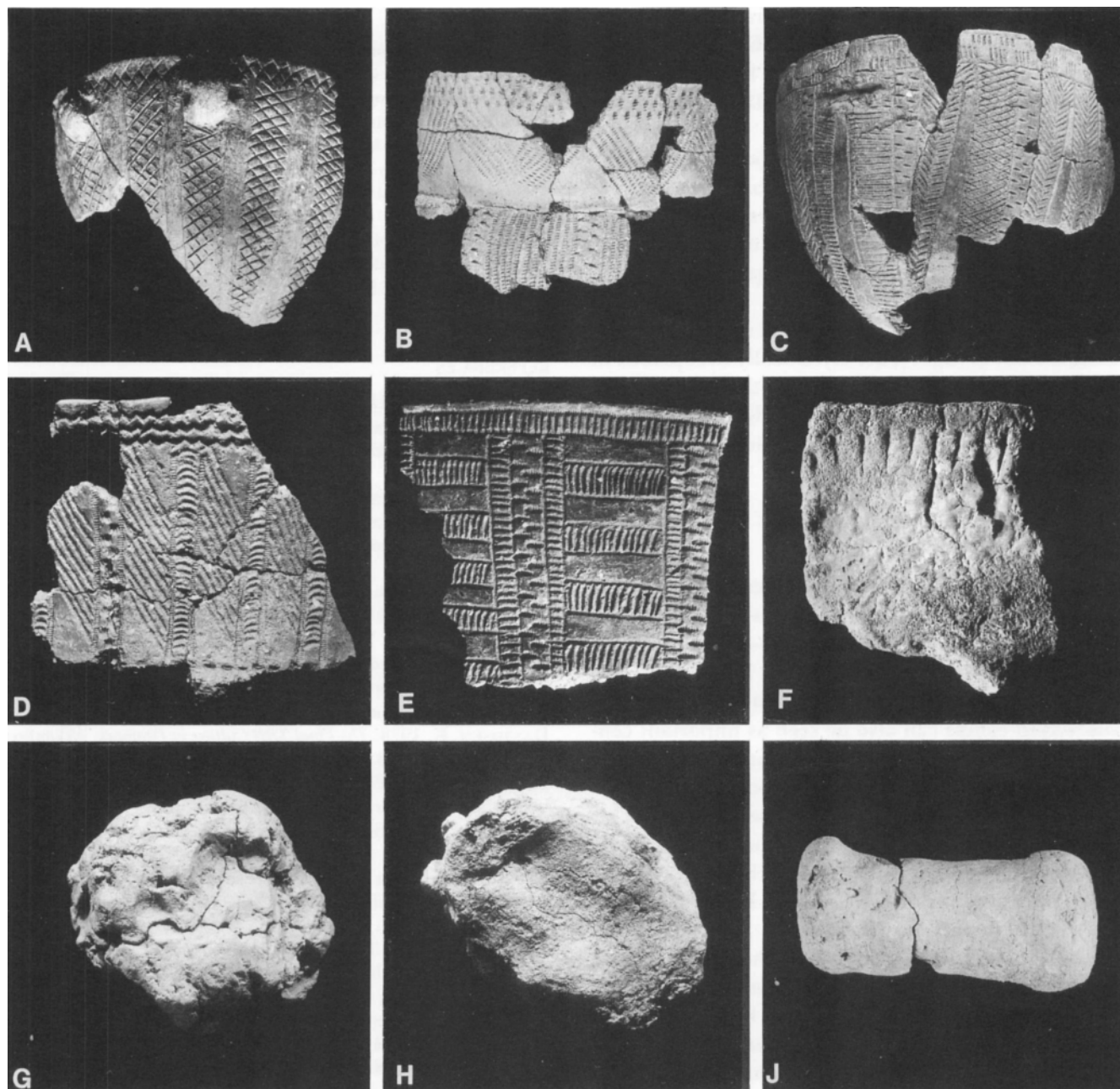


Fig. 7. Finds from the Hevringsholm site found in or adjacent to the ditch structures. A–E: Funnelbeaker pottery typical of the MN I period in Jutland. F: Secondly burnt rim sherd. G, H: The potter's raw material; note finger and hand impressions. H is tempered with granite. J is a straw tempered, burnt clay object. Individual scale, heights in cm: A = 12.2; B = 14.1; C = 18.6; D = 6.4; E = 5.9; F = 6.2; G = 9.0; H = 10.0; J = 4.0 (photo: K. Nijkamp)

closure, from both ditch segments E and D, consist of large, dense concentrations of pot sherds and burnt clay daubing. The richest such concentration has so far yielded evidence of more than 70 vessels. Together with these pottery concentrations, which appear to be the re-

sults of unsuccessful firings, occur weakly fired lumps of both raw and granite-tempered paste – with impressions of the hands of the potters preserved (fig. 7). Especial mention must be made of three cylindrical fired objects of clay tempered with straw (fig. 7). Are these used



for stacking up pots for firing? – or are they anvils for performing the ‘paddle-and-anvil’ technique? The vessel types comprise funnel and lugged beakers, decorated and undecorated bowls, lugged flasks and lugged jars.

We regard these concentrations of pottery and burnt clay daubing as the dumping of rubbish from unsuccessful firing episodes (3). They occur so tightly packed and undisturbed that it is tempting to conclude that, as for pit A 258 at Sarup, the firing took place close to the ditch segments.

This large ceramic assemblage, and in particular the decorated bowls (fig. 7), are stylistically best placed in the East Jutland Fuchsberg phase, although there are hints of the Troldebjerg phase (MN 1a) with its more developed modelling and ornamentation.

#### GENERAL PERSPECTIVES

Causewayed camps have now been located throughout most of Denmark as well as Scania (Madsen 1982, Larsson 1982). The number of these so-called assembly places is now over 15. As suggested by N. Andersen (1981) and T. Madsen (1982), the South Scandinavian causewayed camps can also be seen as important centres of socioeconomic and ritual activities.

The causewayed camp at Hevringholm underlines a further significant dimension of these activities. This dimension, also visible at the Scanian site of Stävie (Larsson 1982), at the only extensively excavated site Sarup, and at the site of Büdelsdorf in Holstein (Hingst 1971), is the manufacture of pottery.

From a more general perspective, the demonstration that pottery manufacture took place at several central places – “places of assembly” – may be important for our future understanding of the dynamics of ceramic/stylistic uniformity in the earliest phases of the later Funnel Beaker culture. Precisely at this time, ideas about pottery design seem to develop and spread effectively and rapidly through Schleswig-Holstein and South Scandinavia.

*Translated by Peter Rowley-Conwy*

Bo Madsen, Historical-Archaeological Experimental Centre, DK-4320 Lejre.

Reno Fiedel, Kulturhistorisk Museum, Stemannsgade 2, DK-8900 Randers.

#### NOTES

1. The owner of Hevringholm manor, Mrs. S. Balling, is thanked for her kindness in connection with the excavations at Store Brokhøj. The excavations were supported by *Rigsantikvaren*.
2. Kulturhistorisk Museum, Randers, j. no. 73/85, Vivild parish, Sønderhald district, Århus county. Ass. curator N.T. Sterum is thanked for his co-operation and for permission to publish the find. The excavation was directed by Reno Fiedel. Feature AAA was investigated by Bo Madsen.
3. Eva Koch Nielsen of the National Museum is warmly thanked for her expertise in the field of pottery, and for her positive criticism and loyal support (cf. E.K. Nielsen 1987).

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