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17: CAUSEWAYED ENCLOSURES IN SOUTH SCANDINAVIA

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The first causewayed enclosure belonging to the Nordic Funnel Beaker Culture (hereafter TBK) was found as recently as 1969 at Büdelsdorf in South Sleswig. At that time it was merely regarded as a defended village, and it was only after further discoveries during the seventies that the connection was made with the Western European group of causewayed enclosures.

Today we know ten definite sites and one probable, and it seems likely that the number will rise dramatically during the next few years. Unfortunately, the enclosures do not show up well from the air in the glacial deposits of clay and sand that prevail in the area. Consequently, we are in general left with the slow and laborious method of excavation as the only means of detecting new sites.

Even though causewayed enclosures are a new type of site in Scandinavian archaeology, and even though the number of sites is still limited, it seems warranted not only to give an overview of the current material, but also to sketch a model for the function of these sites in their cultural setting.

The main purpose of this paper, then, is to outline and discuss the problem of fitting the causewayed enclosures into their socio-cultural context. However, much space will necessarily be taken up by site descriptions, as an initial step to a synthesis.

The paper starts with a short section on the general chronological background of the enclosures and then proceeds to a site by site description. A general discussion of the common features of the sites follows next, and finally before a synthesis is given, the cultural background is reviewed with special reference to those aspects that are of importance to the understanding of the causewayed enclosures.

TBK Chronology

The TBK is customarily sub-divided into an Early Neolithic and a Middle Neolithic phase. The chronology of the Early Neolithic was until recently based on Becker's A, B, C system (Becker, 1947). However, new investigations, and especially new C14 dates, have resulted in so many changes to this scheme that many authors have chosen to change the reference system, even though the pottery division still holds good (Ebbesen and Mahler, 1980; Madsen and Petersen, 1984).

Three or perhaps four partly regional groups were present in the older part of the Early Neolithic from c. 3100 - 2800 bc. They are named the Oxie, Volling, Svalekint, and Satrup groups. They contain elements of all Becker's pottery groups, and seem in most respects identical with these (Madsen and Petersen, 1984, 114).

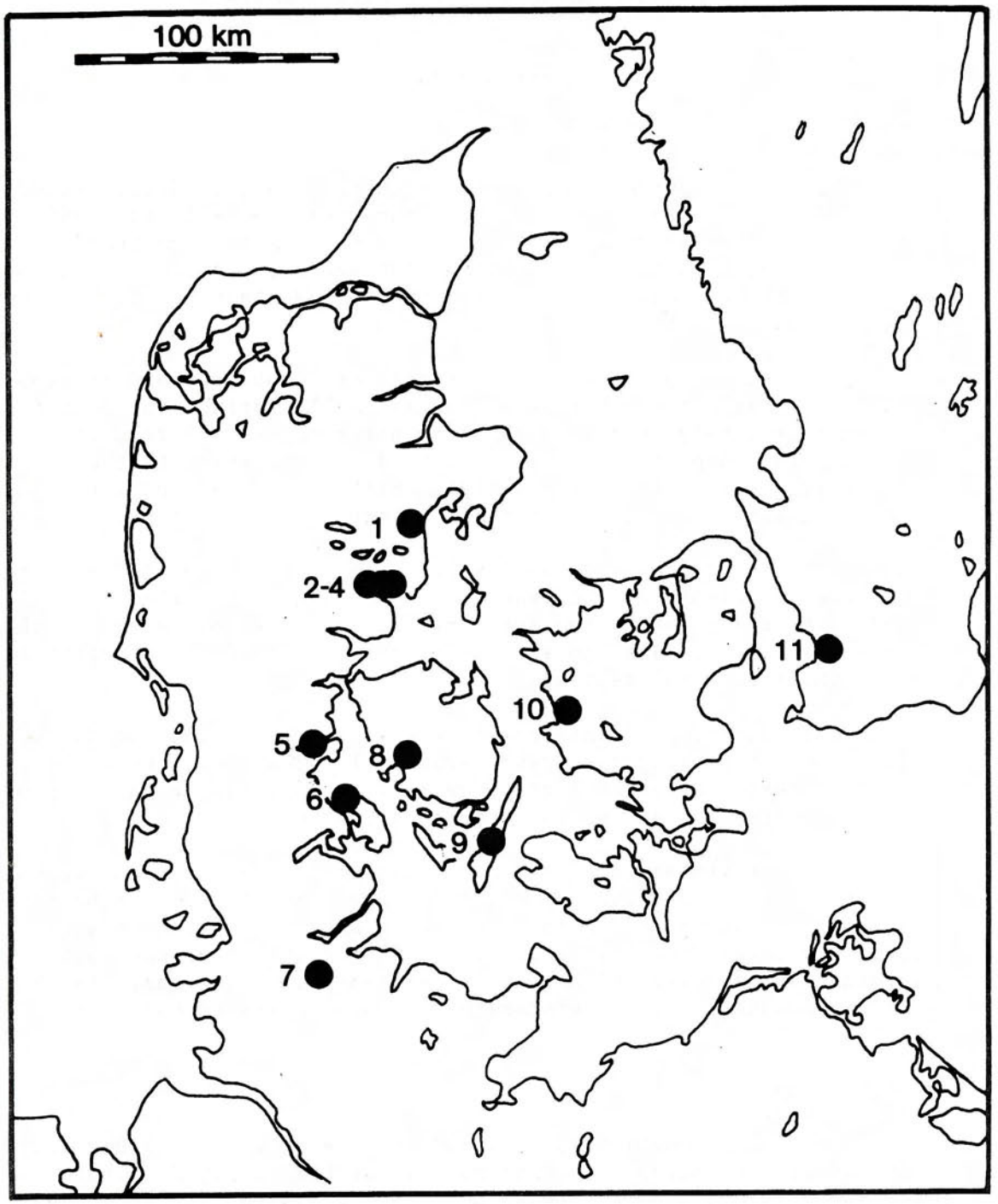

Fig. 17.1 Distribution map of southern Scandinavian causewayed enclosures

In the later part of the Early Neolithic, c. 2800 - 2600 bc, the Volling group continued in North Jutland, whereas the southern and eastern parts of Denmark became dominated by Becker's so-called "megalithic style"; mainly in the guise of the Virum group, but between 2700 - 2600 bc in south-west and central Denmark, the Fuchsberg group (Andersen and Madsen, 1978; Madsen and Petersen, 1984, 114). Stylistically the Fuchsberg fills a phase transitional to the Middle Neolithic, and may for formal reasons be considered to belong there (Andersen and Madsen, 1978, 144).

The first truly Middle Neolithic phase (MN I), from c. 2600 - 2450 bc, forms the first reasonably homogeneous style group, covering all of southern Scandinavia. It is initiated with a short sub-phase around 2600 bc termed MN Ia (Troldebjerg style), but runs straight into the main part termed MN Ib (Klintebakke style). A sequence of rapidly changing, partly regionally based styles (MN II - IV) follows between c. 2450 - 2350 bc, while the last phase of the TBK (MN V) may be dated to c. 2350 - 2200 bc.

The total TBK sequence thus occupied some 900 C14 years, perhaps 1,100 - 1,150 calendar years (calibration after Pearson *et al.*, 1983). The detailed chronology available for the TBK is based partly on its finely decorated pottery, combined with numerous C14 dates. The Fuchsberg phase, for instance, is defined by the brief use of an angular chevron band (Fig. 17.6), and is dated by five C14 dates from Sarup, and eleven from Toftum (Madsen and Petersen, 1984, note 53). When dealing with such detailed chronologies, it should not be forgotten that the true length of the individual periods may be somewhat different from the spans indicated by the C14 dates, due to severe kinks in the relevant parts of the calibration curve (Pearson *et al.*, 1983).

Site Description

The TBK enclosures so far discovered concentrate mainly in central Denmark (Fig. 17.1), but this is probably due more to the state of recent research than to a genuine concentration there.

The numbering of the sites in the following site inventory refers to the numbers in Fig. 17.1.

1: ***Voldbaek*** (Davidsen, 1978, 57-8; Andersen and Madsen, 1978, 151-2; Madsen, 1982, 210, fig. 9)

The Voldbaek site is situated on a promontory formed between a gully containing a small stream, the Voldbaekken, and the shore of what is now a lake, but which was a long narrow fjord during the Neolithic.

The site has been completely destroyed by gravel extraction and only sparse information is available. It is known that in 1939 C.L. Vebaek of the National Museum dug two parallel NW - SE ditches, 9 m apart. They measured 12 x 3.0 - 3.5 m and 15 x 2.7 - 3.6 m, and were 1.1 - 1.3 and 0.75 - 0.95 m deep respectively. In the SE they contained only sterile sand, whereas for 5 - 6 m in the NW they

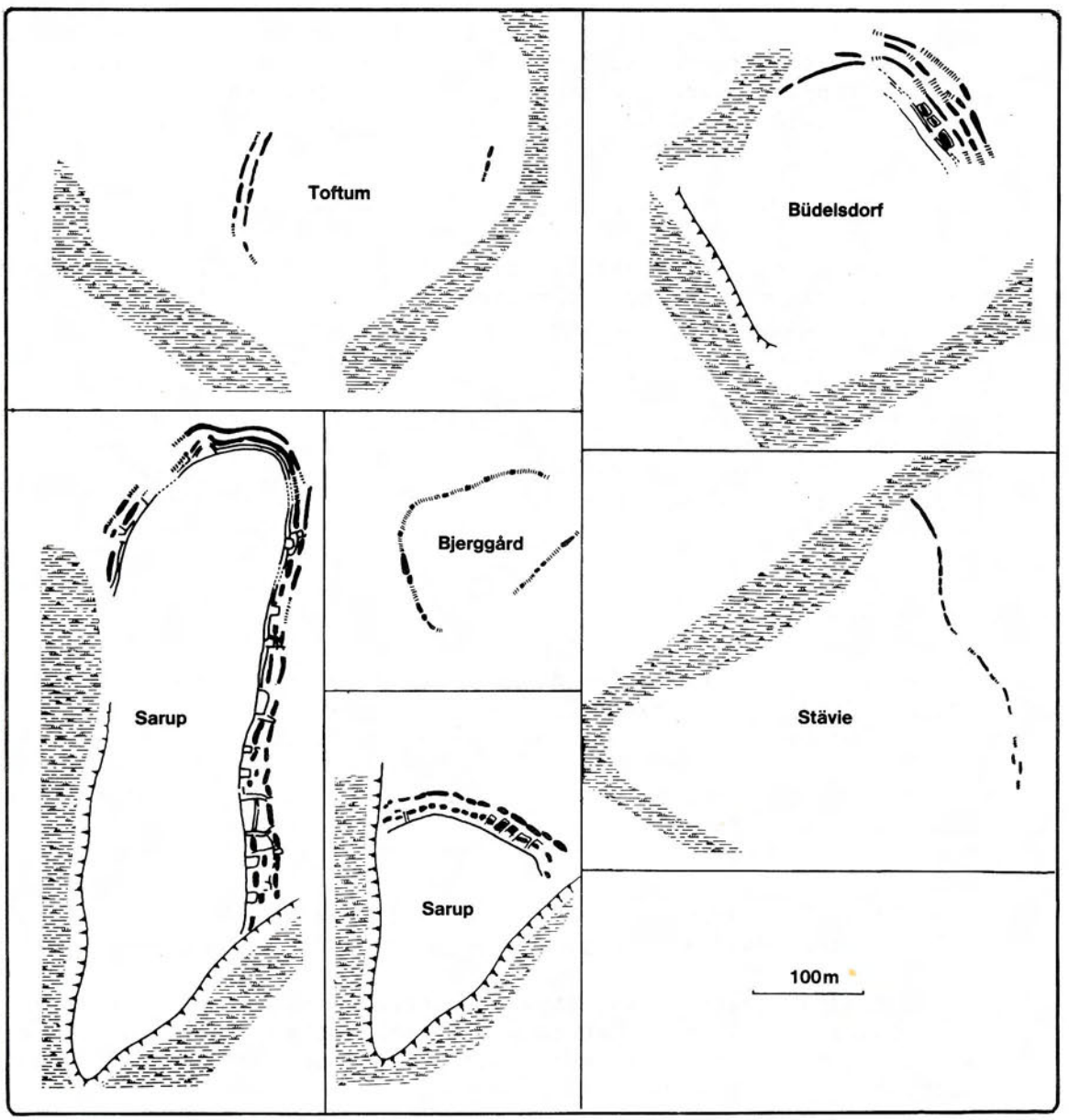

Fig. 17.2 Survey plans of six southern Scandinavian causewayed enclosures

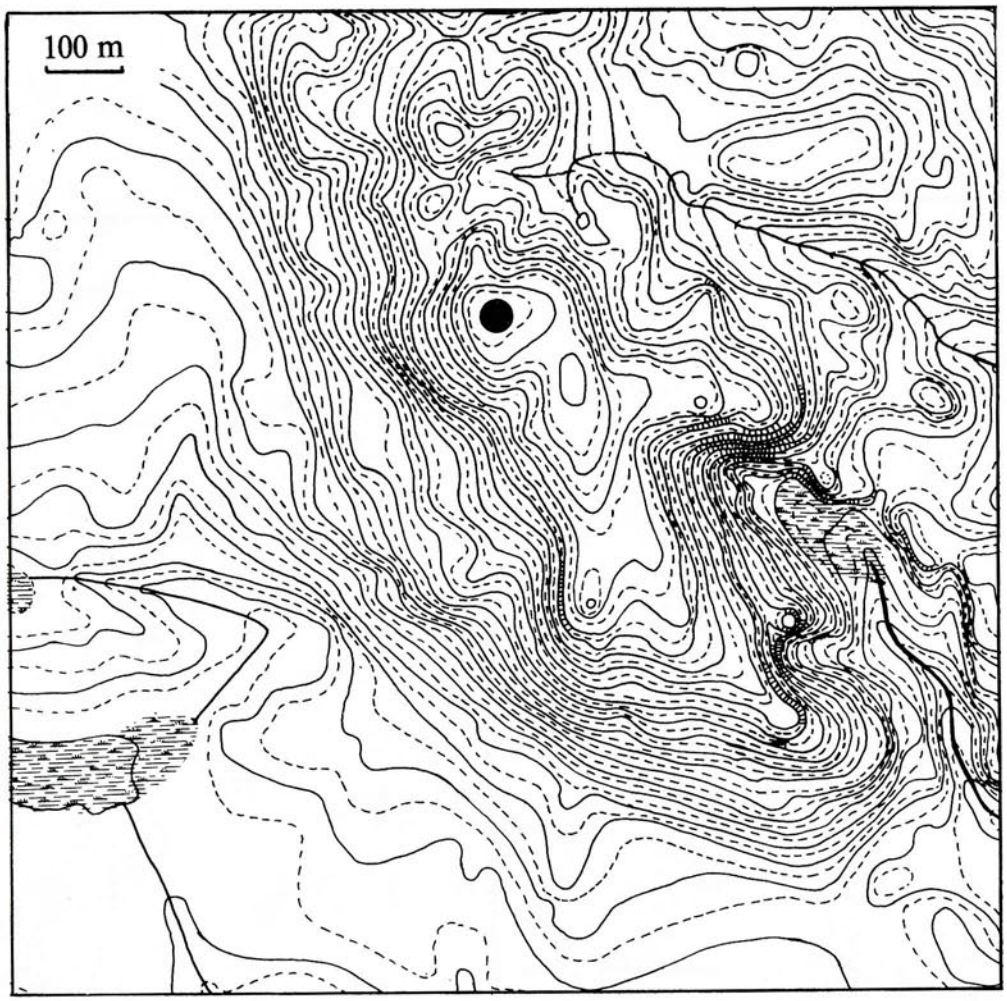

Fig. 17.3 **Map showing the topographical position of the Bjerggård enclosure**

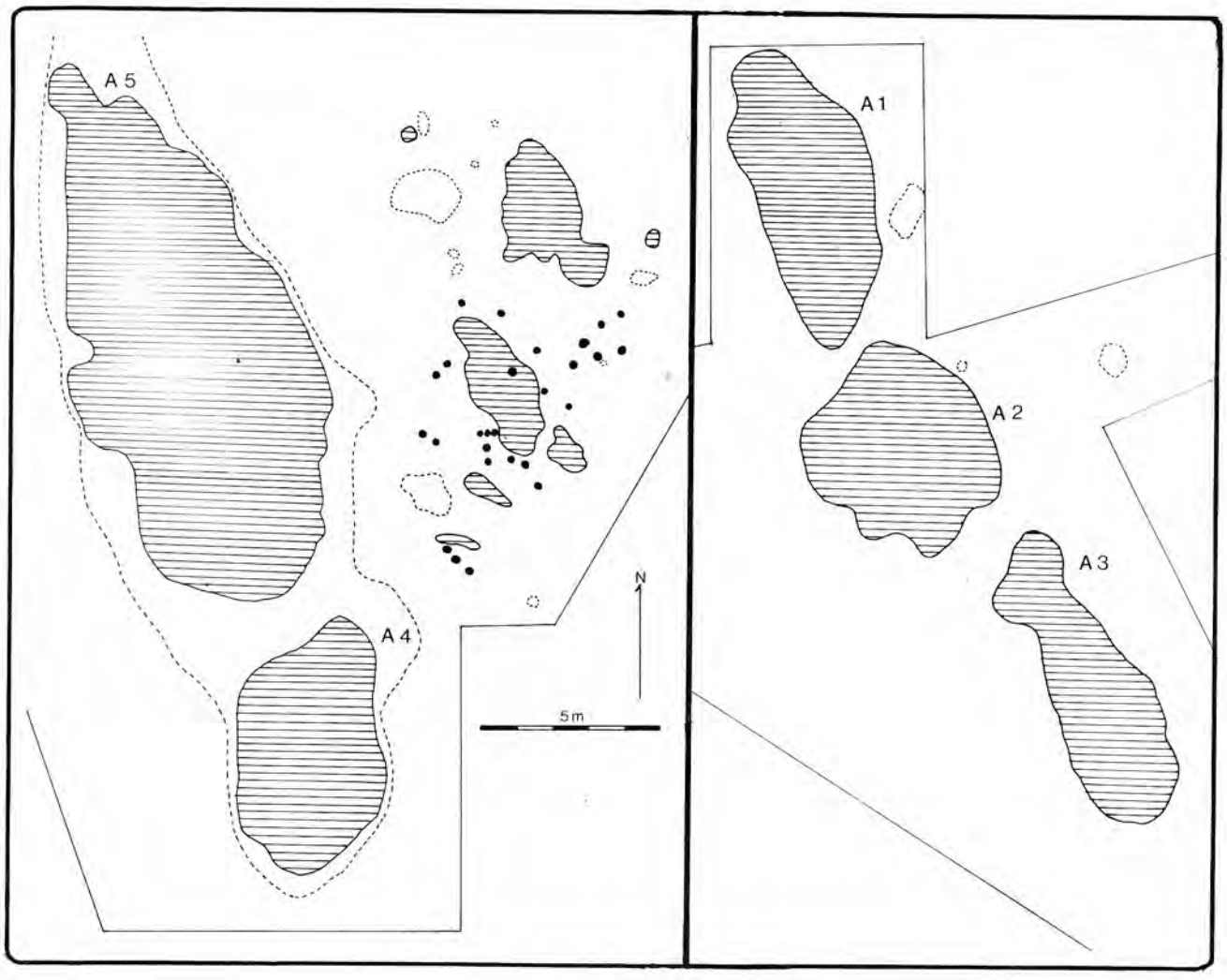

Fig. 17.4 Plan of excavated features at the Bjerggård enclosure

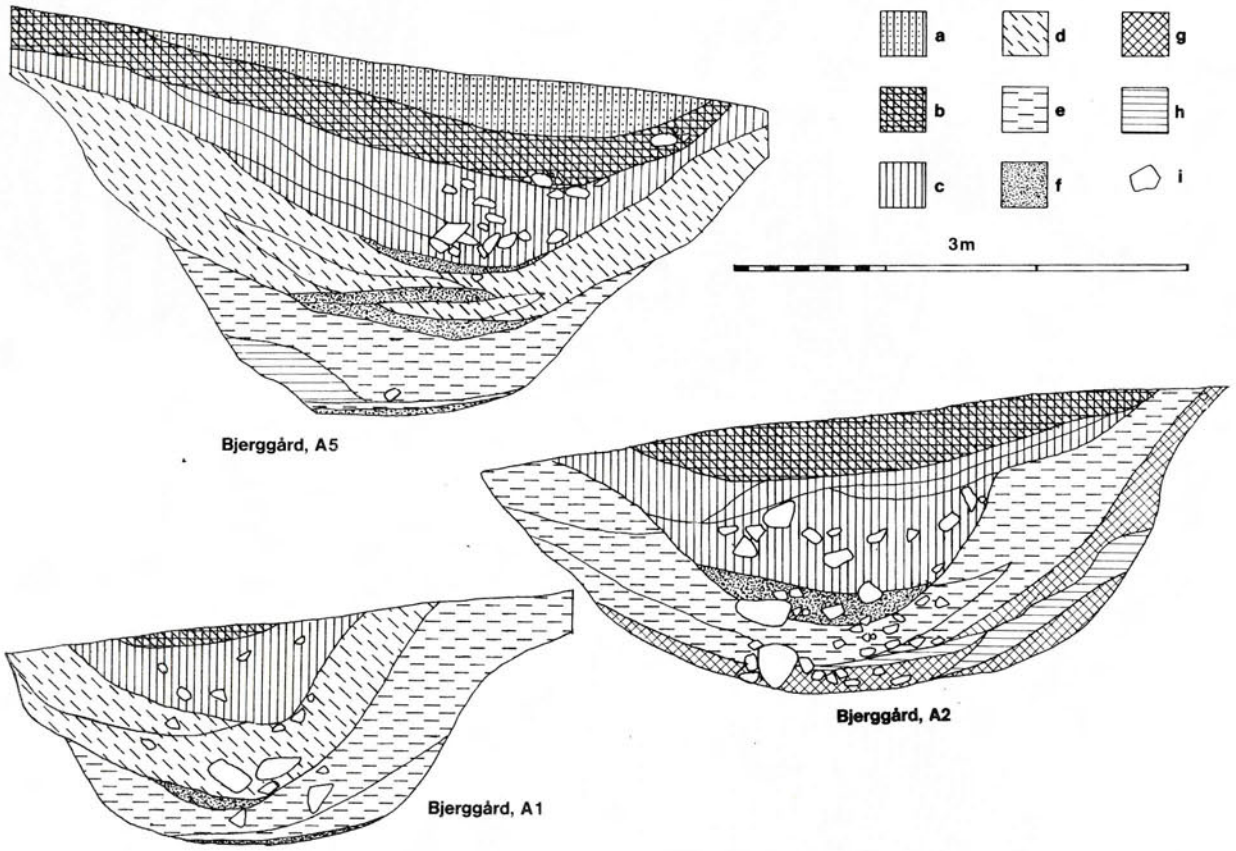

Fig. 17.5 **Sections through ditches at the Bjerggård enclosure:**

a: erosional deposit of settlement debris
b: primary deposit of MN V settlement debris
c: humus coloured deposit, either natural or deliberate backfill of second recut phase
d: light structureless sand, deliberate backfill of first recut phase
e: light structureless sand, deliberate backfill of original ditch
f: activity horizons at bottom of ditches and recuts
g: clay
h: slides of subsoil
i: stones

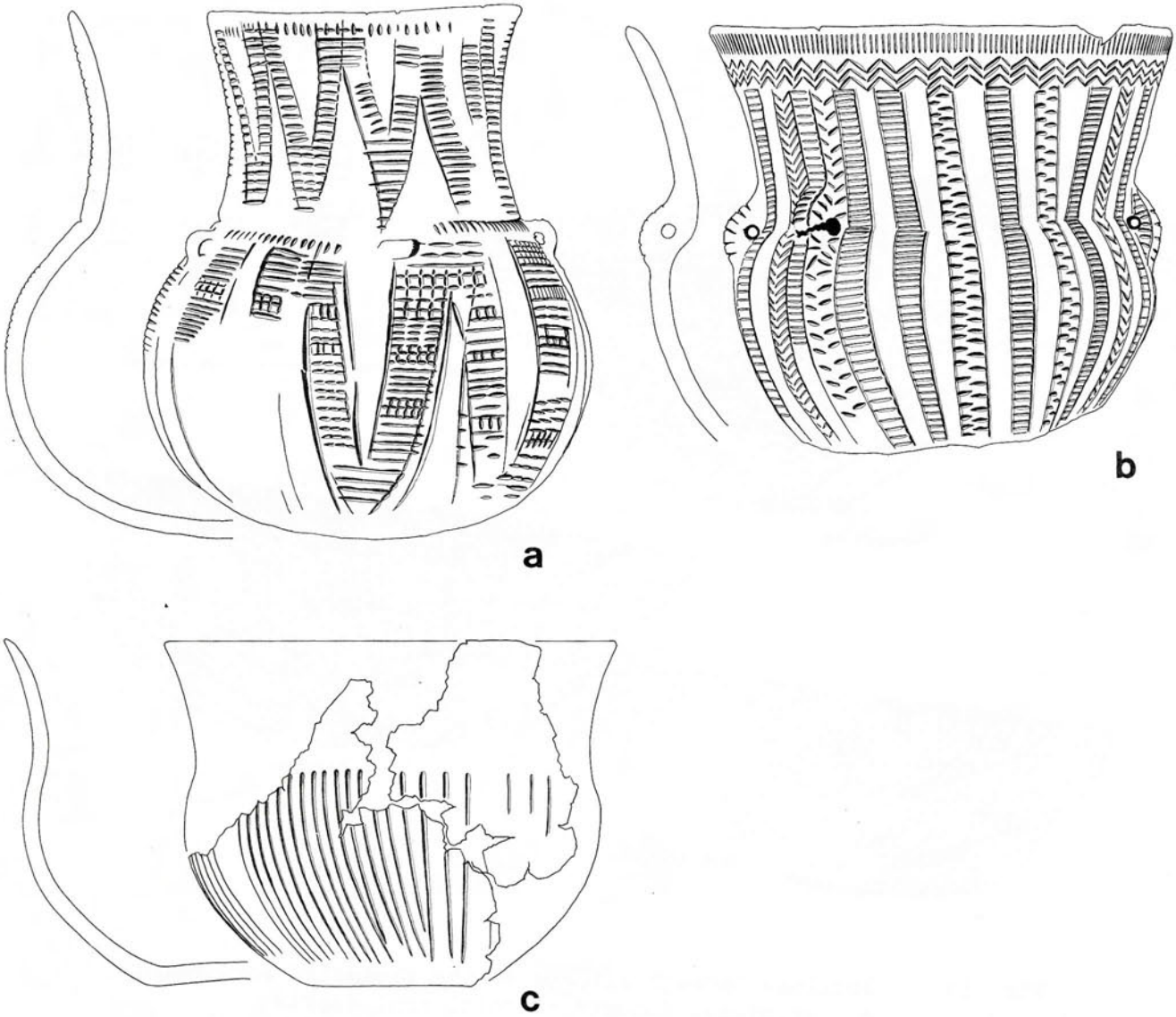

Fig. 17.6 **Pottery from the Bjerggård enclosure (1:3):**
a: from bottom of ditch A5
b: from recut in ditch A2
c: from bottom of ditch A2

contained several superimposed layers of cultural debris. Close to, and presumably on the line of these two ditches, amateurs had previously excavated seven "oblong pits" in two rows.

The double row of ditches seems to have cut across the promontory, enclosing an area of 2.0 - 2.5 ha. The layers of cultural debris contained material from MN I as well as MN V, but a few sherds demonstrate that the site had already been established in the Fuchsberg phase.

*2: **Årupgård*** (Sylvest and Sylvest, 1960; Madsen, 1982, fig. 8)

The Årupgård site is located on a very pronounced promontory, which is now almost completely destroyed by gravel working. It is not fully ascertained that we are dealing with a causewayed enclosure, but it seems very likely.

From surface distribution of artefacts and from information gained from workmen in the gravel pit, we know that the site is vast, covering as much as 15 ha of land. All over this area cultural debris has been found, and this indicates that at least part of the site's history can be assigned to MN I.

Features indicating an enclosing ditch system have so far not been reported, but complete pots standing in small pits, as seen for instance at Sarup, occurred frequently. One of these contained the well known copper and amber hoard of Årupgård (Sylvest and Sylvest, 1960). Two other deposited pots which have found their way into the local museum in Horsens date to the end of the Early Neolithic or the very beginning of the Middle Neolithic.

*3: **Bjerggård***

Excavations on the site of Bjerggård were carried out by the author from 1981 to 1983. The site is located on a flat plateau at the top of a high hill, close to the Horsens Fjord (Fig. 17.3).

The enclosing interrupted ditch system consists of only one row of ditches (Fig. 17.2), and is not associated with a palisade. It follows the western and northern edge of the plateau, and then cuts across this at a low saddle to complete the circuit, enclosing an area of c. 1.6 ha.

Five ditch segments have been totally excavated. The overall course of the perimeter has been determined by 2 m wide test trenches, stripping off the topsoil to reveal the ditches, but not excavating them.

The form and size of the ditches varied considerably (Fig. 17.4). Ditch A2, for instance, was narrow and shallow (8.7 x 2.5 x 1.0 m), whereas ditch A3 was almost circular and fairly deep compared to its length (6.3 x 5.3 x 1.8 m), and ditch A5 wide and deep (15.8 x 7.0 x 2.2. m). The ditch segments were placed close to each other leaving causeways only 0.5 - 1.5 m wide.

The fill of the five ditches showed more or less the same sequence of events, here illustrated by three sections (Fig. 17.5). Ditch A1 had along its bottom a thin, grey-black, charcoal coloured layer that indicates the deposition of burnt matter. No artefacts were found in association with this deposit. The ditch was then apparently deliberately backfilled and subsequently recut. At the bottom of this recut, a grey, charcoal coloured deposit had formed, again devoid of artefacts. The ditch was backfilled again, and once more recut. There were no definite traces of activity evident at the bottom of this last recut, and a high humic content suggests either a filling by natural agencies, or that topsoil was used for deliberate backfilling. At the very top a thin layer of MN V settlement debris sealed the ditch.

Along the bottom and up one side of ditch A2 there was a clay lining divided in three by lenses of subsoil. Embedded in the clay was a layer of stones on which were found the remains of three or four dog skulls reduced to the consistency of toothpaste, a few vertebrates, and a couple of longbones associated with a poorly preserved, but originally complete, pot (Fig. 17.6). The pot may date either to the Fuchsberg or an early part of the MN I phase. The clay lining, laid in successive stages to cope with the unstable coarse sand, suggests that the ditch was designed to remain open for some time. Nevertheless, there is no natural deposit of silt at the base, and it seems to have been deliberately backfilled to the top with clean subsoil.

A recutting of the ditch subsequently occurred, and at the bottom of this recut a grey-black layer of charcoal coloured sand formed, containing a typical MN Ia lugged beaker (Fig. 17.6), and small fragments of burnt bone. The filling of this recut seems to have occurred by natural means. Among a layer of stones in its upper part, a few sherds from an undecorated vessel were found, dating between MN II and MN IV. The final depression of the ditch was filled with a thick deposit of MN V settlement debris.

Along the bottom of ditch A5, in its south end, a scattered paving of stones was seen. Placed on this was a small heap of unused flakes, and a lugged jar with Fuchsberg ornaments (Fig. 17.6). To one side of the paving many lumps of charcoal were found covering an area of c. 1 x 1 m, suggesting a fire at the bottom of the ditch. A slide of sand had partly covered this level of activity, and this was immediately followed by deliberate backfilling.

The ditch was subsequently recut, and along the bottom of this recut a black charcoal-coloured layer had formed, containing no artefacts at all. This was partly covered by a deposit of almost white sand, which again was covered by a deposit of organic material, laid down together with a loose scatter of stones. The organic material had survived in the sand as a greasy substance, in which the tenuous traces of decayed bone were frequently met with. Only a cattle jaw had survived sufficiently to allow identification. There were no artefacts associated with this deposit.

A new, deliberate backfilling took place before a final recut was made. At the bottom of this recut a dark, charcoal coloured layer formed, again without any artefacts. The recut was allowed to fill up

naturally, and among the soil and stones sliding into the ditch from uphill were a few sherds with Fuchsberg phase decoration. Following this phase of natural deposition, a layer with MN V settlement debris accumulated. Finally, at the top, the ditch was filled with material eroding from the uphill side, containing a mixture of MN V settlement debris and Fuchsberg material.

The Fuchsberg material sliding into ditch V, both before and after the MN V settlement phase, came from a feature found immediately inside the ditch. This feature, truncated by heavy soil erosion, consisted of a cluster of twenty-seven postholes and eight pits of various sizes (Fig. 17.4). All the pits contained material that could be associated with the Fuchsberg phase, and whenever sherds in the postholes could be dated, they were from the Fuchsberg phase rather than MN V. The date of this structure, probably some form of house, is definitely the same (in terms of archaeological phases) as the date of the initial digging of the nearby ditch. It is therefore quite remarkable that no debris found its way into the lower layers of the ditch. Either this was carefully avoided, or, what seems more likely, the house was later than the initial digging, backfilling, first recutting and second backfilling of the ditch; and that all this had happened within a very short period of time, presumably less than 50 years. Indeed, if we admit as equivalent those recuts that were not deliberately backfilled with subsoil material, but contained fill with a high humus content, we find that as in ditch A2, the second recut in ditch A5 should have formed in the MN Ia phase, immediately after the Fuchsberg phase. Only subsequently do we see the ditch fill containing Fuchsberg debris.

Apart from this one Fuchsberg feature only very few indications of settlement pre-dating MN V were found on the site: merely a few broken pieces of thin butted axes picked up on the surface. The MN V evidence, on the other hand, is vast. This is seen partly in the thick and very rich deposits of debris in the top of the ditches, and partly in the heavy surface scatter of flint artefacts littering the whole 5 ha of the plateau. Hundreds of fragments of thick butted axes are known to have been picked up over the years.

4: Toftum (Madsen, 1978a; 1978b; 1982)

This site was first investigated by the National Museum in 1956, but its true nature was not established on that occasion, although the top of one of the ditches was actually excavated. Renewed excavations in 1974 and '76 revealed the causewayed enclosure, situated on a conspicuous promontory between two bog areas, roughly 4 ha in area (Fig. 17.7). One hundred metres of a double ditch system were uncovered on the west slope of the promontory, whereas on the east slope there may have been only one row, to judge from the 1956 excavations, and from a long section cleaned along the edge of a sand pit in 1976 (Fig. 17.2).

All datable material found on the Toftum site belongs to the Fuchsberg phase (Madsen, 1978a). This has led to the view that the site was only used intensively over a very short period of time

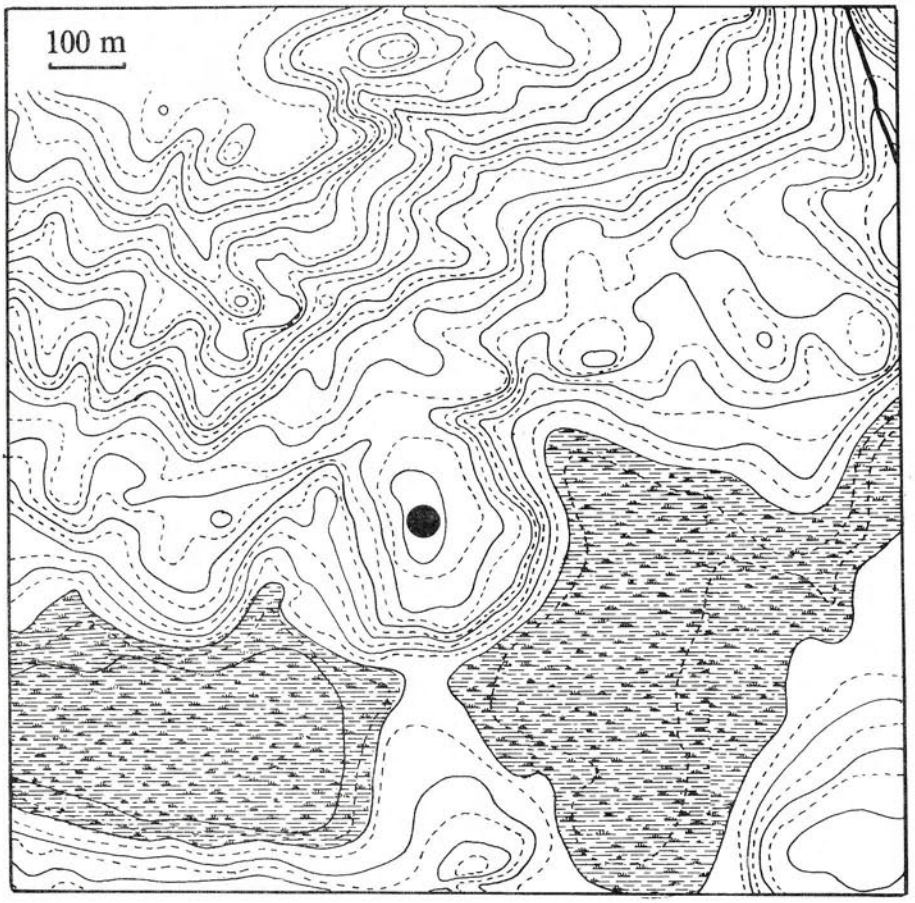

Fig. 17.7 Map showing the topographical position of the Toftum enclosure

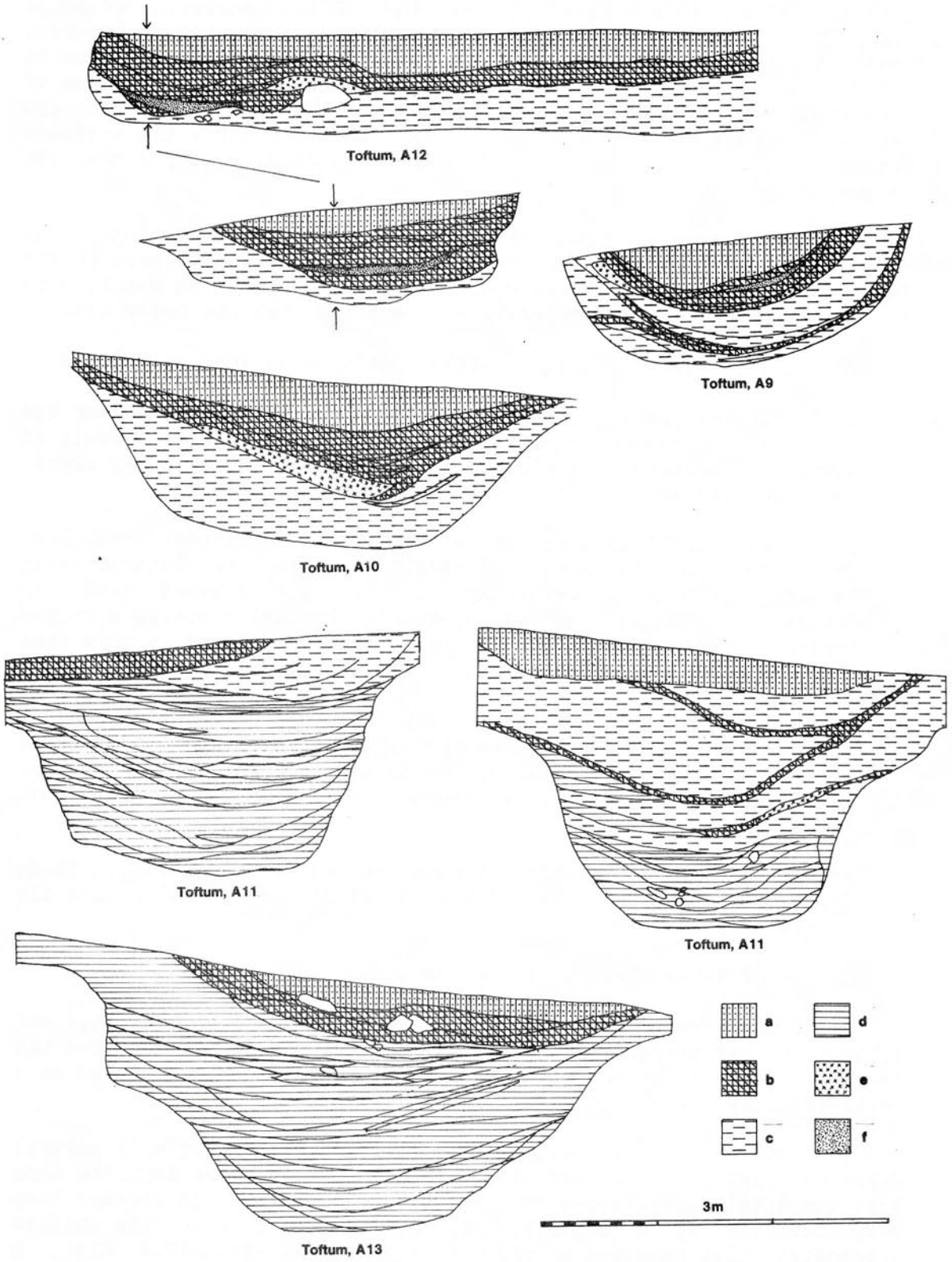

Fig. 17.8 **Sections through ditches at the Toftum enclosure:**
a: humus coloured erosional deposits
b: primary deposits of Fuchsberg settlement debris
c: light structureless sand, deliberate backfill
d: light horizontally layered sand, natural deposition
e: deposits of marine shells
f: layers of clay burnt *in situ*

(Madsen, 1978a, 177). After further study of the excavation evidence and after comparison with subsequent work on causewayed enclosures, especially the Bjerggård enclosure, a review of the Toftum evidence is called for. It is true that the site is short-lived in terms of archaeological dating, as the duration of the Fuchsberg phase can hardly be much more than 50-70 years. On the other hand, the evidence from the ditches shows a complicated picture with many successive phases of activity.

Of the nine ditch segments uncovered on the western slope, four were partly, and five totally, excavated. They varied between 11 and 24 m in length, 2 and 5 m in width and 0.8 and 2.5 m in depth, with the inner ditches being more shallow on average than the outer ones.

The fill in the excavated stretches could be divided as follows:-

1. Sand, characterised by a dense interleaving, mottled in colour and composition, indicating natural deposition; clearly the result of slumping, washing, and blowing in of material. Only a few sherds and a few pieces of waste flint were found in these layers.

2. Light structureless sand with a few patches of charcoal staining. This sand was deliberately backfilled, as the characteristic layering resulting naturally in the fine grained sand was completely missing, and as spots of charcoal staining occurred randomly in the deposits. The only artefacts found in this type of deposit were a few pots, deliberately broken on stones.

3. Black, charcoal-rich and humic deposits full of cultural debris, including heaps of shells from oyster and cardium. These deposits contained masses of flint artefacts and pot sherds, as well as animal bones in the areas where the shells had reduced soil acidity.

4. Dark, humus-rich deposits formed by natural agents. These deposits contained some flint artefacts and small, heavily weathered pot sherds.

5. Layers of sandy clay burned red *in situ*.

The deposition of material in the inner and outer ditches does not follow the same pattern, and although one gets the impression from the layout of the two rows of ditches that they were constructed as a unit, this may not be the case.

The outer ditch was allowed to fill up completely with natural deposits (Fig. 17.8, A11 and A13). In one segment these deposits were left completely undisturbed (not shown on Fig. 17.8). In another they were followed by a deposition of cultural debris in the shallow depression that remained at the top of the ditch (Fig. 17.8, A13). A third length, on the other hand, had evidently been deeply recut in the middle (Fig. 17.8, A11, right), but not towards its ends (Fig. 17.8, A11, left). In this recut three layers of cultural debris were seen, separated by deliberate backfilling. The section (Fig. 17.8, A11, right) may suggest that minor recuttings were associated with this sequence of deliberate deposition.

The inner ditches, on the other hand, had no definite traces of natural filling. They were deliberately backfilled right from the bottom. In the sandy soil, this means that they can only have been open for a very short time before backfilling took place. Included in the backfill were deposits of complete pots. All of the ditches had subsequently been recut, and the recuts were filled with cultural debris (Fig. 17.8, A9, A10 and A12). One of the ditches had only been recut at its ends, while the central part was left with its original backfill. At the south end, further recutting, deliberate backfilling, recutting, and deposition of cultural material had occurred (Fig. 17.8, A9).

It is not possible to prove that the activities in the inner ditches took place at the same time as the recutting and deposition of debris in the outer ditches, even though all the cultural debris involved is datable to the Fuchsberg phase. Nevertheless, this seems to be the most likely suggestion, and it may be taken to indicate that the original digging of the outer ditch took place before the inner. In fact, it must have taken a considerable time for these deep ditches to fill up completely by natural agencies, and it should be noted that there is no datable material from below the recuts and the deposits of cultural material at the top. In fact, the initial date of the outer ditch is unknown.

In the inner ditches and at the final stage of the outer ditches we find the same pattern of recutting, deposition of complete pots and deliberate backfilling, as seen at Bjerggard, but we also observe the deposition of masses of cultural debris in connection with the recuts. This debris undoubtedly stems from a settlement on the site, and yet it is intermingled with ritual elements in the ditches. In ditch A9, a complete pot was found in the deliberate backfill that separated two layers of cultural debris, and in many cases burning took place in the ditches, often on layers of clay laid down in the debris (Fig. 17.8, A9, A12). In one instance, one such fire had been covered by a paving of stones while the fire was still burning (Madsen, 1978a, fig. 3).

*5: **Lønt*** (Jørgensen, 1983)

The Lønt site is situated on a pronounced promontory in the narrow Haderslev Fjord. Only a minor excavation has been carried out, but it has shown that a combined palisade and double ditch system cuts across the base of the promontory, enclosing an area of 12 - 15 ha. The palisade was replaced twice, and the ditch system was recut at least once. The initial system dates to the Fuchsberg phase and the later to MN I. It is uncertain whether recutting in between these two stages also occurred. Complete pots, placed as deliberate deposits, were found in the ditches. Inside the enclosed area a multitude of pits were found, some having a clearly ritual function with, among other things, deposits of complete pots, while others were of a domestic nature. The settlement area covered at least 4 - 5 ha, to judge from ploughed up flint artefact and pot sherds.

6: ***Bundsø*** (Mathiassen, 1939)

Recent excavations on this well known site have revealed that the MN III settlement is placed on an earlier (MN I) causewayed enclosure (Poul Otto Nielsen, pers. comm.). The results of the new excavations are so far unpublished, and therefore further details cannot be given.

7: ***Büdelsdorf*** (Hingst, 1970; 1971a; 1971b; 1975)

This large site of 6 - 7 ha is placed on a promontory on the north bank of the river Eider. Across the base of the promontory, on the east, a complicated system of ditches and palisades was found (Fig. 17.2). The relative sequence of the individual lines of ditches and palisades is unknown in the absence of detailed publication. It is safe to assume, however, that the palisades and ditches were not all contemporary, but represent successive stages of use of the causewayed enclosure; and in at least one instance a recutting of one of the ditches has been noted (Hingst, 1971b, 191, and abb. 1).

Two palisades were seen, one consisting of a double row of evenly spaced large posts, the other consisting of vertical timbers held in a slot and combined with a double row of posts (Fig. 17.9).

The ditch segments varied in length from 6 - 50+ m (Hingst, 1971b, abb. 1). Their average width is given as 3 m and depth as 1.4 - 1.6 m (Hingst, 1970, 57). In the innermost row of ditches each segment was enclosed by a rectangular setting of posts (Fig. 17.9, Hingst, 1970, abb. 4; 971b, abb. 1), and the occurrence of intensive burning in these ditches has been noted (Hingst, 1975, 34).

Only one section through a ditch has been published (Hingst, 1970, abb. 2). It shows that some primary activity probably took place at the bottom of the ditch before various kinds of infilling occurred, including natural filling and deliberate backfilling. The ditch was finally sealed by a deposit of cultural debris, and the same seems to be true with the other ditches. This deposit stems from a settlement site that covered most of the promontory. It dates to MN Ia and slightly later, and provides a *terminus ante quem* for the site's use as a causewayed enclosure even if there is still no clue to the initial date of this enclosure.

8: ***Sarup*** (Andersen, 1974; 1975a; 1975b; 1981; and this volume)

This enclosure was the first to be excavated in Denmark, and it is so far the only one that has been completely excavated. In reality it is not one, but two enclosures: one of 8.3 ha dating to the Fuchsberg phase, and one of 2.7 ha dating to MN Ib (Fig. 17.2). The Fuchsberg enclosure shows an especially complicated design, with a main palisade and palisaded bays and pathways in between the segments of a double ditch system. Many intriguing features associated with the two enclosures have been revealed, such as human jaws, complete pots and areas of burning in the ditches, as well as votive pits in the interior. As the site is dealt with in detail elsewhere in this volume, so no further description is necessary here.

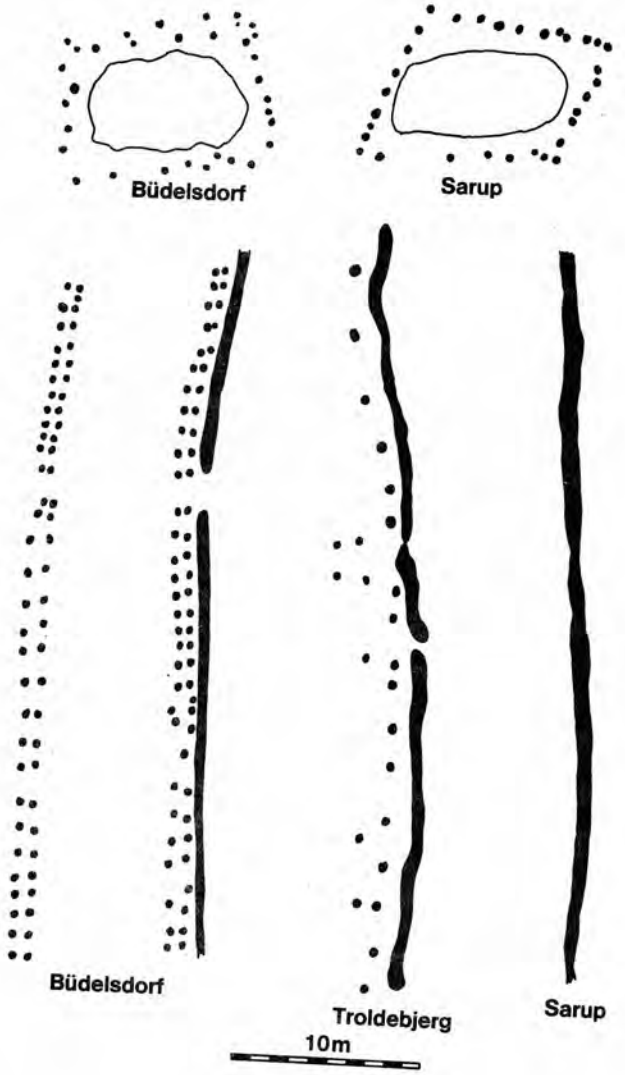

Fig. 17.9 Examples of palisades and fencing around ditches from Büdelsdorf, Sarup, and Troldebjerg

9: Troldebjerg (Winther, 1935; 1938)

The Troldebjerg site is yet another that has turned out to incorporate an enclosure, for long known as a very rich settlement site dating to MN Ia. It includes several small D-shaped houses with parallels on other MN sites (Eriksen and Madsen, 1984) but its most notable feature is a palisade in a slot revealed over a length of 59 m. A row of single posts, spaced 1 - 2 m apart, follows the palisade roughly 1 m behind it (Fig. 17.9).

The combination of palisade slot and the single row of posts was interpreted by the excavator as indicating a long house with a massive timber front wall, one row of roof-carrying posts, and a lean-to construction at the back with a roof sloping all the way to the ground. This always seemed unusual, and in the light of recent excavations, and especially the Büdelsdorf palisade, the possibility emerged that these were elements in an enclosure perimeter. To test this hypothesis an excavation was carried out in 1977. This revealed that some 5 m in front of the palisade, outside the original excavation, a shallow ditch ran parallel to the palisade. It extended right across the 5 m wide test trench. This ditch was 3 m wide and 0.5 m deep; apart from a few sherds and a little flint, it contained only a mass of animal bones.

The Troldebjerg site is not on a true promontory but on a low ridge between two bogs that has only a narrow access at one end, but a broad funnel-like approach at the other. The excavated part of the palisade runs along one of the bogs, and the form and size of the enclosure is thus uncertain. Similarly, the relationship between enclosure and settlement is uncertain.

10: Trelleborg (Andersen, 1982; Mathiassen, 1944; Nørlund, 1948)

Excavations of the well known Viking Age Trelleborg site revealed that the promontory on which the fortress is situated was also occupied by a Middle Neolithic settlement. Two rows of elongated pits were revealed, and current knowledge suggests that these constituted part of an enclosure ditch system. This was confirmed by a small test excavation carried out in 1979 (Andersen, 1982), which suggested an enclosure dating around the transition from MN Ib to MN II. However, earlier pottery from the beginning of the Middle Neolithic is also known from the site, suggesting that parts of the site may be older (Becker, 1956). Furthermore, the site continued as a settlement to the end of the TBK. The site of the enclosure can be estimated as roughly 3 ha.

11: Stävie (Larsson, 1982)

This Scanian site, situated on the south bank of the Lödde river, consists of a single row of ditches enclosing roughly 7 - 8 ha of a low inconspicuous promontory, bordered by the river to the west and a low waterlogged area to the south. The ditches mask the north and east sides.

The ditch segments varied in length from 3 - 40 m, width between 1.3 - 4.0 m, a depth between 0.4 - 1.0 m. The lower fill was generally featureless and light-coloured. Occasionally, however, thin, black, charcoal coloured layers were found at the bottom of the ditches, possibly indicating fires.

At the top of most of the ditches, and in various pits inside the enclosure, settlement debris was found, dating to the MN V period. No datable material came from the bottom of the ditches, but in a few cases MN V artefacts were found below the MN V layers of debris, and Larsson (1982, 94) is for this reason inclined to believe that the enclosure dates to the MN V period. However, as no other enclosures are known to date as late as this, and as the evidence for post-enclosure settlement is so widespread, it is much more likely that the ditch system is older than the MN V settlement. Reappraisal of the published sections is instructive (Larsson, 1982, fig. 5 bottom). These clearly demonstrate that not all ditches were excavated to the bottom, possibly because of difficult conditions of observation in the sandy soil, and because the true nature of the site was not recognised during the excavation.

General Discussion of the Enclosures

Ten of the eleven sites in the preceding site list are located on promontories, at valley bottoms, surrounded on two or three sides by damp areas which may be bogs, lakes, rivers, streams, and even salt water in narrow fjords. For long it was believed that this was the position of all causewayed enclosures in southern Scandinavia, but the most recent discovery, the Bjerggård site, is a high hill-top site surrounded by steep slopes, and almost one kilometre from the nearest wet area. Consequently, an open mind is required in anticipating the location of further enclosures.

The size of the enclosures varies considerably. The smallest, Bjerggård, is only 1.6 ha, and the largest, Lønt, 12 - 15 ha. The average size is c. 5.5 ha. Perimeters consist of one or more parallel rows of interrupted ditches, sometimes with an internal palisade. At five sites such a palisade was present, at three it was not, and for the remainder there is no information.

At some of the sites there was definitely only one row of ditches (e.g. Bjerggård and Stävie). At others there were two rows in use at the same time (e.g. Sarup), but there is no substantial evidence for the use of more than a double row system at any specific point in time. It is unlikely, for instance, that the five rows of ditches at Büdelsdorf were all in use at the same time.

Most of the sites seem to have a fairly simple layout, with linear arrangements of palisades and/or ditch segments. The complex arrangement of small palisaded bays and passageways attached to the main palisade at Sarup, all interlocking with the segments of a double ditch system is at present unique both in a southern Scandinavian and in the wider European context. The only other noteworthy embellishments of a perimeter are seen at the later enclosure at Sarup, and at the Büdelsdorf enclosure, where short ditch segments are enclosed by a rectangular setting of evenly spaced posts (Fig. 17.9).

Palisades consist of either a continuous line of timbers set in a foundation trench, as at the older enclosure at Sarup (Fig. 17.9), sometimes combined with one or two rows of posts in spaced holes, as at Troldebjerg and Büdelsdorf, or two lines of posts in spaced holes, as at Büdelsdorf.

Ditch segments vary considerably in size. Some are only 3 - 4 m long, and others extend for up to 100 m. In some cases these may be continuous ditches. The normal length, however, lies between 10 and 30 m. The width of the ditches varies from 2 - 8 m, and the depth from very shallow cases only 0.4 - 0.6 m deep, up to huge excavations more than 2.5 m deep.

For more detailed evidence of the use and filling of ditches the Bjerggård, Sarup, and Toftum sites are important, for here ditches were excavated with the specific aim of understanding their complicated depositional history.

It has been widely held that causewayed enclosure ditches were merely quarry pits to provide material with which to build banks, and consequently that the palisades and banks of the enclosures were the main features of these sites. On the other hand the present tendency may be to exaggerate the significance of the ditches, because they survive so well and banks so poorly in the archaeological record. However, the observations made at Bjerggård, Sarup and Toftum clearly indicate that the ditches were of primary importance. They were obviously dug to be important in their own right, as the focus for specific activities.

The sequence that emerges is as follows: after the digging of a ditch, various activities took place on the bottom of the individual segments. As soon as these were finished, the ditch was backfilled with the same material that had been dug from it (i.e. pure subsoil material without any traces of topsoil). The ditch course remained visible, however, for recutting within its original limits is seen in several instances. In such sandy soil, unlike chalk, there is no practical reason why subsequent recuts should be in the fill of old ditches. Therefore, it must have been important that recuts were made into the original ditches. The recuts themselves were often treated in the same way as the initial ditch, i.e. activities occurred at the bottom of the recut, followed by deliberate backfilling. This pattern is particularly clear at Bjerggård and Toftum, but can also be seen in some ditches at Sarup, and perhaps Lønt.

Further evidence for the intrinsic importance of the ditches comes from Sarup. In the earlier enclosure the ditches are incorporated in an elaborate perimeter layout, in a way that leaves no doubt that they were not just quarry ditches. Furthermore, this layout effectively makes the existence of a continuous bank along the ditches impossible. In the later enclosure we find that several of the ditch segments were enclosed by settings of posts, something that was also found at Büdelsdorf. Again, this stresses the primary importance of the ditches themselves.

The activities that occurred in the ditches were varied, but there are recurring themes that for want of a better word may be considered "ritual". One common feature is the deposition of artefacts,

especially complete pots (Bjerggård, Lønt, Sarup and Toftum), but also small heaps of tools (Bjerggård and Sarup). These deposits may occur in various contexts, for instance at Bjerggård, together with three or four dog skulls on a stone paving, elsewhere associated with a fire.

Another feature is the description of organic material, leaving a thin dark humus coloured layer along the bottom of the ditch. In most cases we do not know what the organic material was, but in one instance, at Bjerggård, it was possible to show that such a layer had consisted of masses of animal bones. At Troldebjerg, too, we note the packing of animal bones in the excavated ditch segment.

A third recurring feature is the burning of fires in the ditches, noted at Bjerggård, Büdelsdorf, Sarup, Stävie, and Toftum. Finally the occurrence of two human jaws in the Sarup ditches is worth noting in connection with the evidence from enclosure sites elsewhere in western Europe.

One interpretation of the TBK causewayed enclosures that can now finally be discarded is that their perimeters were constructed for defensive purposes. It is immediately clear from all the observations made here that it is impossible to interpret the enclosures as primarily defensive sites. The ritualised elements of construction and use, and especially the primary role of the ditches, do not accord with defensive intent. The enclosures were centres, whether ritual or no, but clearly not all the problems of their function have been solved.

While settlement material is found on all the causewayed enclosures, this does not mean that we are dealing with large enclosed settlements. Quite apart from the likelihood that the enclosures were only in use for short spells of time, domestic debris in most cases relates to occupation *later* than the enclosures, though sites may have been chosen with clear knowledge of where the enclosures had been. Only at Toftum and perhaps Troldebjerg is there clear evidence of extensive domestic occupation contemporary with the enclosures.

Our enclosures, then, were not primarily settlements. Only later, and in some cases considerably later, were the enclosure sites adopted as settlement sites. It seems highly likely that the choice was made in the knowledge of the earlier existence of an enclosure. Even in cases like Bjerggård, where there is a considerable time lag between the original enclosure and the huge MN V settlement, there seems to be a connection. Here a few pot sherds below the MN V settlement debris, but above the layers relating to primary activity suggest that there was intervening use of the site. This is not to claim that there was an uninterrupted sequence from the construction and use of the enclosure through to subsequent settlement phases. On this point the evidence in most cases is unclear. Only at Sarup has total excavation given a complete record, but it may turn out that the evidence from this site is more representative than it looks at first glance. Here at least there was some settlement contemporary with the two enclosures, but not on a scale compatible with the size of the enclosures. It is only after the last enclosure phase in MN I that there was major expansion of the settlement, and thereafter from MN II to MN V there seems to be extensive settlement on the site more or less continuously.

This evidence should be viewed alongside all those features which are clearly not domestic. Partly contemporary with the two enclosures, but especially in MN II, after the last enclosure and at the time when a formal settlement had been established, a series of pits with complete pots, axes, and other items are found. These "offering pits" clearly stand out from ordinary domestic pits, and reinforce the impression of a gradual transition from a primarily non-domestic use of the site (the enclosure phase), to a full-scale settlement; and certainly not a total dislocation between the two. Pits of the same type are also known from the Lont enclosure, and are an important part of the evidence for an enclosure at Arupgard.

As for dating the actual construction and primary use of the enclosures, it seems that none were used after the Fuchsberg and MN I phases, Stävie being the only exception claimed (but see site description). This means that the use of causewayed enclosures was limited to a period of about two hundred radiocarbon years. furthermore, at least half of the enclosures were constructed during the Fuchsberg phase, making it even more obvious that we are dealing with a very brief outburst of activity.

On the other hand, if we look at the dating evidence for the subsequent settlements, we find that these spread over the period from MN II onwards, over the last 250 radiocarbon years of the TBK. We are thus dealing not merely with a widespread pattern of change from enclosure to settlement, but also with more general changes in society.

The Cultural Background of the Enclosures

Although causewayed enclosures are a new feature in southern Scandinavian archaeology, their general cultural background is well known and long-studied. Nevertheless, new investigation, new points of view, and not least the new dimension that the enclosures have added, are beginning to demand considerable changes in our assessment of the TBK as a cultural system.

Recently I have tried to gather together some of these developments to propose a new model (Madsen, 1982), but rapidly changing attitudes in Danish research already require some alteration to my views of 1982, even if my basic framework still stands.

The following overview concentrates upon four aspects which, although they are treated individually, are closely interrelated, so much so that what they reveal cannot be fully understood unless they are viewed together. These four aspects are pottery, burial practice, settlements, and subsistence activities. Other matters of interest can also be distinguished but will not be reviewed here.

Pottery

The well-established chronology of the TBK is made possible by its richly decorated pottery; but the strict rules that govern both form and style determine that this pottery also has much to say about the organisation of society.

Looked at from the functional viewpoint of information exchange, (cf. Wobst, 1977), there is the possibility that a ceramic style is used as a symbolic language by one group telling others who and what they are. Such a "style transmitter" conveys certain information about its owner/producer, so that it serves as a useful preliminary to social interaction. To the archaeologist then, prehistoric stylistic variations are a useful guide to the size and boundaries of territories of interacting social groups as well as a pointer to the strength of the "frontier" between such groups.

We may more profitably follow Hodder (1982a; 1929b) and stress the importance of the deliberate use of style by groups of individuals, as an active agent in competition and regulation between groups, and reproduction within groups. A style does not have any inherent meaning. It is given a meaning by those who produce it, and it communicates this meaning back to society, gaining an active role of its own that is only understood in the actual historical context. For the archaeologist, this makes style less capable of interpretation in actual cases, but where it is a factor makes possible a more flexible understanding of historical situations.

In the TBK case, pottery style seems to have been significant in three different ways:-

From 3100 to 2800 bc there were three or four contemporary style groups that are separated more or less clearly from each other (Madsen and Petersen, 1984). Only one style group is normally present on an individual site, and if one looks at the overall distribution, a regional patterning is clearly seen. Nevertheless, there is a considerable spatial overlap between the groups, and two of them may even share the same general area. The most likely solution to this group division is one based on ethnicity, where pottery styles were used more or less deliberately to mark out membership of different groups. An analogue for such an interpretation is seen in Hodder's Baringo study (1982b).

From 2800 to 2600 bc there is a different pattern emerging. Uniform style elements (Becker's (1947) megalithic style) start to spread all over southern Scandinavia, and by 2600 a completely new tradition has been established. New pottery forms had been introduced, associated with specific decorative styles that are more or less common throughout southern Scandinavia, even though local variations do occur (Ebbesen, 1975; 1978; 1979; Gebauer, 1979).

These styles are developed into elaborate compositions guided by strict rules, and the quality of the pots themselves and their decoration is excellent. The production of pottery accelerates considerably, and we find pots used in great quantities at settlements, tombs, and causewayed enclosures. Obviously, pottery styles did not have the same meaning in this phase as at the beginning of the Neolithic. Even though detailed analysis shows clear evidence of regionality, this seems to be subordinate to rigorous, common style patterns.

It is difficult to understand pottery styles in this context. We may assume that their significance has now turned inwards, and relates to the structure of society; but whether it had a direct function in

competing for, and denoting social status, or whether, as I tend to prefer, ideological concepts were tied to these styles in a way that secured uniformity of hierarchical principles among groups over a large area, the evidence cannot yet tell us. The solution, indeed, may be quite different.

By 2450 bc this tradition started to break down, and through the next hundred years we see a sequence of style groups (MN II - IV) that have been regarded as having a purely chronological basis, but which may be partly regionally based (Ebbesen, 1975; 1978; 1979). We are not, however, dealing with a return to the Early Neolithic meaning of pottery styles, but rather to a situation where pottery styles were losing their role as communicators of differences. Local style degeneration had set in, and by 2350 bc pottery had become uniformly crude and undecorated, to a point where probably no meaning at all could be attached to ceramic stylistic variation.

It is worth noting that the period of uniform southern Scandinavian styles, with its implications for inward-looking social organisation, corresponds exactly with that period of time when causewayed enclosures were conceived and used, starting with the Fuchsberg phase.

Burial Practice

From c. 3100 to 2800 bc we find burials in so-called earth graves. Originally, these were thought to be quite simple sites, but new investigations have shown that they were often elaborate timber structures set in long barrows with huge timber facades at the ends, and occasionally with the whole mound edged with timbering.

From 2800 to 2700 (in North Jutland 2600) a change took place, megalithic tombs replacing the timber-built graves. The change does, however, seem to have more to do with tomb architecture than burial rite. This can be deduced on various counts (Madsen, 1979, 315-7), of which only one need be referred to here.

Those earth graves in which skeletal material has been found show that from one to five individuals were buried fully articulated in the grave at the same time (Madsen, 1979, 311). The same pattern of articulated burials of up to a few individuals is encountered in the megalithic tombs of the period c. 2800 - 2600 bc, regardless of whether the dolmen is of a closed type or of a type with an entrance (Thorsen, 1981). The individuals buried in both cases are males, females, and children, without indications of status differentiation whether in the placing of the bodies, or in the associated personal items. The impression one gets from these burials is that they were not of people with a special status or rank, but that these were equal access tombs.

On the other hand, there are too few burials of this kind to represent the total population. Very often, indeed, there is only one grave in a long barrow. This implies, too, some special circumstance to occasion the effort of erecting the barrow for so few burials, and that this had nothing to do with the status but more to social

obligation and competition between social groups. Indeed, there may also be an element of marking territorial rights in an area through the establishment of a formal link between the dead and the living.

The number of tombs rises considerably from around 2700 bc, and the onset of MN I saw a boom in tomb building which continued until c. 2450 bc. But now all the tombs were of an open type, either dolmens with short passages or more formal passage graves. The provision of access has facilitated widespread disturbance of the primary burials in these tombs by later users, and we do not know whether the burial practice of the earlier periods continued or not. However, recent analysis of the pottery offerings in front of the tomb suggests that they were used only a few times during their first period, down to c. 2400 bc.

These pottery deposits, that may amount to more than one hundred pots in front of a single tomb, denote a new custom that had been introduced around 2600 bc. There is some echo in the deposition of just a few pots along terminal facades at Early Neolithic long barrows, but nothing that compares with the massive deposits of pottery of this phase. The structure of these deposits is still not very well understood, but a recent excavation of a passage grave at Tvilum in central Jutland shows that on this occasion 15 - 30 pots went into one deposit, and that three deposits had been placed in front of the tomb over a period of c. 200 years.

The building of megalithic tombs ceased around 2450 bc, and the custom of depositing pottery in front of the tombs died out over the next hundred years as pottery styles themselves degenerated. Apart from a special new type of grave in north-west Jutland, the trend in the last part of the TBK was to re-use of the earlier megalithic tombs. An interesting change in burial practice is associated with this development. There is growing evidence for the use of the old tombs as ossuaries in the period c. 2400 - 2350 to 2200 bc (Thorsen, 1981). Furthermore, we find the bones in the chambers placed in heaps, and in southern Sweden there was even partitioning of the chambers with stone slabs, with each section holding small heaps of bones (Stromberg, 1971). Within one heap of bones there may be many individuals present, but only very few bones from each individual. This suggests that the tombs themselves were not the primary place of burial, but were only receptacles for bones processed elsewhere. The deposition of bones in small heaps and evidence for partitioning of chambers suggests some social division among the users of the tomb, perhaps family groups.

If we compare this pattern of re-use with the traditions in the early graves, a change in burial practice is manifest, but this need not demand a corresponding change in social structure, unless the partitioning of tombs indicates the growing importance of basic social units such as the family. Unfortunately, we do not know exactly when this change occurred because there is such scanty evidence for the period c. 2600 to 2400 bc, but it is my opinion that it did not come about before the end of the period.

If we take the evidence from the tombs together with that from the causewayed enclosures, we find that the period of concentrated tomb building coincides with the construction and use of the enclosures.

Furthermore, if we consider the evidence from Sarup there seems to be a direct relation between tombs and enclosures. In the bottom of the ditches at Sarup there are two human jaws linking the causewayed enclosure to some sort of mortuary practice. The importance of heads in causewayed enclosures is well attested in other areas (see various papers in this volume). A further link is the practice of making deposits of pottery at the two types of sites, but it appears that at the enclosures such deposits were made in the ditches in an early part of the period, between 2700 and 2450 bc, whereas at the tombs they are found mainly in the later part of this period.

There seems to be no doubt that the ideas and motivations behind the activities associated with the enclosures and with the tombs are closely related, and that we cannot understand the one without taking the other into consideration. The link is emphasised when we look at the distributional data from Eastern Jutland of enclosures and tombs together. Here there is a clear tendency for the tombs to cluster around the known causewayed enclosures, and around suspected enclosures (Fig. 17.10).

Settlements

TBK settlement sites have been known for a long time, and many have been excavated. Only recently, however, has much attention been paid to aspects such as topographical position, size, type, and organisation of settlement, duration of occupation and relationship to the overall settlement pattern. Such categories of information are seldom available from old excavations, and only slowly are we beginning to gain an insight into such questions.

In the Early Neolithic, up to c. 2700 bc, two types of sites were in regular use, both of which were fairly small (Madsen and Jensen, 1984). One type was placed along sea and lake shores in favourable positions for fishing, hunting, and gathering. There are indications that these sites were used over centuries, but probably only for a short period each year. The other type is mostly found on flat, sandy, well drained soil close to damp areas. A good example of such a site is Mosegården in East Jutland (Madsen and Jensen, 1984; Madsen and Petersen, 1984). It is small, only 5 - 600 m², with space for not much more than 15 people. Detailed investigation suggests that it was only in use for 3 - 10 years before its inhabitants moved to another location.

The settlement pattern that emerges for the early period, is one of a dispersed population, occupying small, short-lived hamlets, and frequently moving to new sites within what was probably a large territory. At regular intervals, however, these groups moved to favourably located sites along the sea or lake shores for short stays, to engage in fishing, hunting, and gathering.

From 2700 to 2400 bc a decisive change in the settlement pattern took place. The use of the sea and lake shore sites petered out, and the permanently inhabited sites grew considerably in size, and, to judge from densities of occupation material, in duration of use. A typical example can be seen at Hanstedgård dating around 2600 bc (Eriksen and Madsen, 1984). It covers a much as 4 ha of land, but the

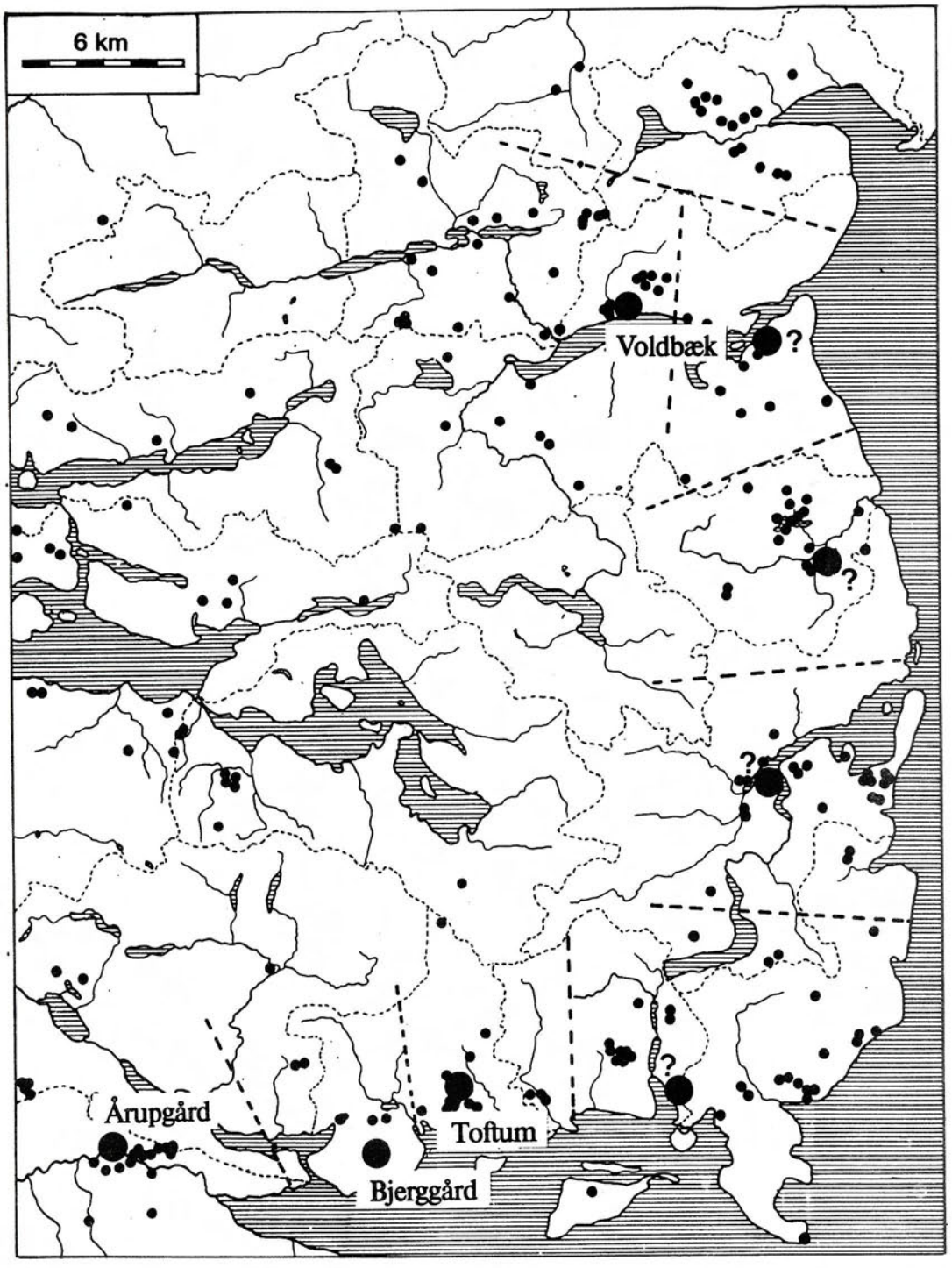

Fig. 17.10 Distribution map of megalithic tombs, known causewayed enclosures, and possible causewayed enclosures in East Central Jutland

generally low density of finds on the surface suggests that either the duration of occupation was still very limited, perhaps two or three times as long as at the Mosegârden site, or the inhabitants moved around within this area, making the settlement look larger that it really was at any one time.

In the last part of the TBK this tendency led to the emergence of huge sites with habitation areas spread over 5 ha and more of land. At the same time the densities of occupation debris on the sites grow considerably, indicating more permanent sites than previously.

The general trend was thus from small, short-lived, sites to large sites permanently inhabited over a long period of time. The greatest change in size seems to be contemporary with the appearance of the causewayed enclosures, and larger size was followed closely by a greater degree of permanence.

These differences in size and intensity of occupation between early and late settlements, make it difficult to estimate population sizes and trends. The small early sites are very difficult to find, whereas the large, late settlements are easily located. This must mean that the late sites are over-represented in relative terms, but nevertheless the impression is that a considerable population growth took place during the TBK, and that the main expansion in numbers occurred at the end of the Early Neolithic, and the beginning of the Middle Neolithic.

Subsistence Activities

At the transition from the Mesolithic to the Neolithic a profound change in diet took place. Measurements of the C13 content of human bones suggest that, whereas the Late Mesolithic population had lived almost completely from marine resources, the Early Neolithic population based their diet firmly on the land (Tauber, 1981). Unfortunately, we are not able to be specific about the composition of this diet. It is known that wheat and barley were grown, and that pigs, cattle, and goat/sheep were kept as domestic animals, but there is little evidence of their relative importance. However, if the scanty site evidence and what is known of settlement patterns is combined with the information supplied by the pollen record, a tentative picture may be suggested as follows (Madsen and Jensen, 1984).

The small, frequently moving, groups who lived in small hamlets in the Early Neolithic had two main subsistence activities. One was slash and burn agriculture on the sandy soil, the other was animal husbandry utilising the natural resources of the forest, especially those that could be found on low, damp ground. A concentration on pigs is likely, but cattle may also have been of significance. This pastoral activity was probably more important than the arable. There may also have been some hunting and gathering from these settlements, but for the most part fishing, hunting, and gathering were carried out regularly from special camps along the sea and lake shores.

These early subsistence activities could be described as a spatially extensive, broad spectrum economy, fitting into an existing forest environment. It utilised this environment at very little cost and with hardly any interference. Indeed, one has to look very closely at the pollen diagrams to detect human influence in this early phase especially as the elm decline can no longer be ascribed to human agencies (Groenman-Van Waateringe, 1983).

From c. 2800 - 2700 bc changes can be seen in the pollen diagrams at the horizon of Iversen's Landnam. That this Landnam indicates slash and burn, as Iversen assumed, is doubtful (Rowley-Conwy, 1981; 1982), but it does seem to indicate some more extensive system of forest management. The Landnam is characterised above all by a change in the relative importance of the various tree species. It may have resulted from the ringbarking of trees, with the aim, presumably, of extending with a minimum of effort, the feeding grounds for domestic animals (Göransson, 1982; Rowley-Conwy, 1983).

The various pollen diagrams show slight variations in dates for the beginning of Iversen's Landnam, but c. 2600 bc seems to fit most diagrams, though some show an earlier start (Christensen, 1980; Andersen *et al.*, 1983, 187-8). The terminal date is more uncertain, but a considered estimate would place it around 2200 bc or slightly earlier, as can be seen, for example, in the Holmegård Bog diagram (Andersen *et al.*, 1983, 188).

If the cause of the Landnam was the creation of forest feeding grounds, these must certainly have been intended for cattle, and this is confirmed if we compare proportions of pigs and cattle, during the Middle Neolithic TBK. From c. 2700 bc to 2300 bc we see a gradual but complete change in the relative importance of the two animal species from a predominance (in number) of pigs at the beginning of the phase to an almost complete preponderance of cattle at its end (Madsen, 1982, fig. 17).

In summary, developments from c. 2800 - 2700 bc suggest a strongly expanding economy in which the basic subsistence activities were no longer kept within the bounds of the prevailing environment. On the contrary, the natural forest cover was now adapted in order to create an artificial forest environment, better suited to the feeding of domestic animals.

Eventually, however, this system of extensive forst management had to be abandoned. The pollen diagrams show that by c. 2300 - 2200 bc the forest had returned to a natural stability of species. At this time there was a pattern of large, permanently inhabited settlements with cattle predominant, and kept in permanent clearances near the sites. The forest as the prime focus for subsistence activities had played out its role. The subsistence pattern seems to have changed from one that from the beginning of the Neolithic had been "area bound" to one that in the end was definitely "site bound"; or as Chapman has expressed it elsewhere in this volume, from "space" to "place".

This impression is reinforced by an examination of the secondary activities: fishing, hunting and gathering. During the Early Neolithic, special resource camps were established within the group's

general activity area. Around 2700 - 2600 bc they started to disappear, and these activities were increasingly carried out from the main settlement sites. The late settlements often yield considerable amounts of bones and shells from these activities.

Conclusions

The causewayed enclosures of southern Scandinavia were a short-lived pheonomenon that assumed an immense importance in society around 2700 - 2500 bc. To understand these monuments and their function, it is not enough to study them in isolation. Their emergence can be understood only by looking at other aspects of society, and just as important, by examining developments before the enclosures and their aftermath.

Evidence has already been adduced suggesting that the development of causewayed enclosures was closely associated with a sequence of profound changes in Neolithic society. The enclosures, linked as they were with a variety of social activities, must have played an important role in these changes. The first point to stress is that although we are dealing with a complex situation and a system composed of many interlinked facets it is necessary to give greater priority to some of these aspects than others in order to demonstrate the dynamism of these relationships. A start can be made with subsistence acivities and the spatial aspects of the settlement system, as they provide a foundation without which the social system cannot be understood.

It is important to stress that the economy from the outset of the Neolithic was based more on the extensive utilisation of existing niches in the environment, than on a reshaping of the environment into artificial agricultural niches. This meant that the settlement system had to be territorially based rather than site based, so that increasingly the shifting nature of settlement would lead to problems of inter-group competition and regulation of resource areas.

Various means of resolving competition and regulation are of course available at any time, violence being the most obvious recourse. One response often seen, however, is to ritualise relationships, and in the TBK case this was the solution which emerged. From the very beginning of the Neolithic c. 3200 bc we find strong evidence of ritual practice, and in particular associated with the building and use of monumental tombs. These were probably intended more to stress the relationship between the living, the dead, and their land, than to serve as simple repositories for the deceased. They would have been important symbols for the reproductiveness of the group and proclaimed its right to its land.

We have seen that ritual behaviour, the basic settlement pattern, and the subsistence economy changed little in the early phase. From 2800 - 2700 bc, however, the pace of change accelerated. As yet it is not possible to ascertain in what order the changes occurred, or, whether they happened simultaneously in a mutual feedback process. However, one development should probably be given priority. Farmers began increasingly to tamper with the natural environment by ring-barking trees in order to create an artificial forest niche suitable

for cattle grazing. This had probably been going on for a long time on a small scale but now it became a major feature of the subsistence strategy.

It is doubtful, however, that this development lessened the need for a large territory. The economy was still to a large degree based on the utilisation of existing resources, and the clearance of forest was essentially a modification and extension of an existing system. Furthermore, although settlement sizes grew considerably, probably in part due to a population increase, they were still relatively short-lived, their inhabitants frequently shifting.

Neither is it likely that there was a decrease in political stress. On the contrary, with a growing population, a spatially extensive economic system and growing labour investment in long-term improvements in fodder supplies, it is likely that inter-group competition would increase. This was dealt with apparently by an increasing ritualisation of society, evidenced, among other things, in the production and "consumption" (by deposition) of pottery, the building and use of tombs, and in the construction and use of causewayed enclosures. We must assume that ritual, with roots going back to the beginning of the Neolithic, became the all-dominating force that governed social interaction within a set of implicit rules. Ritual provided the framework for competition and cooperation on both the inter- and intra-group level, and in itself became the primary means of ensuring the stability and continuity of the complex social system.

It may seem odd that society should have become ritualised to this degree, but I consider it to be a very specific historical development. Ritualisation, as has been noted above, is one way of setting rules for social interaction, and probably occurs in all societies. How society is organised, however, and how it has developed will determine how much it requires. In the present case we can understand why ritual should have become important when we consider the prevailing type of economy, and its spatial orgaisation, but other trajectories would also have been open, and it was not inevitable that ritual would end up playing such a dominating role. This was indeed a specific historical development.

If we try to answer the problem of how ritual in this case served to ease social relationships between individuals and groups, we have necessarily to be vague. The process must have happened on several levels, but it seems probable that two aspects were of particular importance. One was ritual concerned with the dead, who, we may postulate, served to formulate the rights and obligations of the living with respect to the ancestors. The other was the enormous shared investment in labour that was involved in so much of the ritual, notably in the construction and use of the causewayed enclosures. A complicated network of obligations is clearly indicated, both between and within societies. This network of obligations made it possible for individuals or groups to organise these projects; and one should not underestimate the strength of the ties holding such a network together.

This phase of strongly ritualised society did not last long, indeed, it incorporated the seeds of its own downfall. The growth in size of settlement sites, and the deliberate alteration of the natural environment in order to provide more fodder for animals, inevitably led to more permanent settlements. The heavy demand for surpluses to maintain a high investment of labour in construction work for ritual purposes would quicken the trend towards more permanent field systems and grazing areas. Furthermore, the ritual system itself was probably so complex and over-extended that it was vulnerable even to slight social and environmental pressure. As settlement sites became increasingly permanent, so much of the need for governing ritual disappeared. As the ritual check on social interaction crumbled, so the need emerged to come together in larger, permanent social units, and this would further erode the ritual system. The result was a complete transformation of society in a very short space of time.

The causewayed enclosures may therefore be regarded as "ritual centres", though not in the sense of being "neutral" meeting places where different social groups met to define and re-affirm their relationships through rituals. The settlements of the enclosure period, and especially those which followed afterwards, give the impression that the enclosures belonged to specific groups. This is given some support by the distribution of causewayed enclosures, known and possible, and of TBK tombs in eastern Jutland (Fig. 17.10), where we see emerging the faint outlines of a territorial pattern with causewayed enclosures surrounded by clusters of tombs. The suggestion is that each group had within its territory its own causewayed enclosure, and that tombs were built in relation to the siting of this enclosure.

Whereas the tombs could survive as an internal feature of the social unit, the causewayed enclosures could not. They involved external obligations, bringing in other groups to participate in construction and rituals at the enclosure. How successful they were in these respects would reflect on the importance and strength of the group, and the extent of its authority. The enclosure thus became a symbol of the group itself, so that when the need for permanent settlements was felt, it was inevitable that these would focus on the environs of the enclosures.

One final problem associated with the causewayed enclosures of southern Scandinavia deserves brief mention. The enclosures were built in great numbers over a very short period of time, and as quickly disappeared. Their development can be accommodated within the models for the period proposed specifically for this region, and unlikely to be precisely the same in any other area. It is surprising, therefore, that the Scandinavian sites conform quite closely to "European standards" for causewayed enclosures. Not only are the constructional details generally so similar, but equally the activities associated with the enclosures are remarkably similar. Taken together the papers in this volume will make clear how widespread in west and central Europe are features such as the recutting and deliberate backfilling of ditches, fires in ditches, and the deliberate deposition of artefacts, human skulls, and animal bones in the ditches.

To explain these similarities as mere coincidences is out of the question. We are forced to accept a direct relationship, but we are at the moment at a loss to explain how this operated. A simple diffusionist model is insufficient. The problem is exacerbated by the present geographical gap between the Scandinavian sites and those further south, and further complicated by the much greater chronological span of the west and central European sites. It is unlikely, to say the least, that the idea of causewayed enclosures reached Denmark by chance at exactly the right moment in terms of local Neolithic developments. Causewayed enclosures everywhere incorporate some basic concepts, including a range of activities proper to their function. These ideas somehow spread widely across cultural boundaries, even if they were variably applied at the local level. If the introduction of causewayed enclosures in southern Scandinavia can only be understood with reference to internal developments, then it follows that the idea of causewayed enclosures constituted part of a wider community of tradition, and could be taken up when society locally had reached an appropriate point in its development. As a concept it was sufficiently strong to retain its basic features even when it was taken up in different socio-economic contexts.

The problem of causewayed enclosures is an intriguing one, but it may be more apparent than real. It should not be forgotten that it is only 15 years since the first Scandinavian enclosure was recognised. Immediately to the south of Denmark there is a large blank on the map apparently devoid of enclosures, but the whole history of the subject makes it possible that in another fifteen years this will appear less of a lacuna and much more new information will have emerged both in southern Scandinavia and elsewhere. The problems then may be quite different.

Postscript

Since this paper was written in the spring of 1984 extensive excavations have been carried out on four newly found causewayed enclosures not mentioned in this volume, and new discoveries seem to be on the way.

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