

# A Late Neolithic Hoard with Objects of Bronze and Gold from Skeldal, Central Jutland

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## INTRODUCTION

Rich finds of metal objects from the early metal age are rare in south Scandinavia. Therefore, it attracted some attention when an unusually varied assemblage of Late Neolithic bronze and gold objects appeared in November 1982 at Skeldal (sb 147) in the parish of Rye, district of Tyrsting in Skanderborg County (1). The discovery (fig. 5; cf. Olsen 1984, fig. 7) comprises three flanged axes and the butt part of a fourth, one double-edged flanged chisel, one open oval solid-cast ring, one beehive-shaped box with lid, four spiral rings of the *Noppen-*

*ring* type, one cylindrical spiral bead and one spiral arm-ring. Two of the *Noppenringe* are made of gold, while the other objects are of bronze.

The objects were found by a pensioner from Silkeborg using a metal detector on a flat, sandy terrace between the lake, Salten Langsø, and the hilly country at Rye Sønderskov. The objects were lying at the west side of a track in the forest leading to a ford across Salten Langsø where the lake is at its narrowest (fig. 1). The distance to the lake shore is around 300 m. According to the finder the objects were lying close to the surface. No burial mounds have been recorded from the

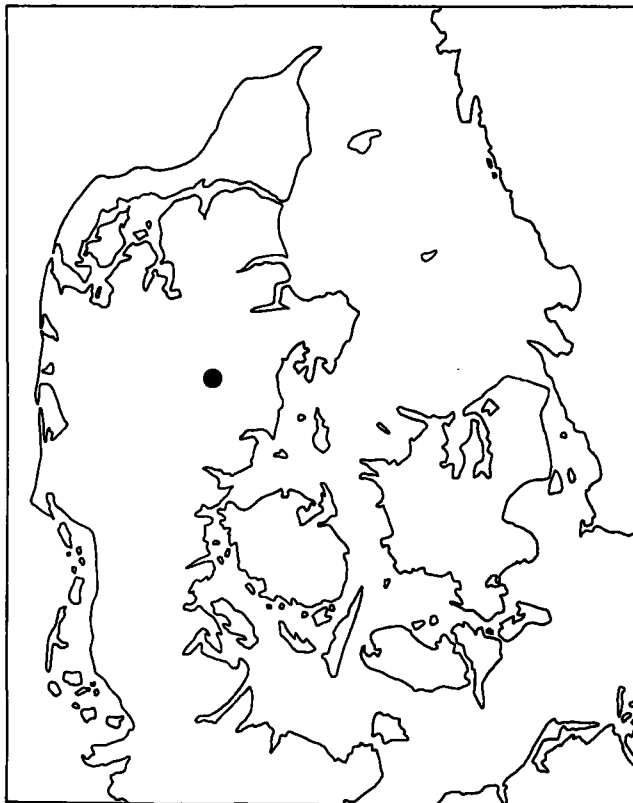
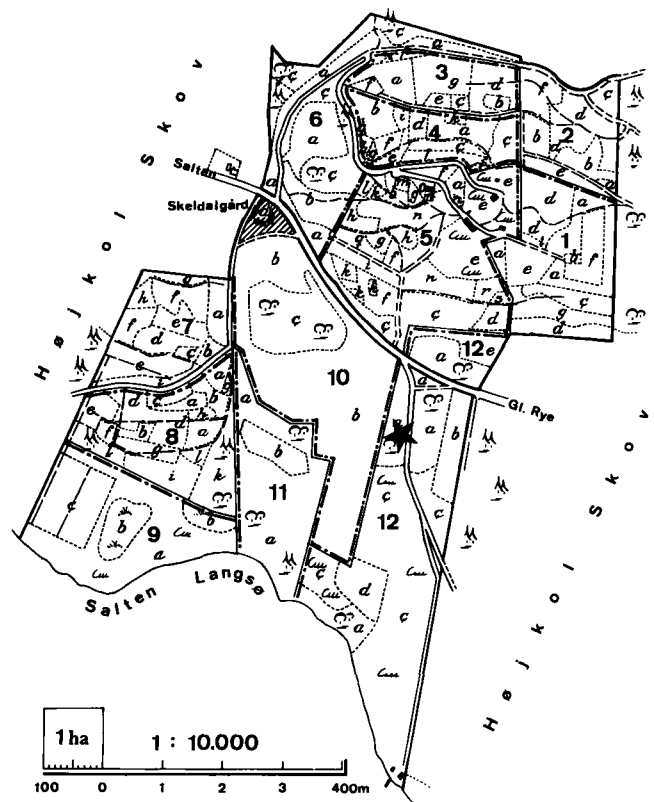


Fig. 1. Map with the find place indicated.



area, and the find no doubt belong to the hoard category. No stone or any other mark of recognition were present at the site.

The finder observed (fig. 2) that the two larger flanged axes lay on edge side by side, with their cutting edges towards the north. East of them and closer to the track was the beehive-shaped box, which was closed and upside down and contained the two gold rings. In front of it was the broken-off butt of another flanged axe. The pair of bronze *Noppenringe* and the spiral arming were found close south of these, while the chisel and the smallest of the flanged axes lay above them and the open solid ring was uppermost. No remains of organic material were noticed.

A few days after the discovery the objects were handed over to Silkeborg Museum (2), and an investigation of the site was carried out (Fischer 1983, 8). The excavation established (3) that the metal objects were found in a small oval pit (fig. 3), measuring at the top approximately 20 × 30 cms. The sides of the pit narrowed towards the bottom, which was 27 cms below the present surface. The upper part had clearly been disturbed by the finder, and the fill (layer 2) had a disturbed character and consisted of grey, sandy soil mixed with recent plant material and bronze scraps, especially from the pair of *Noppenringe* and the spiral arming. Also a fragment of a small spiral bead appeared. From the traces of bronze adhering to the pit wall, it was evident that the uppermost bronzes had been lying immediately below the recent surface layer (layer 1).

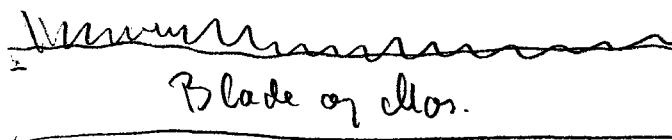


Fig. 2. The finder's drawing of the position of the objects. C. 1:2.

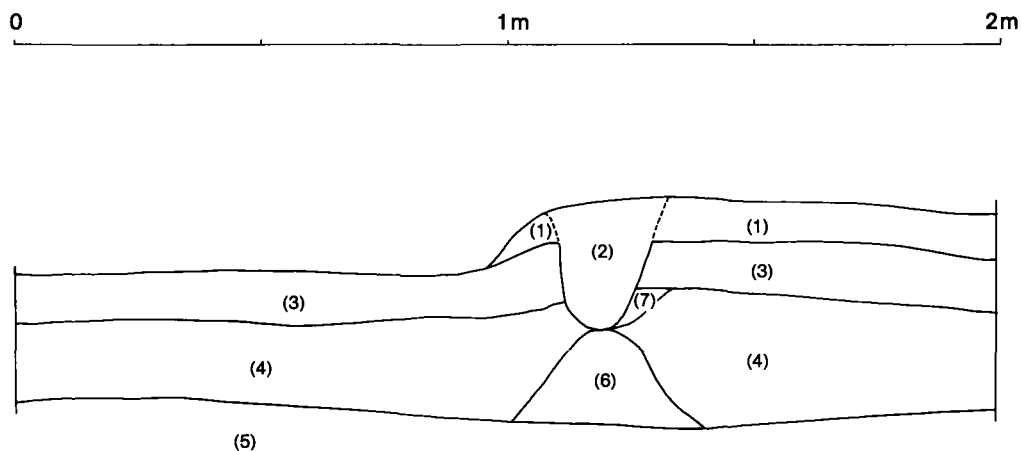


Fig. 3. Section through the pit and associated layers. The broad depression to the left is the track. (Chr. Fischer and Elsebet Morville del.).

Below the surface layer of leaves, moss, and small branches (layer 1) was a dark layer of raw humus (layer 3). The pit may originally have been associated with this layer. Then came a layer of bleached sand/podsol (layer 4), clearly older than the pit. Below this was a layer with scattered spots of hard pan (layer 5) and immediately below the pit a light brown precipitation, perhaps of hard pan (layer 6). A small pocket of grey sand (layer 7) – maybe somehow related to the pit – was situated on the right side of the pit close to its bottom. The nature of some of these layers may indicate that there was heath at the spot at the time of or after the deposition of the hoard. Judging from the section (fig. 3, left) through the pit and the track the latter must be of relatively recent date, which is in agreement with a statement made by the owner of the forest.

As the minimum space occupied by the largest axe and the spiral rings situated behind it is 23–25 cms across, the lower layer of objects must have filled the whole pit at their level. However, the vertical distance from the top to the bottom of the hoard need not have exceeded 11 cms, so there can have been unused space at the bottom of the pit. The general impression is that the objects were put carefully, one by one, in the pit or alternatively that they were deposited inside a box or a basket. If so it would explain the possibly unused space in the bottom part of the pit.

The Skeldal hoard must be characterized as an associated deposit. The stratigraphical data does not rule out the possibility that some objects could have disappeared, and so the hoard cannot in the strict sense of the word be characterized as closed, but in this respect it does not differ from the majority of Late Neolithic and Bronze Age hoards.

Two flanged axes have been found previously in the Skeldal area. One of these is now in America, and there is no further information about it. The other one was picked up from a path at Skeldal around 1900 (4) (fig. 4). This axe is made in a contemporaneous, but slightly different style than the axes from the hoard with a broad butt in relation to the width of the edge, a very thin blade and a protruding cutting edge. Whether or not these two axes originally belonged to the hoard cannot be decided.

The stouter of the objects in the Skeldal hoard are generally well preserved, whereas the slender bronze spiral rings are much corroded despite the relatively acidic soil conditions. The differences in preservation may

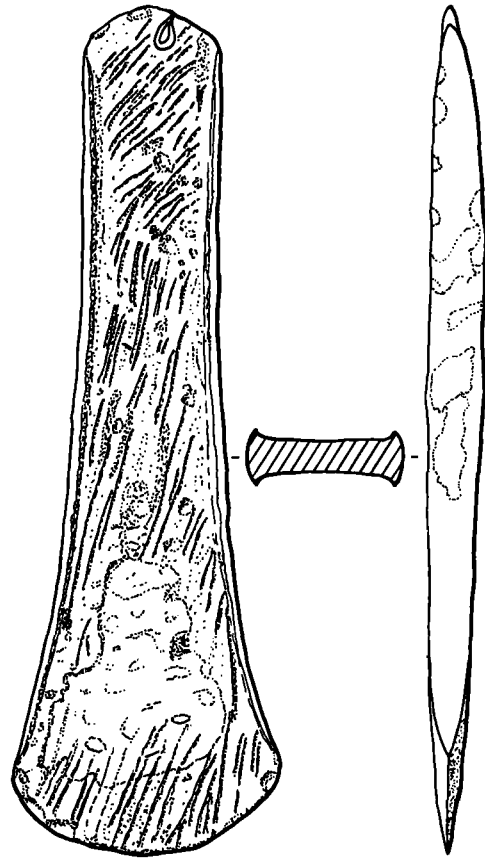


Fig. 4. Drawing of a low-flanged axe found in the Skeldal area around 1900. (David Graham *del.*). 2:3.

mainly be due to differences of manufacturing technique. While the spiral rings have been hammered into shape the other objects are cast with presumably a minimum of after-treatment. The process of hammering means a decomposition of the structure of the metal. It is made brittle, and therefore it corrodes easily (5).

#### DESCRIPTION AND CLASSIFICATION OF THE OBJECTS

##### *The beehive-shaped box with lid* (fig. 5a and 6)

The round-based, lugged box is oval in section, has convex sides, and a flat lid. Without the lid the height is 5,6–5,8 cms. The width of the oval opening varies from 4,5 to 5,4 cms, and measured at the rim the thickness of the wall varies from 0,1 to 0,3 cm. Two opposed vertical lugs are situated on the maximum diameter, one springing directly from the flattened rim, the other from just below the rim. The exterior surface of the box is decorated with horizontal ribs that run circumferentially on the upper part, while the six lowermost ribs run in a spiral. Including

the bottom rib, one side has twenty ribs and the other twenty-one.

The six bottom, spirally arranged ribs, the two topmost ribs, and every second rib in between are ornamented with closely set, vertical strokes. The interior surface of the box is smooth.

The lid is composed of a flat and smooth oval disc with a flange that fits into the mouth of the box. It is decorated with vertical strokes on the edge. Half-way between the lugs of the box there are two opposite 0,2 cm wide holes corresponding to similarly placed holes in the flange of the lid. A stick could have been stuck through both sets of holes to keep the lid safely in place. With the lid the height of the box varies from 5,8 to 5,9 cms.

The state of preservation is relatively good. Corrosion has caused minor damages on the base, on top of and at the edge of the lid, and sporadically also on the exterior of the box. The interior of the lid and the box is covered by a light green layer of corrosion. On the exterior parts a dark green patina is predominant. In a few places the copper colour is visible, possibly owing to recent injuries.

The box was cast in the *cire perdue* technique. This may also be true of the lid which, however, could have been cast in an ordinary mould. The stroke decoration is very homogeneously made, probably with a narrow punch. From a technical point of view the box is not without flaws and irregularities. At each end there is a slight, bulbous thickening of the wall from the base to below the lugs. Here the ribs occasionally run obliquely to each other, and twice a new rib branches off from a parallel lower one. The circumferential principle of the upper ribs has thus not been fully carried through. Such irregularities are not seen on the broad sides, but the distance between the ribs is not quite constant. Probably already during casting or during after-treatment the box wall broke through above one of the holes in the rim and twice near one of the lugs. The aperture closest to the rim has been repaired from the inside with a thin bronze plate, irregular in outline, so that hardly anything is visible from the outside. The other two holes are unrepaired and inconspicuous.

The only certain traces of wear are found on the upper sides of the perforations through the lugs. Here the edges seem to have been worn smooth, probably by a cord passing through the lug. Microphotography showed remains of organic material in one of the lugs as well as in one of the holes in the flange of the lid. All other edges are sharp, and the overall impression is, therefore, that the box was neither new nor very old when hoarded.

The cord lugs and the round base show that this box was meant to be suspended. It is tempting to compare the box with the belt ornaments of the Bronze Age, and so assume that it was worn with the flat lid against the stomach or the back (Broholm 1949, DO III, 228–229, 322–324 and 1952, DB IV, 318). If this were the case, however, the wear should be located near the middle and not at the top of the perforation. This suggests that the box hung vertically, perhaps from the belt. The contents of the box – the pair of gold *Noppenringe* – demonstrate that it was in this case used as a jewel-case, but undoubtedly it was designed to contain small things in general. There is only just enough room for the two gold rings inside the box.

As pointed out by Fischer (1983, 10), the shape and decoration of the box resembles the straw beehives made in the technique of coiled basketry, such as were still used in this century. The box may thus be seen as a miniature copy of such a beehive. It could also be interpreted as a translation into bronze of a small container made of narrow bands of straw.

The Skeldal box is unique, but its decoration makes it possible to identify its cultural origin. The cast rib style, occasionally with vertical or oblique strokes, has its origins within the Únětice culture of central Europe, where it is a common ornament for instance on dagger hilts, shafts of halberds and cuff-shaped bracelets. Especially in regard to size, technique and decoration the ribbed bracelets (fig. 7A-B) are close parallels to the Skeldal box. Sometimes these have strokes on some of the ribs (fig. 7A), as on the bracelet from the Scanian Pile hoard (Tygelsjö parish) (Oldeberg 1974, no. 832). As in the case of the Skeldal box irregularities in the circumferential course of the ribs are occasionally encountered on bracelets, for instance in the central German Griefstedt hoard (Kr. Sömmerda) (von Brunn 1959, Taf. 30:4). The ribbed bracelets have their main distribution in the north part of the Únětice culture, i.e. north Bohemia and central Germany, and in its Baltic periphery in Brandenburg and Mecklenburg (Gandert 1957, 41 ff.). The northernmost known is the one from the Pile hoard.

Most of the cuff-shaped ribbed bracelets, as well as the majority of the other rib style objects, belong to the classical phase of the Únětice culture, i.e. Br.A1b (6). The bracelets are, however, present in some finds that take up a late position within the classical phase or a transitional position between the classical and the post-classical phase, i.e. Br.A1b/Br.A2 (7). In the south Baltic region the rib style of ornamentation continues well into the Middle Bronze Age, where it is used on the Mecklenburgian type of neck collar, whose earliest appearance is in Pomeranian hoards like Stecklin and Babbín (Kr. Greifenhagen and Kr. Pyritz) (Kersten 1958, Taf. 61 and 63), datable to Br.B1 in the central European terminology.

The Skeldal box can thus presumably be identified as an Úněticean product made somewhere in the north part of this culture or its Baltic periphery, most probably during its classical phase.

A box from Bordsesholm (Kr. Rendsburg-Eckernförde) (fig. 8) offers a fairly good parallel to the one from Skeldal in regard to size, shape and technique. It is said to have been found in one of the largest burial mounds between Bordsesholm and Neumünster several years before 1861. The Bordsesholm box is vertical-sided and oval when seen from above. The base and lid are convex. The system with the lid flange and the corresponding holes in lid and rim is quite the same on the two boxes. However, the Bordsesholm box has no lugs, but four suspension holes on the slightly flattened back of the box wall. This box may have been worn attached to the belt.

The decoration of the Bordsesholm box is very different from the stroked ribs of the one from Skeldal. Simple geometric designs of bands of hatched triangles, of multiple lines and closely set, vertical strokes have been punched or engraved into the box wall, while the base and lid have concentric ovals. On the lid as well as on the base there is a row of triangles approximately along the axis.

Similar geometric patterns are found rather often on the bronzes of the Únětice culture and related Early Bronze Age (EBA) groups, though varying in frequency from region to region. Probably the best parallels to the Bordsesholm box are Moravian and Lower Austrian cuff-shaped bracelets (fig. 7C), the geometric designs of which contain the same three elements as found on the Bordsesholm box (8). The Färdrup style of ornamentation may be another parallel, but here the bands of multiple lines and vertical strokes are seldom used (9). Both derivations are possible from a geographical point of view, as east Holstein is attached to the Baltic Únětice periphery during the later part of the

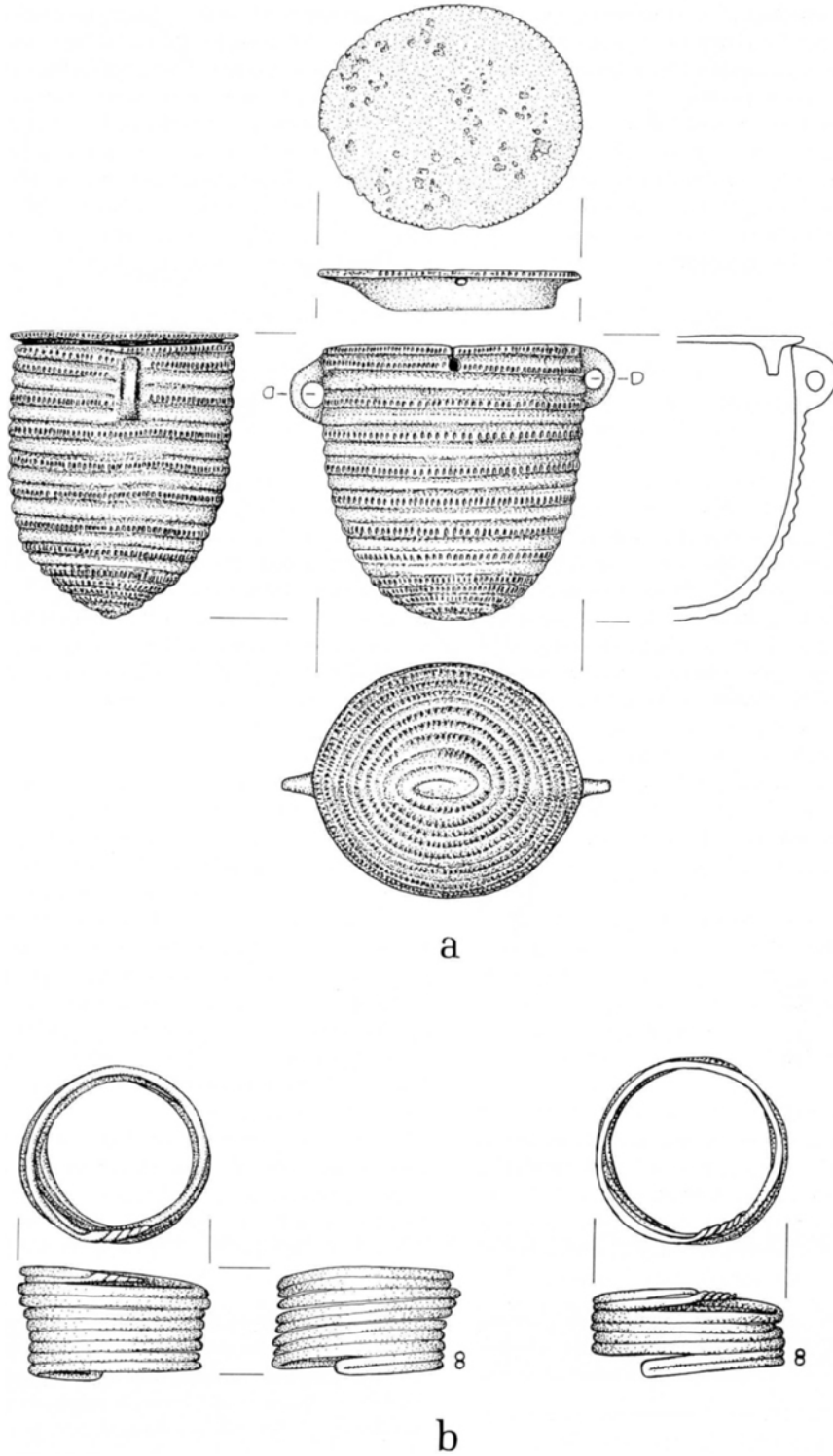


Fig. 5a-b. Objects of the Skeldal hoard: a) beehive-shaped box. b) gold *Noppenring*. (Eva Koch *del.*). 2:3.

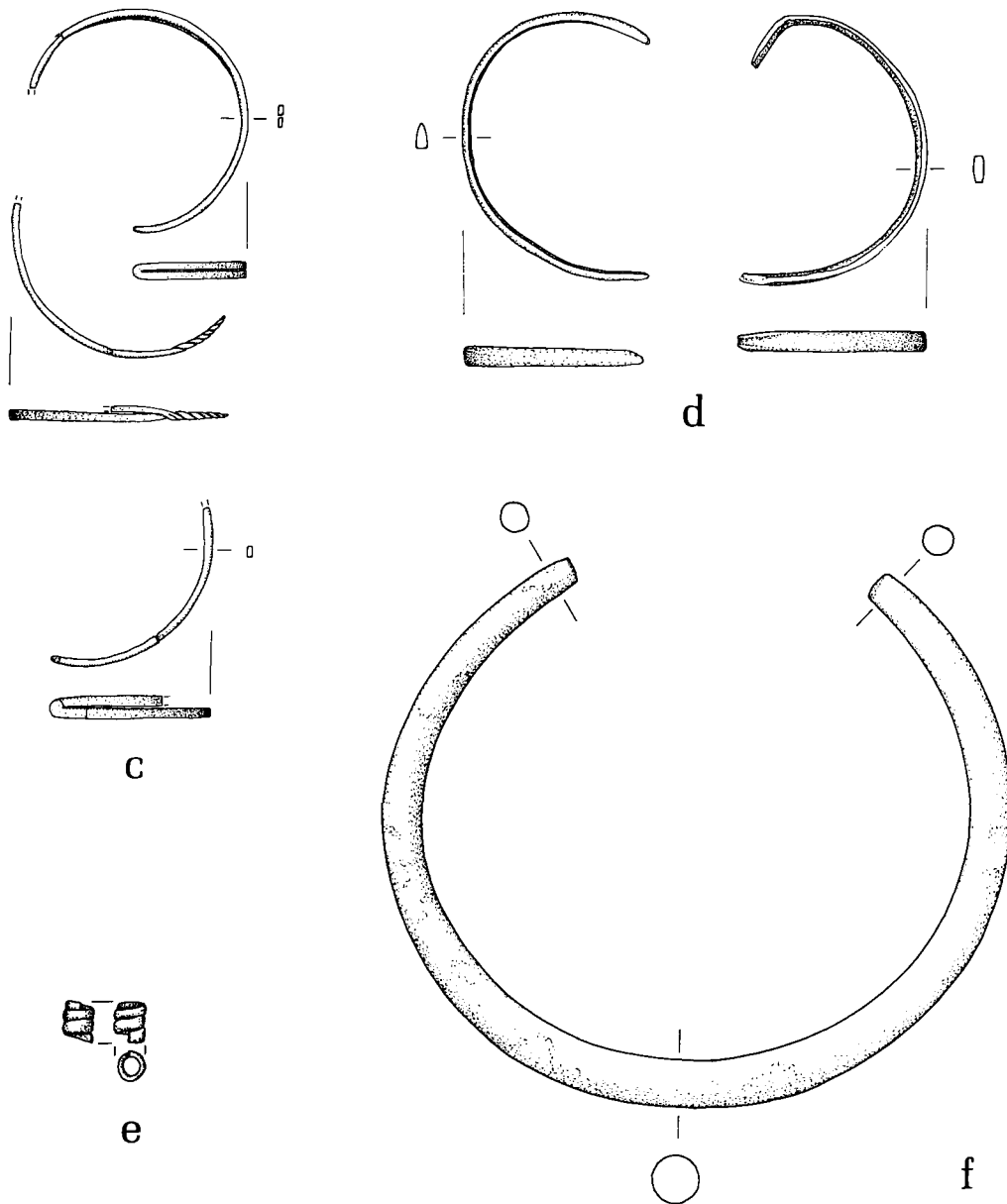


Fig. 5c-f. Objects of the Skeldal hoard: c) bronze *Noppenring*. d) spiral arming. e) spiral bead. f) open, solid-cast ring. (Eva Koch *del.*). 2:3.

Late Neolithic (LN) Period (10), and to zone I of the south Scandinavian Early Bronze Age during Period I (Kühn 1979, 95). Thus it is difficult to specify the place of manufacture and the relative date of the Bordeholm box.

#### *The pair of gold Noppenringe* (fig. 5b)

The two rings are made of gold wire that has been doubled up and wound into a close spiral of 3 and 4½ turns respectively. The doubled-up wire is closed in one end by a loop and twisted together in the other

end. The thickness of the wire is 0,1–0,2 cm, and it is roughly circular in section except for the twisted end that has been hammered more or less flat, tapering to a point. The largest spiral is 2,2 cms long and has an exterior diameter of 3,9 cms. It weighs 43,4 gms. The length of the smaller ring is 1,8 cms, the diameter 3,9 cm and the weight 29,2 gms. The rings, especially the small one, have been squeezed slightly out of shape, but otherwise the state of preservation is very good.

The Skeldal gold rings belong to the *Noppenring* type of the central European EBA. Such rings are known in various forms and sizes in copper/bronze as well as in gold. They were used as ornaments for the fin-

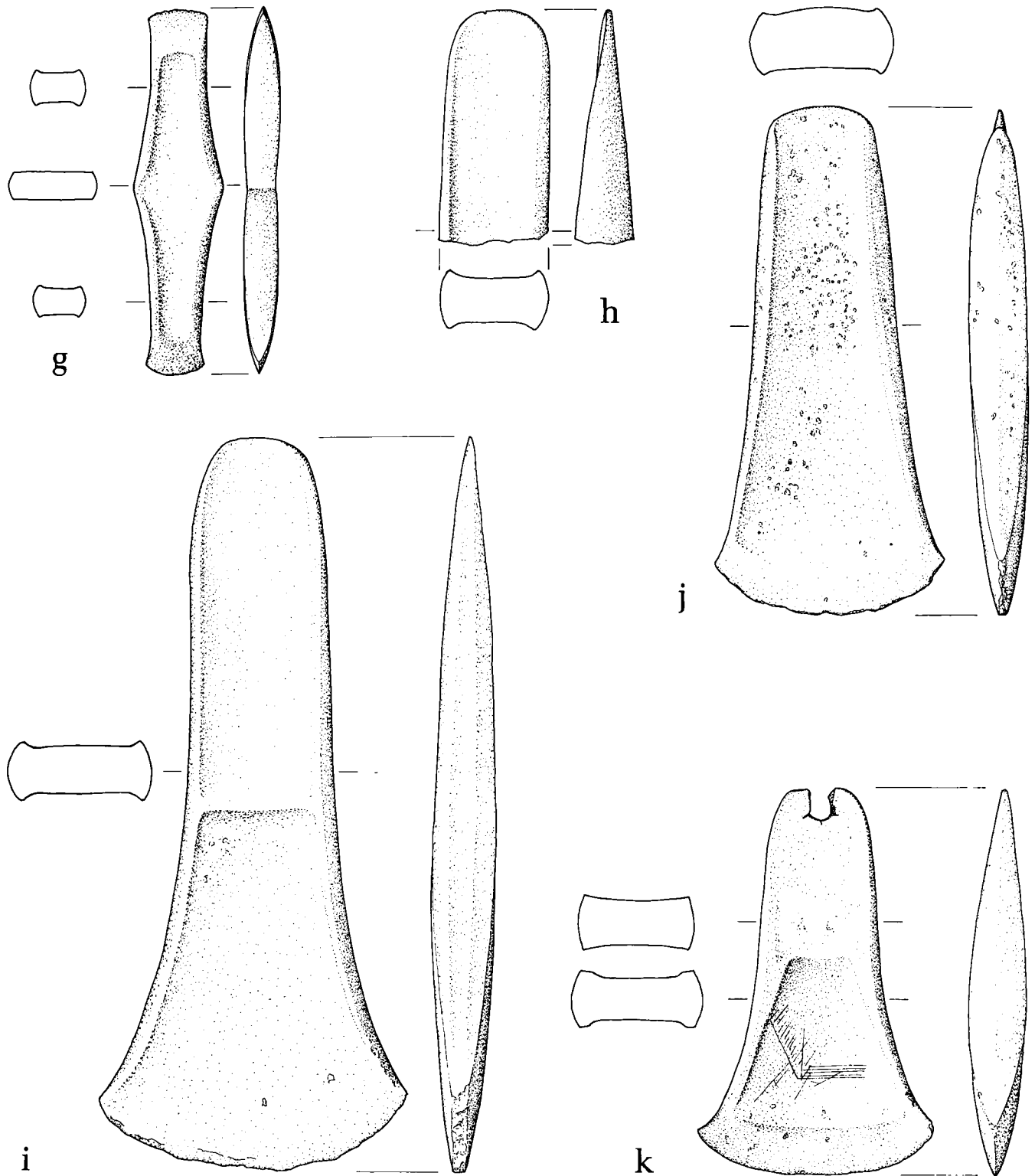


Fig. 5g-k. Objects of the Skeldal hoard: g) symmetrical, shouldered chisel. h) butt end of a flanged axe. i) large, parallelsided-curved flange axe. j) trapezoidal flanged axe. k) small, parallelsided-curved flanged axe. (Eva Koch *del.*). 2:3.

ger, the wrist, the ear or the hair/cap/frontlet, the clothes – the form and position varying with time and space (Stein 1970, 14 ff.; Ruckdeschel 1978, Bd. I, 166 ff.). Most of the *Noppenringe* either have one end twisted, or both ends may terminate in a loop or several loops in quite a complicated system.

The gold rings of the Skeldal hoard must be classified among the large *Noppenringe* with a diameter around 3,5–4,0 cms, and of the most simple form with a simple spiral, a single loop and one end twisted (Ruckdeschel 1978, 142–145, Abb. 11: type 2Gv, 166). This kind of *Noppenring* is made in copper/bronze as well as gold, the former being the most frequent. The type has three distributional centres: Lower Bavaria, south Moravia-Lower Austria north of the Danube and north Bohemia (Hundt 1961, Karte 4). The gold rings from Skeldal probably have their origin within one of these regions, as the gold version of the large simple *Noppenring* is found rarely or not at all (11) in the German Úněticean group and its northern periphery. The large, simple *Noppenring* with twisted end is known throughout the central European EBA, but belongs primarily to Br.A1.

Different varieties of *Noppenringe* – large or small, simple or complicated, of gold or copper/bronze – did sometimes reach south Scandinavia, where they appear in graves of the LN Period and the first period of the Early Bronze Age. More rarely they are found in hoards. Large *Noppenringe* are, however, present in the Scanian hoards from Fjälkinge (Fjälkinge parish) (Oldeberg 1974, no. 152) and Pile. The two specimens from Fjälkinge are made of gold and belong to the same category as the Skeldal rings, although the wire of the former is thinner. The one from Pile is of bronze and belongs to a slightly different type.

A certain kind of *Noppenring*, sometimes called “ring gold”, appears in the finds from late Period I of the Bronze Age onwards. The doubled-up wire, that is wound into a simple spiral, has either a loop in each end, or one end is kept open. The large *Noppenring* with one end twisted is, however, not known from south Scandinavian Bronze Age finds.

### *The pair of bronze Noppenringe (fig. 5c)*

Around twelve pieces of thin, flattened bronze wire, rectangular in section (c. 0,2 × 0,1 cm) can be identified as belonging to two large *Noppenringe* of the same type as the gold pair. The exterior diameter is approximately 4,5 cms. Preserved are one loop, half another loop, one twisted end and several wire fragments, that do not seem to fit. Thus some fragments must be missing. The fractures are all either new or due to corrosion. On parts not attacked by corrosion the wire has a fine, glossy, dark green patina without traces of wear. The impression is that the rings were new when hoarded.

The rings are undoubtedly shaped with a hammer. On well preserved parts a very slender, horizontal line of light green is visible, roughly parallel to the edge of the wire. This line may be interpreted as a kind of seam created when an originally thinner and broader bronze band was hammered into the present shape.

What was said about the gold rings is generally valid for the bronze rings too, but the latter may, contrary to the gold rings, have been manufactured somewhere in the central German Úněticean group. Here such bronze *Noppenringe* occur in the hoards of Berlin-Lichtenrade (Gandert 1957, Abb. 1), Tilleda (Kr. Sangerhausen) (Billig 1963, Abb. 1–3), Halle-Giebichenstein (von Brunn 1959, Taf. 38) and Schollene (Kr. Havelburg) (op.cit., Taf. 88). These hoards belong to a rather small and special group of central German Úněticean hoards containing

primarily thin ornaments or a mixture of such ornaments and more stout objects (Billig 1963, 256 f.).

Apart from Skeldal, large bronze *Noppenringe* of the simple type do not occur in combination with other objects in south Scandinavia. The northernmost assemblage is the south Holstein hoard of Ohlenburg (Hamburg-Rissen) (Hachmann 1957, no. 210, Taf. 31: 21–24), which is difficult to classify culturally, as well as chronologically. It may, however, be slightly earlier than the majority of the Úněticean hoards and be related to the *Blechkreis* finds of Br.A1a and the Early Barbed Wire Period of the northwest European Lowland region.

### *The spiral arming (fig. 5d)*

Five pieces of bronze band, rounded rectangular to rounded triangular in section (width = 0,4–0,5 cm; max. thickness = 0,2 cm) can be fitted together to three large fragments, very likely all belonging to the same spiral arming. The diameter was 5–6 cms. Only a little more than two turns of the spiral ring have been preserved. One fragment terminates in a point, which may be one of the original ends. The other end and other pieces as well are missing.

Probably the ring has been worked into shape with a hammer. All fractures and also part of the surface are much corroded. Better preserved parts of the band have a glossy, dark green patina.

As the other ornaments of the hoard demonstrably are of foreign origin this is probably valid for the spiral arming too. Spiral armings have a wide distribution in time and space, apparently with little or no typological differences. The first spiral armings occur in Chalcolithic central Europe, but during the EBA this type of ornament becomes very popular, and it is an ordinary component in some of the late Úněticean hoards. According to Ruckdeschel (1978, Bd. I, 162) spiral armings with triangular, rectangular, or D-shaped band section are late in the EBA sequence, and although this is only a general tendency it may give some idea of the chronological position of the specimen from Skeldal.

Apart from Skeldal, spiral armings do not occur in the south Scandinavian early group of hoards (12), but they are known in related finds from Lower Saxony (Hachmann 1957, no. 179 and 208).

### *The spiral bead (fig. 5e)*

The bead is made of a narrow and flat bronze band, which has a maximum thickness of 0,1 cm and a maximum width of 0,3 cm. The band has been wound into a tight spiral with a roughly circular section. The exterior diameter of the bead is 0,6 cm. Only part of the bead is preserved, i.e. two and a half spiral turns measuring 0,8 cm in length. There are fractures at both ends, one being corroded while the other one is of new date. The surface of the bronze band is covered by a relatively glossy patina of dark to lighter green.

Just like the spiral armings the spiral beads appear during the Chalcolithic of central Europe. In the EBA this type of ornament is common in most central European regions in graves as well as in hoards. It occurs in the Middle Bronze Age too (Ruckdeschel 1978, Bd. I, 191). The beads are put on the dress or are used in necklaces (Gimbutas 1965, 257 f., fig. 166–167; Chropovsky 1960, Abb. 27). Usually more than one bead is deposited.

In south Scandinavia spiral beads never became frequent, and the one from Skeldal certainly is a foreign piece. Most probably it has its origin within the Únětice culture. None of the other early south Scandi-



navian hoards contain this kind of ornament, but it is occasionally seen in graves of primarily Neolithic character.

### *The open solid-cast ring (fig. 5f)*

The open, slightly oval ring is made of a solid bronze bar of circular section. The thickness of the bar varies from 0,6 to 0,9 cm. The ring tapers a little towards the ends, which are just slightly rounded.

The maximum diameter of the ring is 12,6 cms with an opening of 6,2 cms. From the position of two similar, but more closed rings in one of the rich Polish graves at Leki Male (woj. Poznań) it appears that such rings were sometimes worn as ankle ornaments (von Brunn 1959, 29; Gedl 1980, Taf. 30B).

The finder has cleaned and polished the ring so that the green patina has almost completely disappeared. The surface is uneven due to corrosion. The ring is no doubt cast.

Open, oval, solid-cast rings with "cut off" ends are among the most frequent types in the hoards of the northern Únětice culture (von Brunn 1959, 16) and its periphery in the Baltic region. Only occasionally do they appear in graves. The end parts of the bar may be decorated with closely set vertical ribs, and the width of the opening varies from almost closed to around 7 cms. The Skeldal ring belongs to the undecorated variant with a wide opening, which is much less frequent than the more closed variant.

Generally, rings of this type are of classical Úněticean date, and almost exact counterparts to the ring from Skeldal are found in hoards like Neu Bauhof (Kr. Malchin) Mecklenburg (Schubart 1972, Taf. 103). The undecorated variant continues in the Baltic region for a long time and even occurs in Pomeranian Br.B1 hoards like Stecklin, Krüssow (Kr. Pyritz), and Bruchhausen (Kr. Saatzig) (Kersten 1958, Taf. 61, 66 and 72). These late rings seem, however, usually to be more closed than the Skeldal ring.

Open, oval, solid rings occasionally reached south Scandinavia. Apart from Skeldal and a few single finds the type is present in the Jutland hoards of Gallelose (Harredslev parish) (Neergaard 1897; Jensen 1979, fig. p. 75) and Lyngby (= Lyngby parish) (Jacob-Friesen 1967, no. 561), and in the Scanian hoard of Pile. The Skeldal ring especially matches some of the rings from Pile.

### *The double-edged chisel (fig. 5g)*

The chisel is symmetrical, double-edged, shouldered and flanged. It is 9,3 cms long and has a 1,5 cms wide cutting edge in each end. Seen from the face each side has a distinct angle or shoulder about half-way along, and the two trapeze-shaped halves are identical except that one half is just a little longer than the other. The course of each side is slightly concave. The flanges are low, i.e. around and less than 0,1 cm. The cutting edges are slightly convex and have broad, curved bevels.

The chisel has been cleaned and polished by the finder, and therefore the original surface is no longer preserved. That it has been sharpened is indicated by the edge bevels, but it was not necessarily much longer when new. Probably it was cast in a two-piece mould.

The Skeldal chisel belongs to a relatively rare tool type that has a scattered distribution primarily between *Thüringer Wald*, *Erzgebirge*, the Sudeten Mountains and the Baltic Sea. These shouldered, roughly symmetrical chisels occur in hoards and graves belonging or related to the Únětice culture in its classical and post-classical phase with a concentration of finds in the former phase.



Fig. 6. Photo of the beehive-shaped box. (Silkeborg Museum photo).

Two variants of the shouldered, symmetrical chisel exist (cf. Kibbert 1980, 124) (fig. 9). The first is short and broad across the middle like the Skeldal chisel (variant A). The other is longer with a tendency to parallel sides (variant B). Some definitions may be introduced here: Variant A has a length-width index less than 7, while variant B's index lies on or above 7. Variant B may be considered a typological link between variant A and the one-edged, shouldered chisel (variant C), the butt part of which is shorter in length as well as broader than the blade part (fig. 9). In fact several chisels of variant B are somewhat asymmetrical (13). Variant C may be further subdivided (cf. Willroth 1985, Abb. 1, Form 3–10), but this does not seem necessary, at least not for chronological reasons.

The chronological position of variant A lies within the classical phase of Únětice, except for its presence in the Brandenburgian hoard of Falkenwalde (Kr. Prenzlau) (Bohm 1935, Taf. 2: 11), which may possibly belong to the post-classical phase, i.e. Br.A2 (13). Variant B appears in finds of the classical as well as the post-classical phase. Among the former is the princely burial at Leubingen (Kr. Sömmerda) (Höfer 1906a, Taf. 2), and among the latter is the Mecklenburgian hoard of Ferdinandshof (Kr. Ückerförde) (Kersten 1958, Taf. 41, no. 423). Variant B is thus generally later than variant A, though with some overlap. Variant C is found primarily in finds belonging to or related to the early Tumulus culture, Br.B1 (Kibbert 1980, 125; Hachmann 1957, Taf. 33 and 40: 15–17), but its first appearance is in the Br.A2 Period (Hachmann 1957, no. 552, Taf. 55: 1–6; von Brunn 1959, Taf. 54–55). Variant

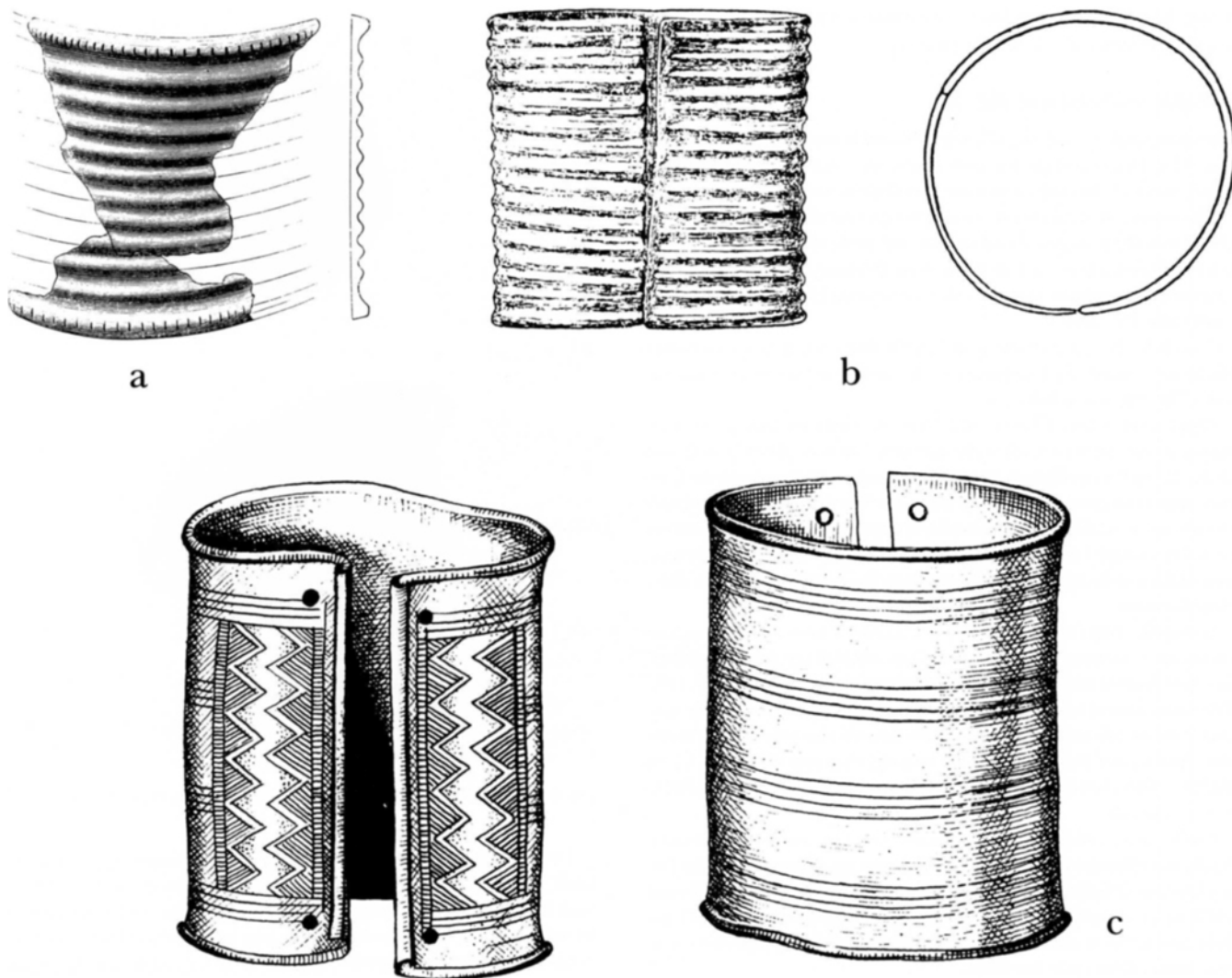


Fig. 7. Cuff-shaped bracelets of Úněticean origin: a) Ribbed and stroked specimen from the Pile hoard, Scania (after Montelius 1917, no. 845). b) Ribbed specimen from the Berlin-Lichtenrade hoard (after Gandert 1957, Abb. 1:3). c) Specimen with geometric decoration from the Borotice hoard, Moravia (after Tihelka 1965, Taf. 3:2a-b). 2:3.

C is thus generally later than variant B, but they overlap during Br.A2.

Obviously the origin of the Sögel-Wohlde shouldered or nick-flanged axe is related to the shouldered chisels, and especially to variant C. The axe version seems to occur exclusively in finds from the Early Bronze Age, late Period I (P.IB) in the south Scandinavian terminology, corresponding to Br.B1 in central Europe (Vandkilde 1986). In fact, a few chisels of variant C are known from Sögel-Wohlde graves (Hachmann 1957, Taf. 9: 16–17; Aner and Kersten 1973 ff., Bd. IV, Ke. 2540).

In south Scandinavia variant A is combined with other objects only in the Skeldal hoard. Another specimen comes from Assentoft (Essenbæk parish) in east Jutland (NM B4020, Cullberg 1968, no. 145). It contains only 0,25% tin, which indicates an early date (14). Two Danish specimens of variant B are known, but both are without provenance (NM 8128, op.cit., no. 18 = 1,8% tin; NM B8118, op.cit., no. 198 = 6,7% tin).

Variant C is by far the most frequent type in south Scandinavia. Apart from many single finds it is found in three Period I hoards: The north Jutlandian hoard of Underåre (Serreslev parish) (15) (Hachmann 1957, Taf. 21, no. 68), the Scanian hoard of Orebäck (Skegrie – V. Tommarp parish) (Oldeberg 1974, no. 692) and the Holstein hoard of Linden (Kr. Norderdithmarschen) (Hachmann 1957, Taf. 30, no. 198).

The distribution of shouldered chisels in Denmark and Schleswig is shown in fig. 10.

#### *The trapeze-shaped flanged axe (fig. 5j)*

Seen from the broad side the 13,3 cm long flanged axe is basically trapeze-shaped, though the sides are slightly curved. The 2,9 cms wide

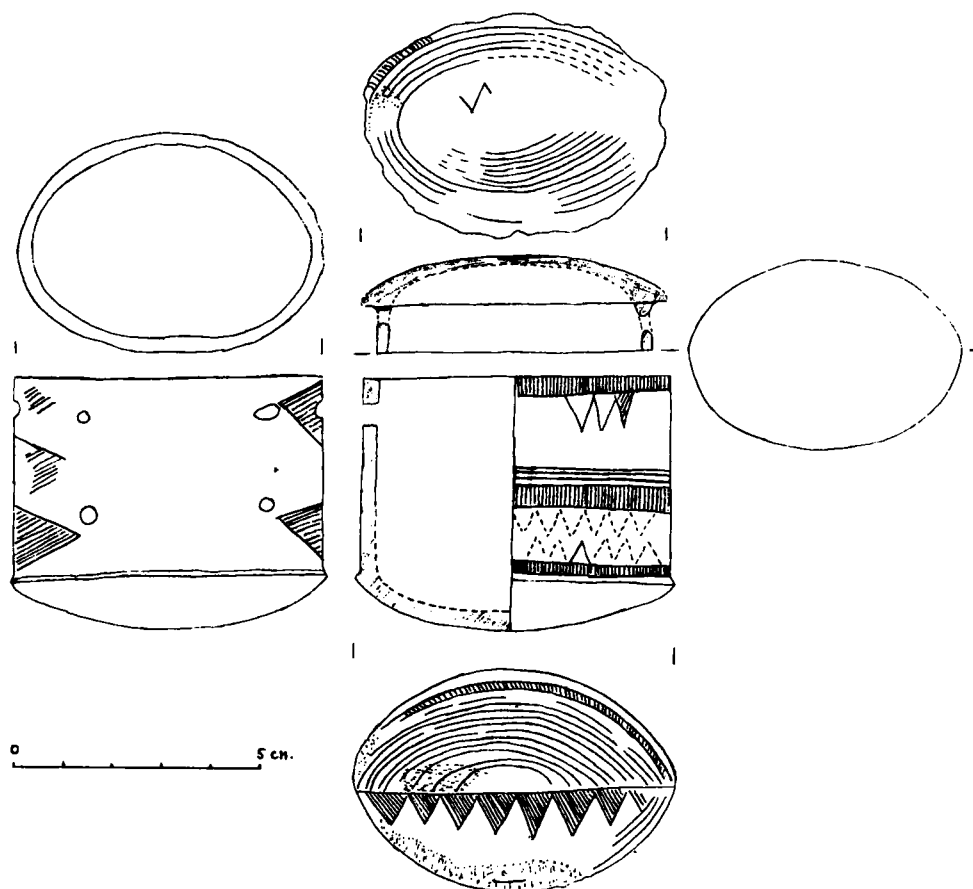


Fig. 8. Sketch drawing of the Bordesholm box (F.S. 5262, Gottorp). The geometric decoration is badly preserved. (Helle Vandkilde *del.*) 2:3.

butt end (measured 1 cm from the end) is moderately arched, and the convex cutting edge is relatively deep with a maximum depth of 1,4 cms. Measured from tip to tip the width of the cutting edge is 6,1 cms. The flanges are low, around 0,15 cm. In cross-section one face is concave and the other one concavo-convex.

The state of preservation is relatively good, although the glossy, dark green patina has been attacked by a light green layer of corrosion and small corrosion pits, which cover most of one face and the butt part of the other. The cutting edge itself has also been damaged by corrosion. A faint longitudinal bevel along the axis of each narrow side indicates casting in a two-piece mould.

Seen from the side the axe is symmetrically lenticular with the thickest place approximately at the centre. This suggests that the axe has not been extensively sharpened – a presumption that agrees well with the absence of distinct edge bevels. In addition the preserved parts of the surface are quite smooth and unspoil. It is unlikely that this axe has ever been used.

Low-flanged, trapeze-shaped axes with slightly curved sides are typologically closely related to the thin-butted, curved-trapezoidal copper flat axes, that appear in the older part of the south Scandinavian LN Period (Vandkilde 1986 and in press). Both types are mainly a west

European phenomenon. In west Switzerland and southwest Germany the low-flanged axes of trapezoidal shape are named type Neyruz (Abels 1972, 11 ff.), and in the lowlands of northwest Europe type Emmen (Butler and van der Waals 1967, 86; Kibbert 1980, 101 ff.). The Emmen and Neyruz axes are never decorated on the faces. They are manufactured during the later half of Br.A1.

Low-flanged, trapezoidal axes are not uncommon in south Scandinavia. Some might be imports from continental western Europe, but due to the simple form imports are difficult to distinguish from local products. Small (< 13 cm), undecorated specimens with a broad butt (> 2,1 cms) match Kibbert's "form Emmen" (1980, 101), while undecorated but larger and more narrow-butted specimens (< or = 2,1 cms) correspond morphologically to type Neyruz (*op.cit.*).

A local south Scandinavian production can be inferred from the existence of this kind of flanged axe decorated in the purely south Scandinavian Pile style, i.e. either with several rows of facets or punched lines parallel to the cutting edge on the blade part of each face (fig. 11). No doubt ornamented as well as unornamented trapeziform axes were made in south Scandinavia. Imports, of especially Emmen axes, are, on the other hand, to be expected, but axes formally belonging to this type do not show a distribution in Denmark (fig. 12) that distinguishes them

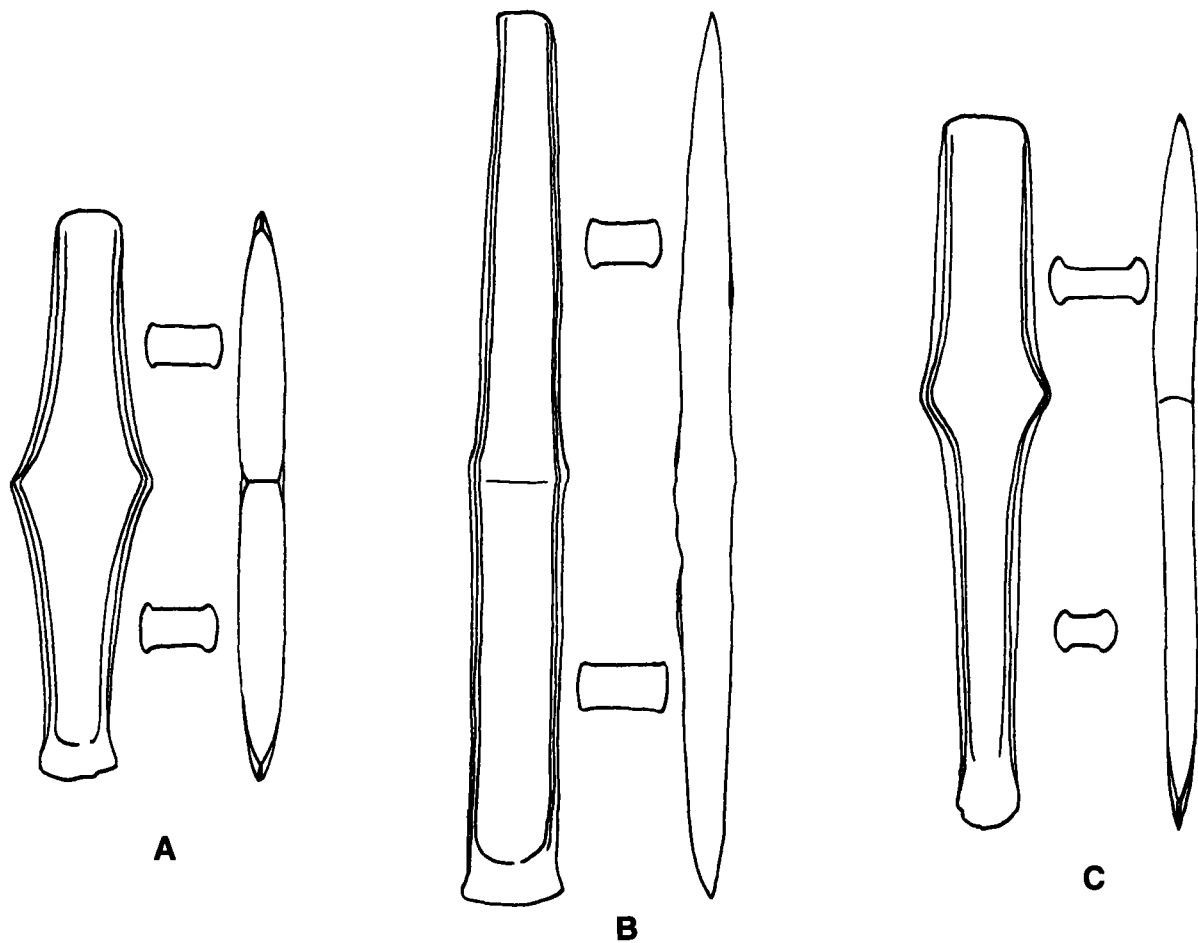


Fig. 9. Chisels of variant A, B and C (NM B4020, NM 8828, NM B13902) (Elsebet Morville *del.*). 2:3.

from the remainder of the low-flanged, trapezoidal axes, which have been named type Hjadstrup after the occurrence of this type of axe in the Hjadstrup hoard (Hjadstrup parish) (Aner and Kersten 1973 ff., Bd. III, Ke. 1797). Type Hjadstrup is taken to include both ornamented and unornamented trapezoidal axes. Among the latter may, however, be found imports of the Swiss-southwest German Neyruz class.

Possibly northwest Sealand is the main Danish place of manufacture of low-flanged axes of trapezoidal shape (fig. 12).

Like most flanged axes the type in question occurs first and foremost as singly deposited pieces. In addition it is found in five hoards: Hjadstrup, north Funen; 'Odsherred', northwest Sealand (*op.cit.*, Bd. II, Ke. 720); Skivarp (Skivarp parish), Scania (Oldeberg 1974, no. 710); Egå (= Egå parish), east Jutland (Hachmann 1957, Taf. 21, no. 18), and finally Skeldal. Of these only the Skeldal hoard contains other objects than different types of locally made low-flanged axes, sometimes with the specific south Scandinavian multi-linear decoration. Their early chronological position within the large group of flanged axes is supported by a low percentage of tin.

#### *The large parallelsided-curved flanged axe (fig. 5i)*

The sides of the 18,7 cms long axe are parallel from the butt as far as almost midway, whereupon they begin to flare quite widely and concavely towards the cutting edge. Thus the basic shape of the axe can be described as parallelsided-curved. The 2,8 cms wide butt end is distinctly rounded, and the 8,0 cms wide cutting edge is fairly convex with a present depth of around 1,8 cms. A straight transverse bevel is situated across the centre of each face. The height of the flanges is less than 0,2 cm, and the cross section clearly shows the slight concavity of each face. The narrow sides are decorated with two longitudinal facets, together forming a pointed oval that matches the contour of the profile itself. The faces are undecorated.

The axe is excellently preserved and is covered by a smooth and bright, dark to lighter green patina. The cutting edge, however, is much corroded indicating that it has received some different treatment than the rest of the axe, probably hammering. The relatively deep cutting edge without a bevel and the undamaged axe surface suggest that the axe was new when deposited. On the other hand it may have been shar-

pened, because seen from the narrow side the broadest point of the blade is closer to the cutting edge than to the butt. The question is, however, whether this argument is always valid, as the broadest point of the oval facet is in this case situated almost exactly in the middle of the narrow side.

The large Skeldal axe is a typical representative of the south Scandinavian low-flanged, parallelsided-curved, undecorated axes named type Gallelose after the hoard of that name (Vandkilde 1986 and in press). It is closely related to axes with the same formal characteristics but with the broad sides decorated in the Pile style; such axes are called type Værsløv (op.cit.) after the Værsløv hoard (Værsløv parish), north-west Sealand (Aner and Kersten 1973 ff., Bd. II, Ke. 1017). The latter type makes up the essence of Forssander's "Pile axe" (1936, 169 ff.).

The transverse bevel of the Skeldal axe is an advanced feature, which is occasionally seen in the low-flanged axe group.

Among the typologically early group of flanged axes it is possible to separate five locally manufactured variants (Vandkilde 1986 and in press) using the classification system of Kibbert (1980, 88 ff., Tabelle 16) (16). Of these, type Gallelose is by far the most frequent, followed by type Værsløv. The parallelsided-curved shape of the Værsløv and Gallelose axes may be understood as specifically south Scandinavian, as it takes up a morphological and geographical position between the trapezoidal shape of the west European, early flanged axes and the slender, waisted shape of the Únětice axes.

Flanged axes of type Gallelose occur mainly as singly deposited pieces. They are also found in eight hoards: Lumby Torp (Lumby parish) (Aner and Kersten 1973 ff., Bd. III, Ke. 1805) and Hjadstrup in north Funen, Skeldal, Egå, Gallelose and Vrold Østergård (Skanderup parish) (NM B15812, unpublished) in east central Jutland, and Pile in Scania and finally Västra Frölunda (Göteborg parish) (Oldeberg 1974, no. 2405) in Västergötland.

The early chronological position of the axe type described is also indicated by the generally low percentage of tin.

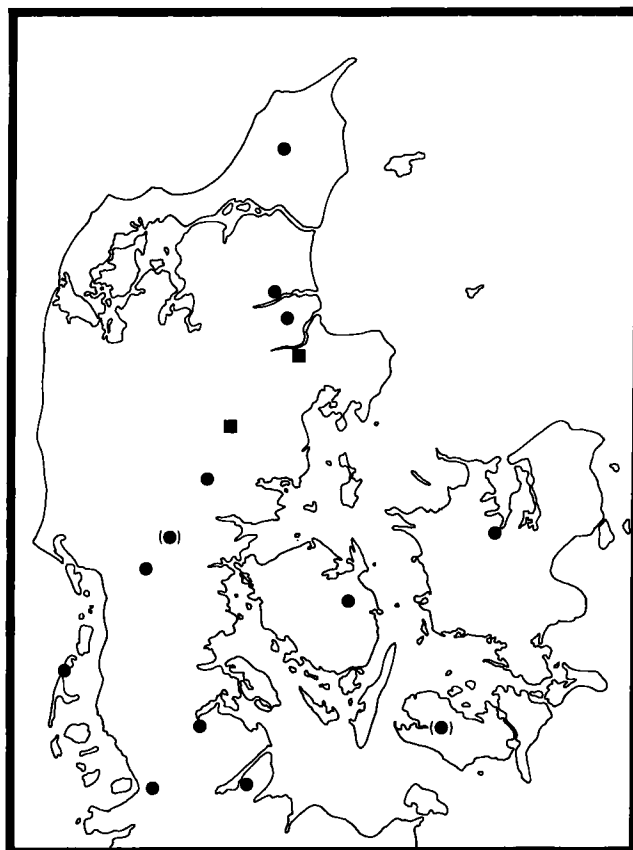
Type Gallelose is represented in most parts of Denmark, but the centre of gravity is east Jutland and north Funen (fig. 12).

### *The small parallelsided-curved flanged axe (fig. 5k)*

Seen from the broad side the 9,9 cms long axe is parallelsided-curved, like the axe described immediately above. The width of the rounded butt end is 2,6 cms. The width of the moderately expanding cutting edge is 6,2 cms, and the depth is 1,1 cms. The blade tips are rather prominent. The axe has a transverse bevel as well as a broad edge bevel. On one face the trapeze-shaped, slightly sunken area between the two bevels has a graffiti made of groups of parallel lines scratched obliquely and horizontally into the surface. The flanges are low, not exceeding 0,2 cm. On the blade the flanges have been flattened by hammering. Seen from the side the shape of the axe is asymmetrically lenticular with the broadest place towards the cutting edge.

The axe has been polished by the finder, and the patina has disappeared. The state of preservation is good apart from small pits near the cutting edge and the butt end due to corrosion. The faint, longitudinal facet on each narrow side may suggest casting in a two-piece mould. The notch in the butt end is due to a casting flaw. The fractures appear quite rough, and a repair of the damage has not been attempted.

The wide edge bevels, the tilted blade tips and the low point of gravity of each narrow side together indicate a large degree of resharpening. The transverse bevel, the flat lower flanges, and the sunken area of the



**flanged, shouldered chisels**  
variant A = ■  
variant C = ●  
( ) exact find place unknown

Fig. 10.

blade are unlikely to have existed, when the axe was new. Traces of hammering are visible where the transverse bevel and the flanges meet, and also in the middle of one narrow side. One blade tip appears to be somewhat worn. In conclusion, the axe was an old damaged piece, although still serviceable when deposited in the hoard.

The axe may be classified among locally manufactured, low-flanged axes of type Gallelose.

### *The butt part of a flanged axe (fig. 5h)*

The 6 cm long butt fragment of a flanged axe has parallel sides and a distinctly rounded butt end. The flanges are low, less than 0,2 cm in height. It is undecorated.

The fracture is old and probably happened during casting. The state of preservation is fine, the surface being covered by a smooth and bright green patina. The fragment is apparently unused.

The butt fragment probably belonged to a low-flanged, parallelsided-curved axe.

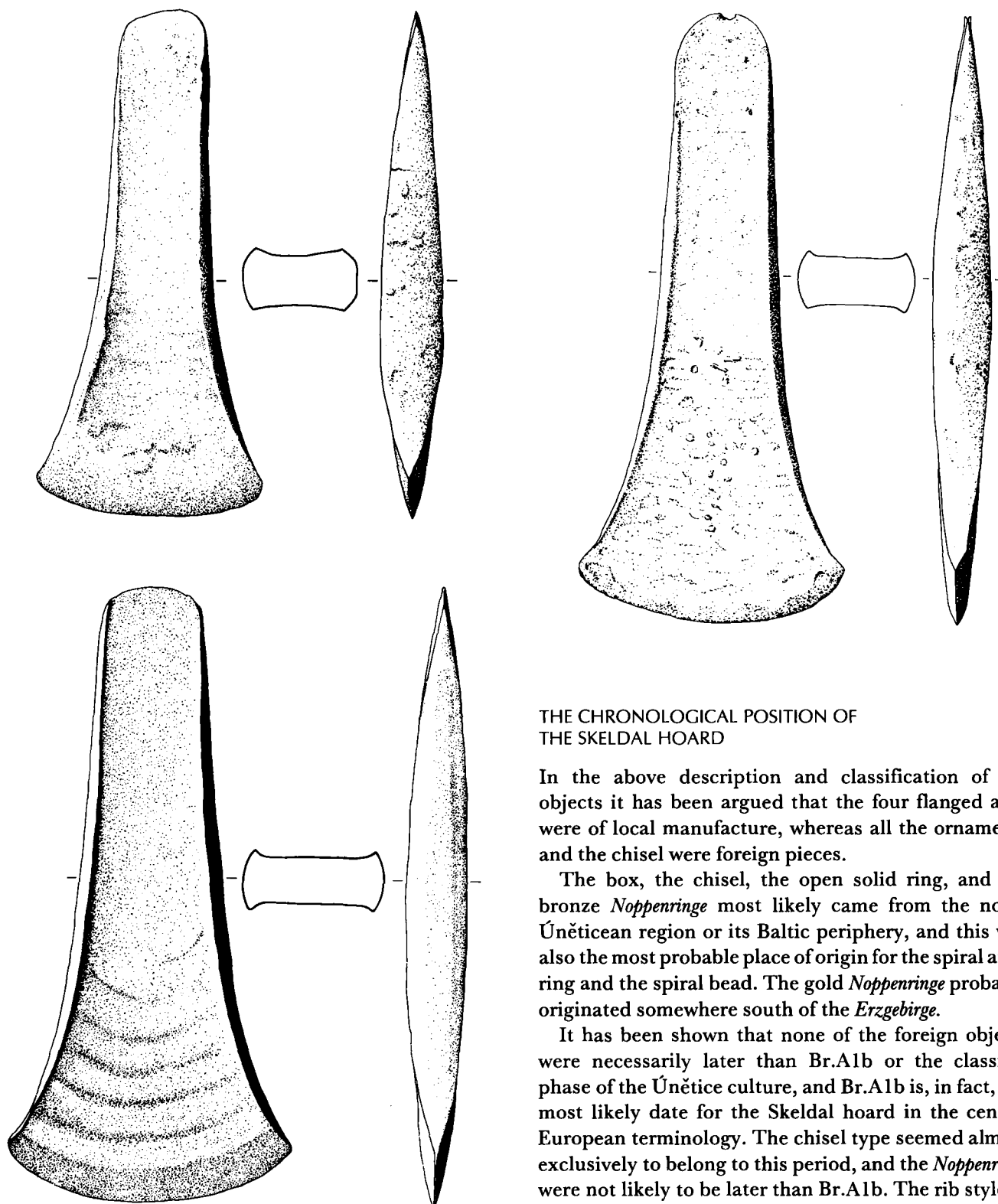


Fig. 11. Low-flanged, trapezoidal axes ornamented in the Pile style (after Aner and Kersten 1973 ff., Ke. 610, 637 and 753). 2:3.

#### THE CHRONOLOGICAL POSITION OF THE SKELDAL HOARD

In the above description and classification of the objects it has been argued that the four flanged axes were of local manufacture, whereas all the ornaments and the chisel were foreign pieces.

The box, the chisel, the open solid ring, and the bronze *Noppenringe* most likely came from the north Úněticean region or its Baltic periphery, and this was also the most probable place of origin for the spiral arming and the spiral bead. The gold *Noppenringe* probably originated somewhere south of the *Erzgebirge*.

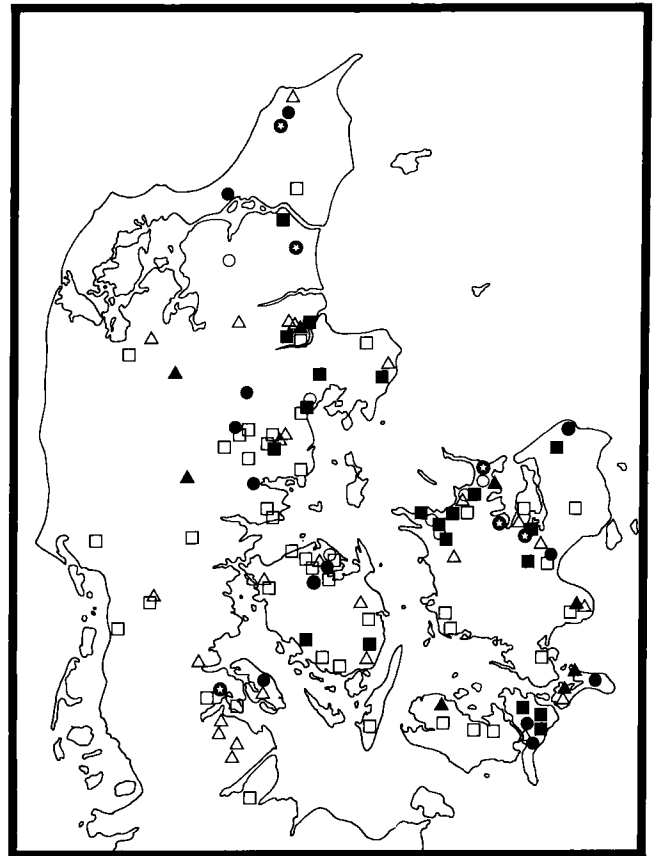
It has been shown that none of the foreign objects were necessarily later than Br.A1b or the classical phase of the Únětice culture, and Br.A1b is, in fact, the most likely date for the Skeldal hoard in the central European terminology. The chisel type seemed almost exclusively to belong to this period, and the *Noppenringe* were not likely to be later than Br.A1b. The rib style of the box and the open solid ring could not be dated quite as precisely, but a date within the classical Úněticean

phase seemed not unlikely. The spiral bead and the spiral arming were determined as being long lasting types but were, however, also quite common in the hoards of the classical Úněticean phase.

The chronology of the south Scandinavian LN Period is based on the typological development of flint daggers (Lomborg 1973). Since flint daggers never occur in combination with metal objects except small insignificant ornaments, it is impossible to date most of the metal objects directly within the south Scandinavian chronology. Lomborg has, however, shown that the youngest part of the LN Period (his LN C) is contemporary with the classical phase of the Únětice culture (op.cit., 142 ff.). This synchronization places the Skeldal hoard and related hoards within the LN C Period or, since the present writer prefers a division of the LN Period into two sub-periods, the Younger LN Period (Vandkilde 1986 and in press).

This conclusion is supported by the evidence of a find combination seriation of south Scandinavian and neighbouring early metal hoards. The seriation matrix (fig. 13), which has the assemblages on the left and the objects across the top, demonstrates a distinct diagonal distribution, that is interpreted as a chronological development with Ohlenburg as the earliest and Valsø-magle I (Haraldsted parish) as the latest hoard. The same material has been computer analysed using a correspondence analysis (fig. 14). Here a very distinct parabola-shaped distribution was the result, clearly indicating a chronological explanation. Three groups can be separated.

The early group, which comprises the finds from Ohlenburg to Grönwohld (Kr. Stormarn) and which also includes the hoard from Skeldal, is a very homogeneous aggregate of closely related hoards. Their objects are primarily different kinds of locally manufactured, low-flanged axes, occasionally accompanied by imports from the Únětice culture in its classical phase, and sometimes also developed bronze flat axes characteristic of the Aylesford-Falkland phase in Great Britain and Ireland (Burgess and Schmidt 1981, 59 ff.), which is again contemporary with the Armorico-British phase of the Wessex Early Bronze Age culture (op.cit., 61, 68; Gerloff 1975, 92 ff.). The circle is completed by the presence of a developed bronze flat axe of type Falkland in the classical Úněticean hoard of Dieskau 2 (Saalkreis) (von Brunn 1959, Taf. 16: 3; Burgess and Schmidt 1981, 63).



- trapez-shaped flanged axe of type Hjadstrup and related types (● = Emmen)
- ornamented
- unornamented
- ▲ flanged axe with waist of type Ebelnaes
- △ flanged axe with waist of type Store-Heddinge
- parallelsided-curved flanged axe of type Gallelose
- parallelsided-curved flanged axe of type Værsløv

Fig. 12. The distribution of different types of locally produced, low-flanged axes in Denmark and Schleswig (cf. note 16).

This early group is named *the Younger LN hoard group* (17). Apart from being in accordance with the comparative-chronological evidence, the LN date is supported by the fact that the succeeding hoards belong to the first period of the Bronze Age. The hoards from Fjälkinge and Neu-Rathjensdorf (Kr. Oldenburg) take up a transitional position as they contain objects characteristic of the early as well as of the succeeding hoard group, that begins with Skegrie and concludes with the Torsted hoard (Bondesgårde, Torsted parish). The imports of this early Period I group (P.IA) relate it to central European Br.A2, while the late Period I group (P.IB) is contemporary with the earliest Tumulus culture,

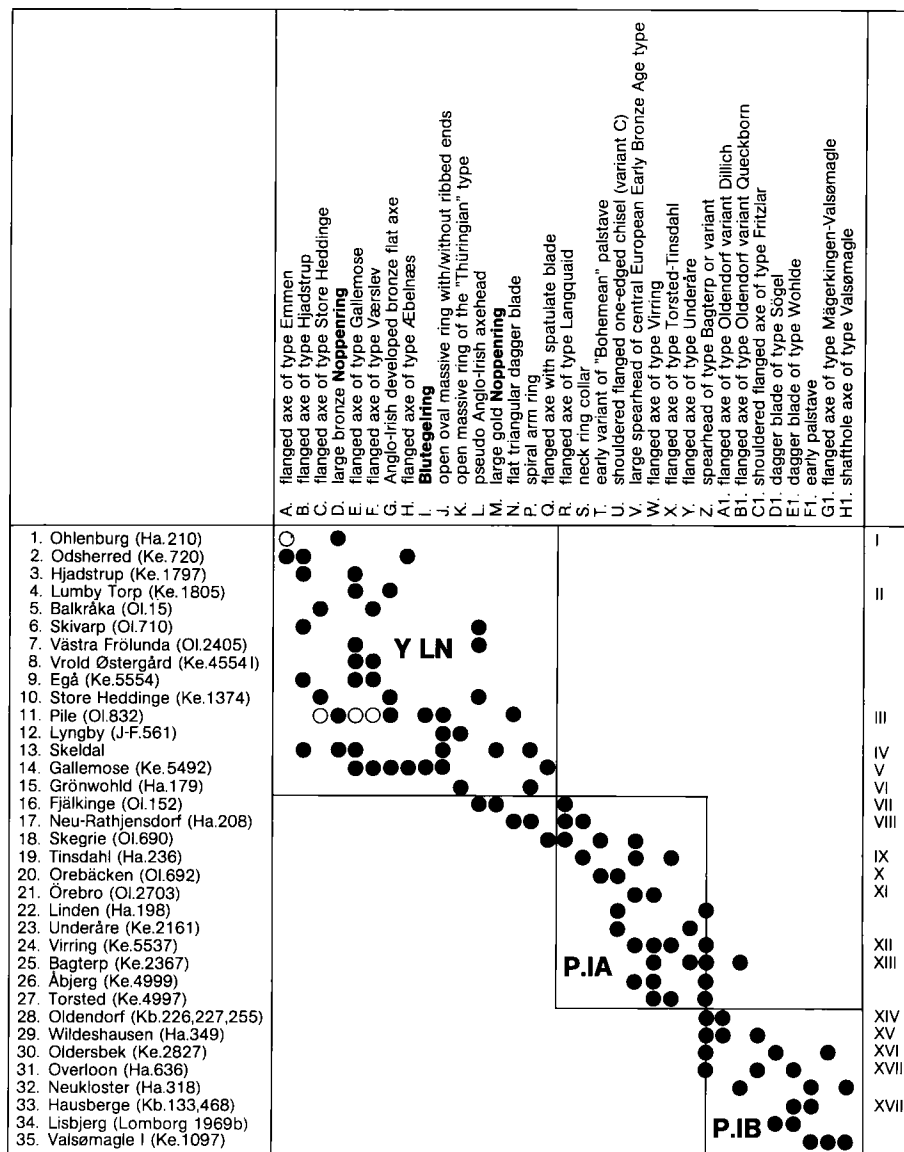
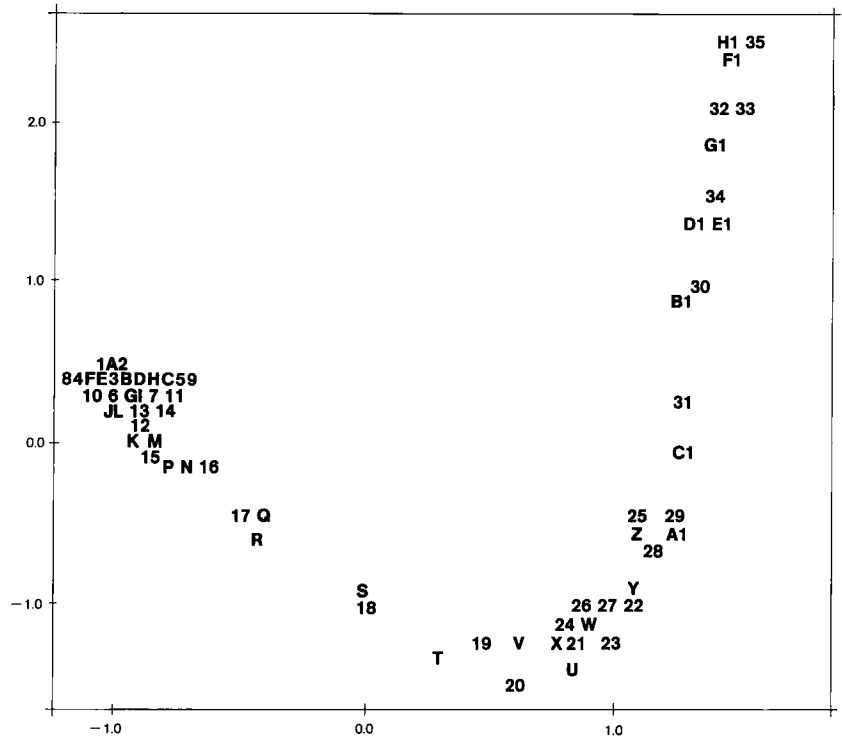


Fig. 13. Seriation based on the principle of find combinations in hoards from the LN Period and the first period of the Early Bronze Age. The names are shown in the column on the left and the object types across the top. To the right objects occurring only once have been listed. The numbering of finds and objects is the same as the one used in the correspondence analysis (fig. 14). The numbers following each hoard refer to the catalogues of Hachmann 1957 (Ha.), Jacob-Friese 1967 (J.-F.), Oldeberg 1974 (Ol.), Aner and Kersten 1973 ff. (Ke.) and Kibbert 1980 (Kb.). An open signature indicates an uncertain typological classification. The diagonal distribution is interpreted as a chronological development.

- I "barbed wire" beaker, sheet bracelet with overlapping ends of different sizes
- II primitive flanged axe of type Lumby Torp (variant B)
- III open cuff-shaped ribbed bracelet, bronze hilted daggers of "Saxon" type, **Rippenbarren**
- IV spiral bead, beehive-shaped ribbed box, butt-part of a flanged axe, shouldered flanged double-edged chisel (variant A)
- V giant waisted unornamented flanged axe, bronze hooks
- VI flanged axe of type Unétice (variant Haile)
- VII parallelsided flanged axe of type Fjälkinge-Kläden
- VIII loop-ended neck ring, arm ring
- IX pins with perforated spherical head and shaft torsion, arm rings with pointed ends, sheet ribbons with bosses, disc-shaped pieces of amber, pot
- X originally more objects
- XI butt-end of flanged axe
- XII curved dagger blade of type Verring
- XIII fragment of flanged axe
- XIV bar-stop axes (**Halbstegbeile**)
- XV arm ring with "wolf-tooth" ornamentation, chisel-awl, pin with wheel-shaped one-sidedly cast head of type Mollberg
- XVI flanged axe of type Oldendorf without stop-bevel
- XVII **Lochhalsnadel**, atypical spearhead
- XVIII Parallelsided-curved flanged axe related to Kibberts type Nienborg



Fig. 14. Correspondence analysis of hoards from the LN Period and the first period of the Early Bronze Age. The same finds and types of objects as in the manual analysis are included; for the meaning of the codes see fig. 13. The first two analysis axes are illustrated, and with few exceptions the succession of the parabola-shaped distribution corresponds to the succession arrived at in the manual seriation.



Br.B1. Whereas the division between the Younger LN group and the Period IA group is clear-cut, the transition between the two period I groups is more vague (18).

#### CONCLUSION

The Skeldal find combines foreign and local pieces, ornaments and implements/weapons, new and old objects. It also includes a fragment of an axe with no other value than the metal. There seem to be old and new pieces among the imports as well as among the local objects. All objects were carefully deposited in a small pit sunk into dry ground. In this respect the Skeldal hoard differs from the majority of the contemporaneous metal objects, which are derived from wet terrain. Such deposits are often interpreted in ritual terms. Thus the Skeldal hoard may have been deposited for other reasons.

Most metal finds of this age are singly hoarded flanged axes. Much less common are hoards with a few flanged axes. Usually the axes are locally manufactured, but occasionally different types of Anglo-Irish developed bronze flat axes occur. Waisted low-flanged axes of Úněticean origin (Saxon type) are very rare in south

Scandinavia and are not found in any find combinations.

The Skeldal find joins a small exclusive group of hoards, which consist of several types of objects with different functions: the hoards of Fjälkinge, Pile and Gallelose. These hoards are composed of local axes, sometimes a developed bronze flat axe of Anglo-Irish design or derivation, and Úněticean ornaments. The foreign objects are quantitatively dominant in all four hoards, making up between 55 and 70% of the objects. Although Skeldal has fewer objects than the hoard of Pile, the latter offers the best parallel in regard to range of foreign types. The contents of Fjälkinge and Gallelose are more uniform (leaving the three unique bronze hooks of the latter out of account). Whereas Skeldal and Pile contain seven and eight different types of imported objects, Fjälkinge and Gallelose contain three and four respectively (19). In conclusion, there are three kinds of metal hoards in the Younger LN Period of South Scandinavia, mentioned in regard to frequency: 1) singly hoarded objects, chiefly flanged axes of local origin. 2) one-type hoards with a number of flanged axes of mainly local origin and 3) multi-type hoards with local axes and especially foreign objects.

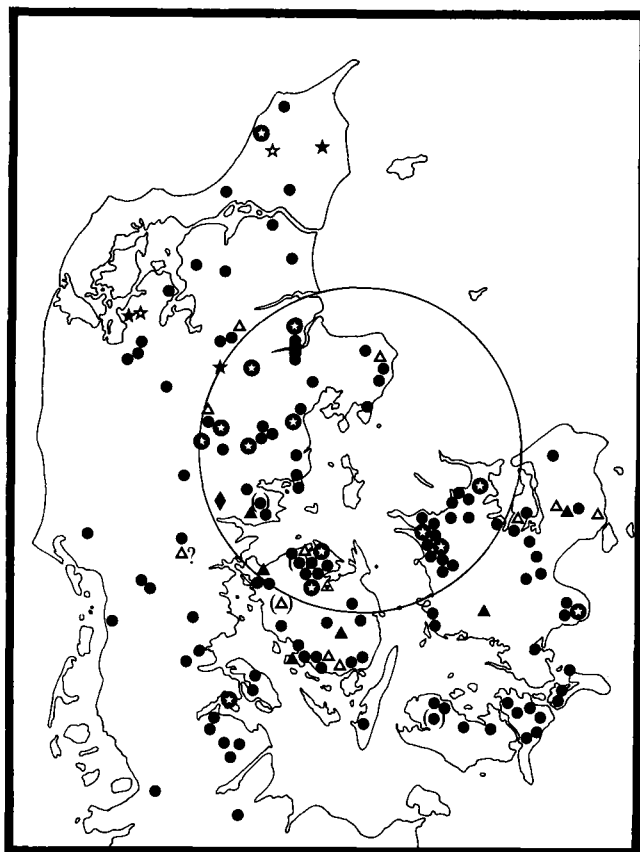
Most hoards north of the *Mittelgebirge* predominantly contain solid and stout objects such as flanged axes, different kinds of massive rings and ingots, daggers and halberds. Gallelose and Pile are closely related to this hoard group although Úněticean, waisted flanged axes have been replaced by local flanged axes. Skeldal, however, does not fit into this pattern of generally solid and heavy hoards.

The best compositional parallels to the hoard from Skeldal is found in a small group of north Úněticean hoards containing either small and thin ornaments like *Noppenringe*, spiral armrings, spiral beads and sheet-like ornaments for the body or the dress or a mixture of such ornaments and more solid objects. Hoards like Tilleda, Berlin-Lichtenrade, Ostro (Kr. Kamenz) and Kiebitz (Kr. Döbeln) illustrate this hoard group (Billig 1963, 256, Abb. 1-3; Gandert 1957, Abb. 1; von Brunn 1959, Taf. 50 and 75).

In spite of the affinities between the hoards of these two regions, the few south Scandinavian multi-type hoards are definitely not traded in – *in toto* – from the Úněticean region. This is clear from the presence of locally manufactured flanged axes and the absence of the Úněticean type of flanged axe, which is the most frequent object in the hoards of the north Únětice culture (cf. von Brunn 1959, 16).

The Skeldal hoard is situated in east central Jutland, which together with north Funen and northwest Sealand have a dense distribution of metal objects of the Younger LN Period (fig. 15). The majority of the metal finds in this period are concentrated within this area: Of fourteen hoards only three are located outside, and of these three only the axe hoard from Store-Heddinge (Store-Heddinge parish) (Aner and Kersten 1973 ff., Bd. II, Ke. 1374) in southeast Sealand contains more than two objects. Outside the distributional centre, west Jutland including the western Limfjord region has only little metal, whereas the remaining part of Denmark has a relatively even scatter of finds. Here the metal finds are primarily singly deposited flanged axes and an occasional halberd blade or triangular dagger (20).

Although a Beaker-inspired manufacture of metal objects was initiated in the Older LN Period (= Lomborg 1973: LN A-B) (Vandkilde 1986 and in press), it is not until the Younger LN Period that a local production on a large scale is reflected in the finds. The central area described above may be interpreted as a core area for the early development of a local metallurgy in Den-



- hoard
- single find of low-flanged axe
- ▲ halberd blade of south Scandinavian type
- △ halberd blade of Continental type
- ▲ the Næsby halberd blade
- ★ triangular dagger blade
- ★ bronze hilted dagger with triangular blade
- ◆ open, oval ring
- double-edged, symmetrical chisel
- ( ) exact find place unknown
- ? type uncertain

Fig. 15. The distribution of the Younger LN metal objects in Denmark and Schleswig (cf. note 20).

mark. It still remains, however, to investigate if this metallurgical core is distinguishable from the rest of Denmark also in other respects. A systematic analysis of the contemporary grave finds and of the relationship between the flint and the metal industries have never been undertaken, but would obviously be required to determine the real and full significance of this area.

Compared to the number of metal objects in the preceding period (Older LN) and in the succeeding period (P.IA), the local production of the Younger LN is surprisingly extensive, whereas imported objects are of

no large importance. At the same time this production is extremely one-sided in regard to the range of manufactured types, since almost exclusively low-flanged axes are produced. Only when the imports are included does a more varied picture emerge. In the EBA centres of metal production of western and central Europe, the low-flanged axe also makes up a large part of the total production, which, however, is far more varied and comprises many different kinds of weapons, implements and ornaments. This, undoubtedly stresses the still limited quantities of metal available in south Scandinavia compared with the metal producing and distributing centres to the west and south in Europe; but at the same time this situation may indeed reflect a particular need of metal axes in the northern periphery. The metal used is basically of central European origin, and most of it was transformed into low-flanged axes, and not, for example, into ornaments for the dress and the body. Though a closer examination of these matters is strongly needed, it may here be suggested that there is a connection between the predominance of flanged axes in the early metal finds, the quantitative decline in the manufacture of flint tools and weapons, especially in regard to daggers but presumably also to flint axes during the Younger LN Period, and the evidence from the pollen diagrams of an expansion of the agricultural area at the expense of forest (cf. for instance Aaby 1985, 70) in the LN Period.

The sudden boom in the South Scandinavian local production of metal objects coincides with the emergence of a powerful centre within the Únětice culture in central Germany along the rivers Unstrutt and Saale, around rich resources of copper and tin. In the early part of the EBA this was a backward 'stone age' area with only sporadic use of metals (Mandera 1953, 188 ff.; Moucha 1963, 53 ff.), but by the late EBA, at the beginning of the second millennium BC, the picture had changed completely. Now rich graves and bulky metal hoards suggest the presence of prosperous and highly stratified and specialized societies, which owed their success to control of metal resources and production and distribution of metals and metal objects. No doubt this development was directly connected with the metal demands of the peripheries including South Scandinavia. The Skeldal hoard demonstrates the closeness of this relationship to a particularly high degree.

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## NOTES

1. I am much indebted to Christian Fischer, Silkeborg Museum, who asked me to publish the Skeldal hoard. I also wish to thank: The Carlsberg Foundation for a one-year scholarship to study the relations between the earliest metal culture in South Scandinavia and continental Bronze Age centres in Central and Western Europe and Greece from 2500–1500 BC. The present article is based on the results of this study, which were submitted as my master's thesis (Vandkilde 1986). *Dronning Margrethe II's Arkæologiske Fond* for financial support during the preparation of this paper. The Danish Research Council for the Humanities, which provided the financial background for the metal analyses, that will be published later. Elmer Fabech, Ølgod and Eva Salomonsen, The National Museum, for technical information on the bronze objects. Karl Kersten, *Schleswig-Holsteinisches Landesmuseum für Vor- und Frühgeschichte, Schleswig*, and Jens Poulsen, Institute of Prehistoric Archaeology, Moesgård for useful comments and for drawing attention to the box from Bordsesholm, exhibited in the Gottorp Museum. Torsten Madsen, Institute of Prehistoric Archaeology, Moesgård for assistance with computer analysis. The staff of the National Museum 1st Dept. for help and advice during my visits there, and David Liversage for revising the English text.
2. The accession number in the register of Silkeborg Museum is SIM 217/1982. The find was later transferred to the National Museum as treasure trove and registered under the following numbers: NM B17061: The two bronze *Noppenringe*. NM B17062: The spiral arming. NM B17063: The box. NM B17064: The open oval solid ring. NM B17065: The chisel. NM B17066: The smallest flanged axe. NM B17067: The trapezoidal flanged axe. NM B17068: The largest flanged axe. NM B17069: The butt end of a flanged axe. NM B17070: The spiral bead. NM B17071: Misc. bronze bits, which have disappeared. Dnf 19/82: Gold *Noppenring*. Dnf 20/82: Gold *Noppenring*.
3. In the following description of the find spot I rely on the report written by Christian Fischer, who carried out the excavation, assisted by Knud B. Jensen.
4. Personal communication by David Graham, who has kindly provided a drawing.
5. Personal communication by Elmer Fabech, Ølgod.
6. For the chronology of the bronze and gold objects in the later part of the Únětice culture, see Moucha 1961, 33; 1963, 9 ff.; 1974, 241 ff.; von Brunn 1959, 16 ff. and Tihelka 1953, 327. The chronology used here combines Moucha 1961–1974, von Brunn 1959 and the general central European system of Reinecke (1924), which has been subdivided by several later authors. Br.A1a–A1b–A2 is used here. Hoards from the classical phase containing rib style objects are for instance: Göda Birkau (Kr. Bautzen), Griefstedt (Kr. Sömmerda), Naumburg (Kr. Naumburg) (von Brunn 1959, Taf. 29, 30, 63–64), Bresinchen (Kr. Guben) (Breddin 1969) and Neu-Bauhof (Kr. Malchin) (Schubart 1972, Taf. 103).
7. Hoards like Dieskau 1 (Saalkreis) (von Brunn 1959, Taf. 12) and Falkenwalde (Kr. Prenzlau) (Bohm 1935, Taf. 2–4) belong to this category.
8. See also Schranil 1921, tab. IV and VII; Schubert 1974, Taf. 26, 32 and 33; Tihelka 1965, Taf. 2–3 and 1953, obr. 20, 23 and 24 for several examples of this geometric style as applied to bracelets, belt plates, and disc-headed pins.

9. A few spearheads of the Torsted type, however, have multiple lines and triangles on the socket (Becker 1964, Abb. 5).
10. This is evident because of the presence of Únětice related hoards like Grönwohld (Kr. Stormarn), Klein Wesenberg (Kr. Stormarn) and Neu-Rathjensdorf (Kr. Oldenburg) (Hachmann 1957, Taf. 30 and 32). Such hoards are not found in the remaining part of Schleswig-Holstein.
11. The gold *Noppenringe* from the hoard of Röderau (Kr. Riesa) belong to the group of small *Noppenringe*. Two of the three gold rings of this hoard are of the simple type with one end twisted (von Brunn 1959, Taf. 81–82).
12. The occurrence of spiral armrings and spiral beads in some Early Neolithic finds is here left quite out of consideration.
13. Combination finds with double-edged, symmetrical shouldered chisels:
  - 1: *Kotla* (woj. Legnica), Silesia; grave or hoard of classical Úněticean date (Gedl 1980, Taf. 29b). Variant A.
  - 2: *Przysieka Polska* (woj. Leszno), Silesia; hoard of classical Úněticean date (op.cit., Taf. 32c). Variant A.
  - 3: *Slupy* (woj. Bydgoszcz) central Poland; hoard of classical Úněticean date (op.cit., Taf. 33c). Variant A.
  - 4: *Leubingen* (Kr. Sömmerda), central Germany; grave of late classical Úněticean date (Höfer 1906a, Taf. 2). Variant B.
  - 5: *Falkenwalde* (Kr. Prenzlau), Brandenburg; hoard of late classical or post-classical Úněticean date (Bohm 1935, Taf. 2–4). Variant A.
  - 6: *Ferdinandshof* (Kr. Ückermünde), Mecklenburg; hoard of post-classical Úněticean date (Kersten 1958, Taf. 41, no. 423). Variant B.
  - 7: *Lechow* (Kr. Schivelbein), Pommern; hoard of classical Úněticean date (op.cit., Taf. 86, no. 780). Variant A.
  - 8: *Hindrichshagen* (Kr. Strasburg), Mecklenburg; hoard probably of classical Úněticean date (Schubart 1972, Taf. 28A). Variant A (without flanges).
  - 9: *Brodek* (Bez. Prostějov), Moravia; hoard of classical Úněticean date (Tihelka 1965, Taf. 10a and p. 4, mentions five more chisels from Moravia, but they are neither described nor illustrated). Variant B (somewhat asymmetrical).
  - 10: *Hedersleben* (Kr. Aschersleben), central Germany; grave of classical Úněticean date (Höfer 1906b, Taf. 6). Variant B.
  - 11: *Gudensberg* (Kr. Schwalm-Eder), Hessen; grave of Br.A2 or Br.B1 date (Kibbert 1980, Taf. 13, 165). Variant B.
  - 12: *Kocise* (Bez. Kocise), east Slovakia, grave no. 146/66 (Novotná 1970, Taf. 25); Older phase of the Kost'any culture = Br.A1a. Variant A.
14. The chisel from Ingelstorp (Ingelstorp parish), Scania (Oldeberg 1974, no. 353, Cullberg 1968, no. 647) is classified by Willroth (1885, 395) among Úněticean, double-edged chisels. It is, however, rather a strongly sharpened chisel of variant C. It is clearly one-edged, the blade part has a broad edge bevel and is longer than the butt part. Also the high content of tin (more than 10%) makes this classification the more likely.
15. The hoard of Underåre (Serreslev parish) (VHM 20066, 22365 a-b) consists of a chisel of variant C and two flanged axes of parallelsided-curved shape with very high flanges (0,6–0,7 cm), stop bevel and edge bevel. The butt end of these axes is flatly curved, and the cutting edge relatively protruding. The edge is at least two and a half times as wide as the butt. The tin value varies between 6,6 and 6,9%, and the SAM analysis group is the late FB1-2 (Cullberg 1968, no. 334; SAM II, 4, no. 11990). This type of flanged axes is definitely later than the »Pile type of axes«. Similar axes are found in the hoards of Bagterp (St. Hans parish) (Jacob-Friesen 1967, Taf. 1: 8–9), Øby (Viskum parish) (unpublished, VSM 7554–55) associated with an undecorated shaft-hole axe type Fårdrup, and Torslunda (Tierp parish) Uppland (op.cit., Taf. 25: 5). They probably cover the main part of Period I: Their shape varies from trapezoidal to parallelsided-curved, and they may be named type Underåre after the hoard (Vandkilde 1986). Hachmann (1957, 60, 64) and Willroth (1985, 399) classify the two Underåre axes as type Pile, and consequently arrive at too early a date for this hoard and its chisel.
16. 1: type Værsløv, see text. 2: type Gallemose, see text. 3: type Hjadstrup, see text. 4: type Store-Heddinge, undecorated low-flanged axe with waist. 5: type Æbelnæs, as no. 4 but decorated (Vandkilde 1986 and in press).
17. The hoard of Ohlenburg is probably somewhat earlier than the rest of the hoard group, as the pottery vessel relates it to the early part of the Barbed Wire Period in the northwest European lowland region and the sheet bracelet has its closest parallels in the finds of the *Bleckkreis* prior to Br.A1b.
18. The subperiods P.IA and P.IB differ considerably from Lomborgs subdivisions of Period I in Fårdrup-Sögel and Valsømagle-Wohld (1969b, 1973) in terms of contents of types and finds. A revision of the chronology of Period I of the Bronze Age is in preparation (cf. Vandkilde in press for a summary).
19. The following types are considered to be imports (cf. fig. 13): Gallemose: The Anglo-Irish, developed bronze flat axe; the *Blut-egel* rings; the open, oval, solid-cast rings; the low-flanged axe with spatulate blade; the hooks. Pile: The bronze *Noppenring*; the Anglo-Irish, developed bronze flat axe; the *Blut-egel* ring; the open, oval, massive rings; the flat, triangular dagger blade(s); the cuff-shaped bracelet; the bronze hilted daggers; the *Rippenbarren*. Fjälkinge: The gold *Noppenringe*; the flanged axe of type Langquaid; the flanged axe of type Fjälkinge-Kläden.
20. Grave finds with metal objects have not been included. They are very few, and most of them cannot be dated more precisely than LN – P.IA. Most frequent are *Noppenringe* and other kinds of small spiral rings.

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