Weaving Identity

Cultural Belonging and Cultural Change, 1600–1100 BC in Southern Scandinavia and Northern Germany

BY SOPHIE BERGERBRANT

Abstract

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This article considers technical, cultural and gender-related aspects of textile production in southern Scandinavia and northern Germany during the Middle Bronze Age. Specifically, female networks and weaving technology are discussed through the different combinations of s- and y-spun thread. It is argued that textile technology is a cultural phenomenon that was spread through female interaction. These lines of communication and interaction shift over time, but at a rate that is demonstrably different from other changes in the society, as seen on e.g. bronze objects that are more likely to be a result of male interactions and exchange networks. The study as a whole demonstrates that the textile evidence is a rich and informative source for Middle Bronze Age society, providing a key to understanding female identity and cultural change.

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Introduction

This paper will deal with early woollen textile production in southern Scandinavia and northern Germany. The focus is on the spin directions of the threads used in woven textiles and the question of whether they relate to technology, culture or a combination of the two.

Around 1600 BC we can observe from the archaeological bronze material two different cultural traditions in southern Scandinavia and northern Germany, called the Sögel-Wohlde and Valsømagle culture regions. This has clearly been shown by Helle Vandkilde in her major work from 1996. From *c.* 1500 BC a change in visible cultural affiliation is seen from the bronze artefacts. The area around the Lüneburg heath becomes one region and the remaining parts of the two earlier regions unify into one larger cultural group. I have discussed these relations in depth in my dissertation from 2007.

On the basis of textile remains, my paper will discuss cultural belonging and cultural change in southern Scandinavia and northern Germany 1600–1100 BC. How do different kinds of artefacts and structures intertwine with the big picture?

The textile types and their distribution

Lise Bender Jørgensen (1991, pp. 116 f.) divided Bronze Age Europe into two different textile-tradition areas: northern Europe, which tended to use woollen fabrics, and cen-

tral and southern Europe, which tended to use textiles made out of flax. There are a few exceptions, such as the textile that probably was made of linen, from a Period II grave from Vaale in Schleswig-Holstein (Ehlers 1998 cat. SH, no. 86). There have also been claims that remains of fabric made of silk have been found in a Period III burial in Mecklenburg (Scherping 2004, p. 55; Schmidt 2004, pp. 30 f.). The identification cannot be verified at the time of writing based on the available published material. However, the fact remains that the vast majority of the textile finds from the Middle Bronze Age in Scandinavia and northern Germany are made of wool. This article therefore concentrates on woollen textiles, and will discuss the spinning of wool in particular. All the textile fragments were woven in tabby (Bender Jørgensen 1991, p. 13).[1] The frequency of linen and wool fragments is dependent on preservation conditions. Concerning southern Scandinavia we can safely assume that wool was the main fabric as there is no evidence of either flax growing or the process of making flax into fabric until the final stages of the Late Bronze Age (Runge & Henriksen 2007).

By combining s- and z-spun yarn (see Fig. 1) one can obtain different optical effects on the surface of the fabric (Demant 2000, p. 355).[2] The way one combines the different s- and z-spun yarns in the weave thus creates different patterning effects even when one uses only the tabby weaving technique. This can be seen, for example, in the woollen belt from Borum Eshøj, in which an optical illusion of a zigzag was created by mixing s- and z-spun yarn in the warp (Barber 1991, p. 197). This method of creating a pattern was also used during the Roman Iron Age, where it was used in combination with the twill technique rather than tabby. There are no finds of spin patterning during the period between the Middle Bronze Age and the Roman Iron Age (AD 1–400). This might, however, be due

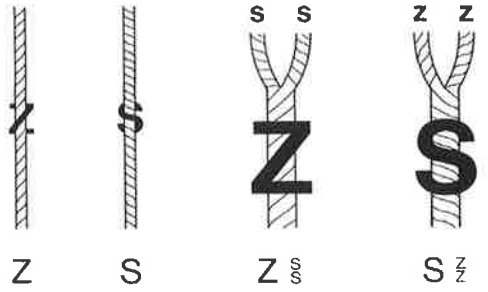

Fig. 1. z-, s-spin, and Zs-ply, Sz-ply. From Bender Jørgensen 1991 p. 15, fig. 2)

to a lack of finds rather than a real distribution of weaving techniques (Idemant 2000, p. 356). Generally textile finds are more commonly associated with inhumation than with cremation burials, and the period between the Middle Bronze Age and the Roman Iron Age is dominated by cremation burials. The preferred combination of yarn in the warp and the weft has varied through time (Bender Jørgensen 1986, p. 100; Demant 2000, p. 356). The two different spins, s and z, can be combined into two-ply yarns. When the thread is plied together this can create different types of yarns for example Sz or Zs (Bender Jørgensen 1992, p. 13). In the Middle Bronze Age in southern Scandinavia these types of threads are generally found on e.g. corded skirts or other types of strings (Bender Jørgensen 1986, catalogue; Ehlers 1998, catalogue).

In southern Scandinavia between the Bronze Age Period II (1500–1300 BC) and Period III (1300–1100 BC), Bender Jørgensen (1986, pp. 16 f., 289 f.) argue that there was a change in the spin direction of the threads used in woven textiles, from a majority of the combination of z-spun and s-spun threads, to a predominance of only s-spun wool. Bender Jørgensen draws attention to the distribution pattern of the s/s-spun textiles during Period II. She shows that all the Period II s/s-spun pieces come from Jutland south of the Limfjord with one exception, which was found

on the island of Bornholm (Bender Jørgensen 1986, p. 16).[3] There are two s/s fragments dating to Period II in the old Valsømagle region: one from Bornholm and one from Ålborg Amt. Inga Hägg (1995, p. 140), on the other hand, has argued that the different spin directions were used for different types of clothing. The s/s-spun cloth, according to Hägg, can be found in textiles used in three different items: the cloak, the blanket and the footcloth. She suggests that if cremated bones were wrapped in a coat or a blanket, the apparent change in spin direction over time could actually be related to the change in the burial custom from inhumation to cremation. This is because cremation burials became more common during period III, to become the dominant burial practice during period IV. According to Solvig Ehlers, s/z[4] was the only combination that was used in what she calls the "core area" (an area that includes most of Denmark and southern Sweden) during Period I (1700–1500 BC); it was also the most commonly used combination during Period II, but lost its dominance as the main spin combination in Period III when s-spun wool became the norm (Ehlers 1998, pp. 145, 178 f.).

Ehlers divides the zones differently than is done here. What she calls the "core area" is a region that during Period IB (1600–1500 BC) has both Sögel-Wohlde and Valsømagle objects and therefore also gets a more or less different distribution of the s/s fragments. Both our divisions are based on the distribution of different metal objects. Mine, however, is based on the work of more recent researchers such as Vandkilde (1996), whereas Ehlers bases her work on older scholars, such as Karl Kersten (1936). Vandkilde's work must be seen as the thorough and relevant work for this period for future discussion about the chronology and division of this (see Bergerbrant 2007, ch. 2 and 3). It is possible that Ehlers is counting the total number of textile fragments rather than the appearance of the different fragment types in the graves, although this is unclear in the text. In my calculations, a grave that contains many fragments of s/s-spin textiles counts as one example of it, as it is extremely hard in most cases to decide whether the fragments derive from one or more pieces of clothing. On the other hand, a grave that contains different spinning combinations counts as one example of each of the spin types, i.e. s/s, s/z or z/z. In this study only textiles made of s/s, s/z or z/z spin combination are taken into account. There are some fragments with, for example, s/z<$^{s}_{s}$, although these tend only to be used in cords and strings.

In Schleswig-Holstein most textile remains are found in male graves in association with swords and daggers (Ehlers 1998, p. 12). This has been connected both to the ability of iron and copper oxides to prevent the decomposition of textiles as well as excavation history – i.e. archaeologists who had found a sword or a dagger also had their eyes open for the sheath (Ehlers 1998, p. 12). In the Danish islands, however, there are many more remains of female dress than there are from Schleswig-Holstein. This is probably due to the fact that the females in eastern Denmark were buried with more metal objects. The bronze tubes, which were attached to the cored skirts, the belt tassels and headdresses (Bergerbrant 2005b), frequently buried with females in Scandinavia and in Lower Saxony, are for example an excellent preserver of textile remains, as was seen in Bustrup (Viborg County, Denmark) or Bonstrof (Celle, Lower Saxony, Germany). Therefore, we have slightly less information about the female costume in Schleswig-Holstein than for the Danish islands.

In order to understand and analyse the medium within which appearances of people and textiles occur, Marie Louise Stig Sørensen has broken down the totality of appearance into separate parts: cloth (the textile itself), clothing (pieces of clothing created from the cloth), and costume (the assemblage of cloth-

ing, ornaments, and dress fittings) (Sørensen 1991, 1997). This article mainly deals with the cloth and parts of its production, although this is placed it in relation to both clothing and costume. South Scandinavian Middle Bronze Age clothing is well published by, for example, Broholm & Hald (1940, 1948). In summary, there was one male outfit consisting of a kilt or a wrap-around, with a cloak and socks/shoes. Some men also wore a cap, but this seems to be a special category of men (see for example Kristiansen 1999). There were two female outfits, both of which included a blouse, to which was added either a corded skirt or a long skirt, socks and shoes. To complete the costume a number of bone, wood or bronze objects were worn with the clothing (for more details of the costume see Bergerbrant 2007, chapter 4).

The seven well-preserved oak-log coffins in the old Sögel-Wohlde region support Hägg's idea that the s/s-combination was mainly used for cloaks, blankets and footwear. However, my contextual study of the position in the graves of all the textile remains independent of thread combination does not show any indications that these pieces of clothing are missing in the graves in the old Valsømagle region, as the find circumstances of the textile remains are similar between the two areas, i.e. there were probably cloaks, blankets and socks in both regions made of s/z-spun cloth. It is very difficult to decide which parts of the clothing the textile fragments belonged to, especially as so few of the graves included exact descriptions of the positions of the textile fragments. Most textiles were given very vague find circumstances, such as "in the grave" or "in association with a sword".

Is there, as Hägg suggests, a correlation between s/s-spun fragments and cremation graves? The textile fragments, discussed below, come from Bender Jørgensen's (1986) and Ehlers' (1998) catalogues, and the areas concerned are southernmost Sweden, Denmark, Mecklenburg, Schleswig-Holstein and Lower Saxony (the three last areas in Germany). In Period II 102 graves contained textile fragments.[5] Only four (4%) of these are clear cremation graves. Of these four one contains s/s-spun textiles, two s/z textile, and one just a z yarn. For the following period there are 80 graves in which 90 textile fragments have been found, 32 (40%) of which are cremation graves.[6] These 32 graves contained 37 textile fragments:[7] 54% of these are of s/z-spun wool, 38% are s/s and 8% are z/z combinations. It is true, however, that in the old Valsømagle region it is more common to find s/s-spun fabric in cremation graves than in inhumation graves in Period III. This might be related to the fact that both weaving with only s-spun wool and cremation graves can be viewed as novelties in the area, and people who adjust to one new technology might be more willing to experiment and try additional innovations, in this case change in weaving technology and in burial technology. The difference between the two periods cannot be explained simply through the difference in number of textile finds. A look at the internal percentage of s/s-spun textile fragments in the two areas clearly shows that the textile type does not come into use until Period III in the old Valsømagle region.

Sögel-Wohlde	Valsømagle
PI 38% (of 8)	PI 0% (of 1)
PII 36% (of 59)	PII 6% (of 32)
PIII 44% (of 41)	PIII 32% (of 42)

Table 1. Percentages of s/s-spun textile fragments relative to the total number of textiles in each region.

Therefore, I argue, in line with Bender Jørgensen, that the difference in the distribution of the different textile types is not merely related to burial practices or preservation conditions, but is related to real cultural differences. This could indicate that changes

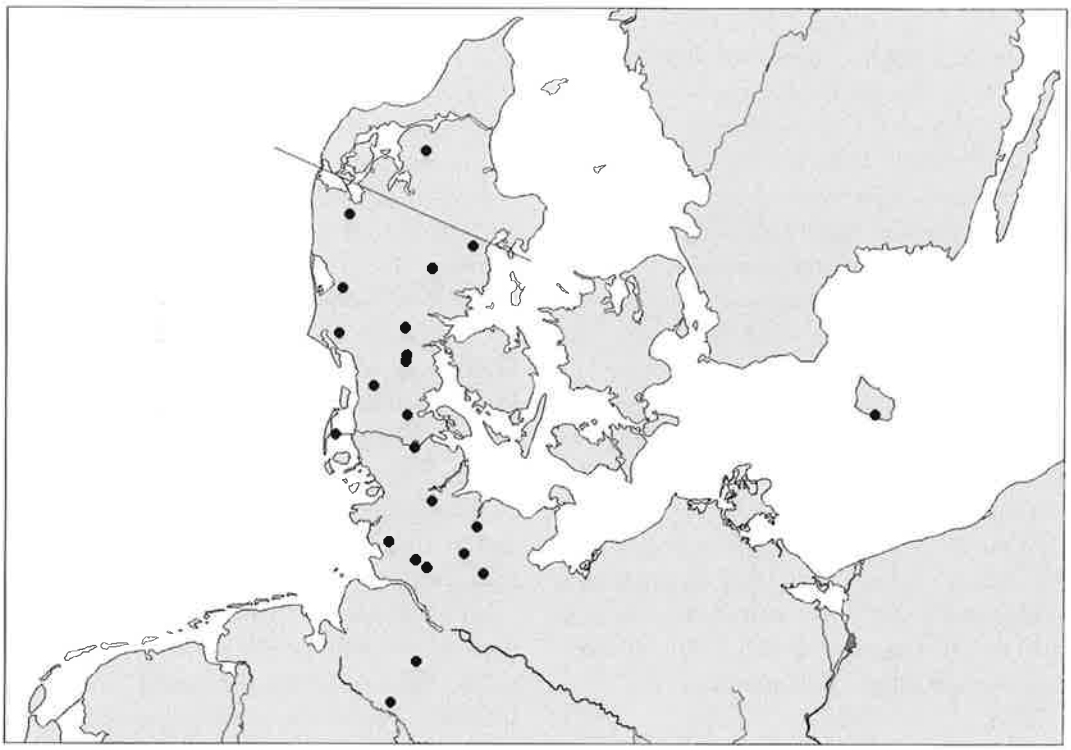

Fig. 2 distribution of s/s-fabric from Period II in the area of investigation. The line shows the approximate border between the Sögel-Wohlde and Valsømagle cultures. The Sögel-Wohlde group is below the line, i.e. most of Jutland, Schleswig-Holstein and Lower Saxony, whereas the Valsømagle group is north of the line, i.e. northernmost Jutland and the Danish islands and Scania.

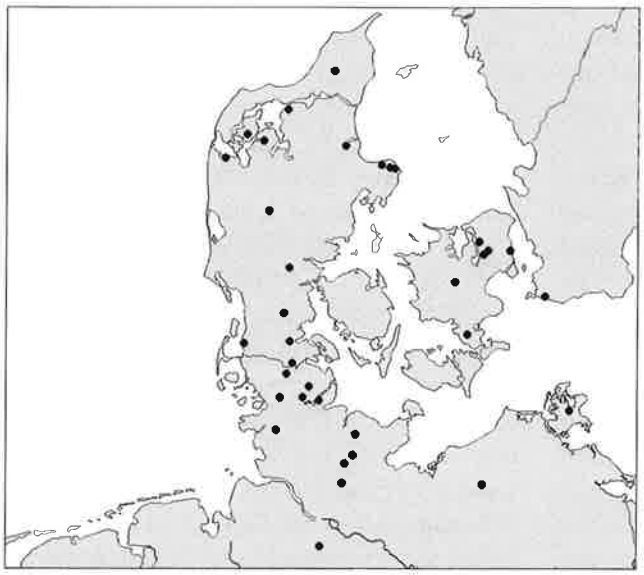

Fig. 3 distribution of s/s-fabric from Period III in the studied area

in the weaving traditions, here the use of differently spun wool, had its own time-frame, a time-frame that is different from the regional and chronological groups that were differentiated on the basis of the bronze artefacts. Both types of cloth continued to be made during the Late Bronze Age (1100–500 BC), but there is no clear difference in their distribution pattern. The big change is that the twill technique started to be used during the Late Bronze Age (Bender Jørgensen 1986, pp. 15 f.; Bender Jørgensen 1992, p. 120). It is clear from the distribution of textiles during the Middle Bronze Age that the s/z combination was the only way to make cloth during Period II in the old Valsømagle region. It is only during Period III that another way of combining yarn to make cloth was introduced, and it is therefore evident that some cultural traditions had a longer duration than others.

Women and technology

Weaving is both a technical process and a social phenomenon. It can therefore be seen both as a *chaîne opératoire,* where the finished product is only a part of the whole, and as a social process, where social relations and gender play a significant role (Dobres 2000, pp. 153 ff.). In the case of Middle Bronze Age Scandinavian weaving technology, it is hard to understand the full *chaîne opératoire* as we hardly have any evidence for the production of cloth. What we have is the finished product and very few indications of the tools needed to make the cloth. We can, however, say with a high degree of probability that there needed to be more than one person involved in the process (Broholm & Hald 1940, pp. 120; Harding 2000, p. 260; Bergerbrant 2007, p. 48). It also seems likely that weaving was done by women. We have no direct evidence for this – it can only be inferred from slightly later pictorial evidence such as rock-art and painted ceramics from Greece and Hallstatt (e.g. Bender Jørgensen 1986, p. 138; Barber 1991, chapter 3). The early textual evidence from Mycenae, Egypt and Assyria in this period indicates that textile production was mainly a female occupation. It is with the introduction of a new loom during the 18th Dynasty (*c.* 1550–1300 BC) that we first see male weavers appearing in Egypt (Barber 1991, ch. 13). Even though it is impossible to know whether analogues from continental Europe and the Near East can apply to Scandinavia, and there is no direct Scandinavian evidence for who did the weaving during the Middle Bronze Age, as soon as spindle whorls appear in graves during the Early Iron Age they are associated with women. This goes for other tools that are related to weaving as well, such as weaving swords (Hjørungdal 1991, p. 98). It is likely that the strong connection between women and weaving during the Iron Age can be traced back to the Bronze Age. Elisabeth Barber (1994, p. 294) claims that when textile production can be connected to the household it is generally women who made the cloth. There is nothing in the archaeological record to indicate that textile production took place outside the household during the Middle Scandinavian Bronze Age. This strengthens the hypothesis that women did the weaving during the period under investigation.

There is no direct evidence of the spinning tools that were used in Middle Bronze Age Scandinavia, but we know that both s- and z-spun thread existed in the studied regions from Period IB (*c.* 1600 BC). Although it would have been technically possible to make s/s-spun textiles in eastern Denmark at this time, they chose not to, and a distinct preference for making cloth only with the combination s/z is observed. Social agency is the only possible explanation for this distribution of different types of woven cloth. The archaeological remains of textiles are found in similar

circumstances in the different regions, and it appears that preservation conditions are not a determining factor. The conclusion must therefore be drawn that it is unlikely that s/s-spun textiles were in common use in the old Valsømagle region. The distribution of the different textile types is much more likely to be explained by different weaving traditions.

The few remains we have from the Lüneburg heath show no difference from the other areas in the old Sögel-Wohlde region regarding the combination of spinning directions, nor is there any indication of differences between types of clothing in this area and the clothing of the Nordic Bronze Age. There is one significant visible difference, however, and that is in the headdresses (Broholm & Hald 1935, pp. 274 ff.; Laux 1984; Bergerbrant 2005b). The headdress in the Lüneburg heath includes both textiles and a larger number of bronze objects, whereas the Scandinavian headdress appears to have been made using a more elaborate method, the complex sprang technique (Broholm & Hald 1935, pp. 276 ff.), and included few or no bronze objects. However, there might have been a slightly different development in the Lüneburg heath, where people may have been quicker to make somewhat more complex clothing.

Jockenhövel (1991) has suggested that in the western part of Central Europe the movement of so-called foreign men and women was generally between 50 to 200 km from their area of origin. Marriage alliances and people moving from one area to another have been cited as possible explanations for many innovations – from the introduction of agriculture in southern Scandinavia to the use of asbestos-tempered ceramic ware in parts of northern Sweden (Jennbert 1984; Bolin 1999, pp. 44 ff.). Perhaps a similar explanation can be applied to the introduction of s/s-spun textiles in the old Valsømagle area. The intermarriage of females from Lüneburg, as seen in the graves of females buried in complete Lüneburg costume, and women from other parts of the old Sögel-Wohlde area to for example Zealand and in Scania (e.g. the burials in Smidstrup and Abbekås, for more detailed discussion of foreign women see Bergerbrant 2007, pp 118), may explain why the cloak, blanket and footwear made using the s/s spin became accepted in the eastern region. When these women with a different way of producing textiles became established in the new region and their knowledge was passed on to their daughters, the idea of using different spin combinations for different types of clothing might have been accepted by the wider community. By accepting the new way of weaving blankets and coats, for example, the two areas became more culturally similar.

The slightly more complex blouses of which we have a few examples from the Middle Bronze Age, which include decoration in the form of embroidery, may also have been spread by marriage alliances. The oldest example in the Nordic Bronze Age of a blouse with embroidery is from the Period II grave at Flintbek (Ehlers 1999, catalogue SH:49). This is a grave of a young woman aged 15–16, who is likely, based on her full costume and the metal objects that accompanied her, to have been from the Ilmenau area of the Lüneburg heath (Zich 1992, p. 186; Bergerbrant 2005a, pp. 165 f.). If this is so, the earliest evidence of embroidery found in the Nordic Bronze Age belongs to the Lüneburg area. The first examples of embroidery on blouses in a pure south Scandinavian setting are from Period III, from the well-preserved oak-log coffin grave Skrydstrup, Haderslev, and the grave mound in Melhøj, Ålborg (Bender Jørgensen *et al.* 1982, pp. 34 f.). In these cases, it is possible that cultural contacts and marriage alliances were the agents that distributed the knowledge of embroidery from Lower Saxony to south Scandinavia. There is one more possible example of an ornamented blouse with a yarn that has long smooth threads associated with

the neck opening (in relation to neck rings) in Heiligenthal, Lüneburg, Lower Saxony (Ehlers 1998, pp. 166 ff.). This grave belongs to Period III, so it does not help to confirm that people in Lower Saxony were quicker to add embroidery to their cloth. However, it does demonstrate that the technique was widely known in the northern parts of Europe during Period III, as also shown by textile finds with embroidery from Emmer-Erfscheidenveen, Holland, that are dated 1500–1110 BC (Comis 2003, pp. 193 ff.; van der Plicht 2004, p. 487; van der Sanden 199, p. 156).

Networks and exchange

Jan Apel (2001, pp. 340 f.), in his study of Late Neolithic flint daggers, sees for the Scandinavian Late Neolithic the possibility of two different spheres of interaction: a male sphere where flint daggers are a part of the exchange of elite goods, and possibly a female exchange network where other goods are bartered. In an earlier study I have (Bergerbrant 2005a) shown that the movements of southern Scandinavian and northern German men and women vary as well, possibly as a result of different marriage alliance strategies. It appears that women from the Lüneburg heath moved to south Scandinavia and that Scandinavian men moved to the Lüneburg heath, but the opposite was rare. This study also indicates that men and women had different networks and were in contact with different regions. Sabine Reinhold (2005, pp. 39 f.) has shown that in societies in north Caucasus, Niedmont zone, during the Late Bronze Age and Early Iron Age (10th–8th centuries BC) male and female exchange networks operated in different directions, with the female network linking the two separate male ones. It is therefore more likely that new techniques in textile production, which we assume was performed by women, would have spread from the old Sögel-Wohlde region to the old Valsømagle region, while "male" objects flowed in the opposite direction. This could explain the slow spread of s/s-spun textiles.

It has been argued here that the two fragments of s/s-spun fabric from Period II found in the old Valsømagle region had come to the area through female exchange networks. That one of the fragments was found in a male grave might be explained by the possibility that female long skirts could be reused for making male articles of clothing (Eskildsen & Lomborg 1977). The hypothesis presented here is therefore that these pieces of textile had been exchanged between two women and were later transformed into clothing for a male. Ethnographic examples of how textile production can be exchanged via female networks include Wiessner's study of headbands and their exchange among the Kalahari San (Wiessner 1983). In Homer we have descriptions of gold and silver spinning gear given by highborn women to their equals (Barber 1994, p. 209), i.e. part of a female peer polity interaction.

If one brings the z/z-spun fragments into the discussion of networks and exchange one might be able to see a connection to the British Isles. According to Bender Jørgensen (1991, p. 117), the few woollen textiles from the British Isles Bronze Age differ from the rest of northern Europe by being z/z-spun. The two Period II z/z fragments found in southern Scandinavia are found in female graves and could easily be related to a female exchange network. Another example of female exchanged goods from the same period is the jet bead that was found in the female grave from Storehøj, Tobøl, Ribe County (Thrane 1962, p. 19). The bead probably originated in the British Isles. The z/z-spun textile fragments found in the area of study can be related to the region Butler (1963, pp. 215 ff.) identifies as an exchange zone for British objects during Period II. For Period III, the six

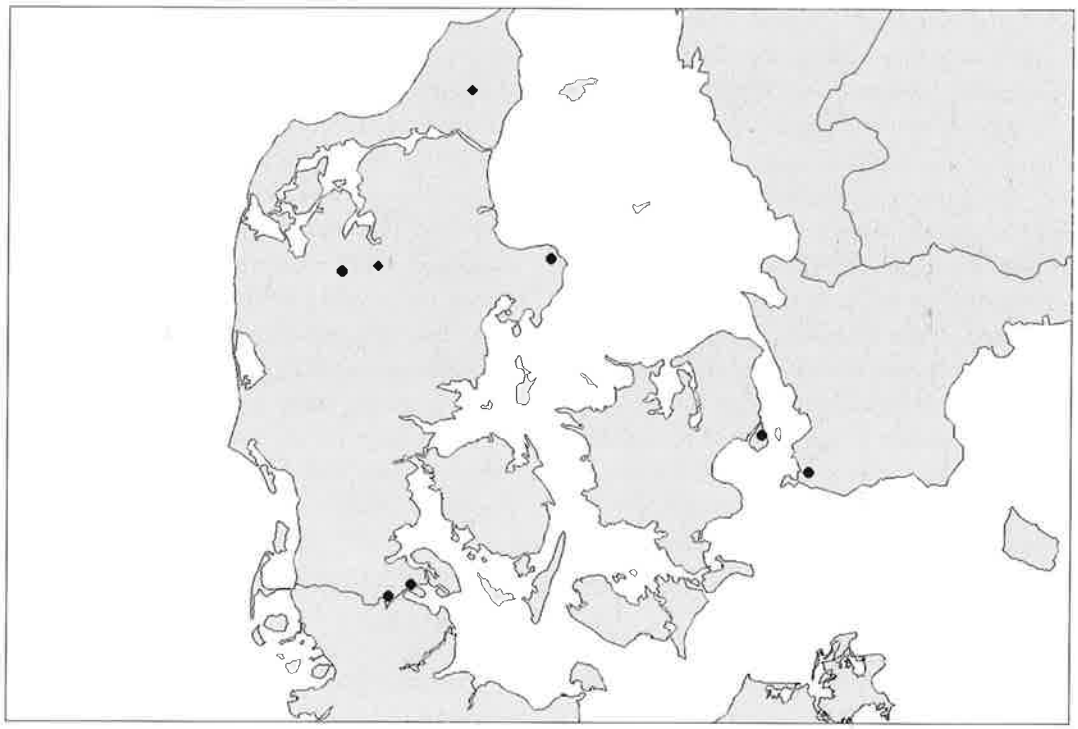

Fig. 4 distribution of z/z-fabric from Periods II and III in the studied area. Circles = Period III finds.

z/z fragments found in Scandinavia are more broadly distributed in the southern Scandinavian region. The sexes of the people buried with the textile fragments are also different: of the five graves for which sex could be determined, three textile fragments come from male graves, and two from female graves. It is harder to make a clear interpretation of the z/z fragments from Period III. Nothing in the graves stands out as different in relation to an ordinary grave, and nothing unites the graves except the z/z-spun textile fragments. Furthermore, the distribution of these graves does not coincide with the area Butler (1963, pp. 218 ff.) regarded as the main area for exchange between the British Isles and southern Scandinavia. According to Thrane (1975, pp. 116 ff.), there are only a few indications of a direct connection between Scandinavia and the British Isles during the Late Bronze Age, and most objects seem to have arrived via central Germany. Perhaps this pattern was already starting to emerge during Period III. The geographical wide distribution of the few z/z-spun textiles might have occurred through the female exchange networks via central Germany and the Lüneburg heath.

Another indication that the textiles made of z/z-twisted yarn may come from the British Isles is the quality/thickness of the yarn. In the Scandinavian Middle Bronze Age the most common yarn quality is 3–4 threads per cm, or slightly higher during Period III (Stærmose Nielen 1982, pp. 51 f; Bender Jørgensen 1986, catalogue; Ehlers 1989, catalogue). The British textiles, however, seem to have a somewhat different yarn quality. The few examples we have contain from 6/7 to 13/13 threads/cm (Bender Jørgensen 1992, p. 19). This higher thread count can, for example, be seen in the

z/z-spun textile remains from Yding, Skanderborg, and Skytts Vemmerlöv, Scania (Bender Jørgensen 1986, cat. no. DB:51, SB:6).

Therefore, my analysis of the textile fragments of z/z-spun cloth and their geographical distribution demonstrates how wide the female networks were between the different regions during Period III. These networks had probably been built up slowly from Period II and kept via the daughters of the women who had clearly moved into the region. That female exchange networks could reach over wide areas is also shown in the burial of the so-called "Princess from Drowen" (Netherlands) from Period V, who had a fibula that probably came from North Germany and a hanging bowl that probably originated in North Jutland (Thrane 2001, p. 556).

It is argued here that the textile remains from the Middle Bronze Age in southern Scandinavia and northern Germany show that there was an active exchange of both goods and knowledge between women from different geographical areas. This occurs independently of the male network systems. Kristian Kristiansen & Thomas B. Larson (2005, p. 48) argue that two types of exchange systems functioned during the Bronze Age: an exchange between chiefs, of "peer polity" type, and an exchange between chiefs and vassals, of "centre-periphery" type. It seems more likely that in this case we are dealing with interaction of the peer-polity type. It is an exchange built up by women, of similar status, through meetings and marriage. The above authors divide exchange goods into different values, with personal items, trade goods, and prestige goods with increasing value (Kristiansen & Larsson 2005, p. 49). This model seems to be overly simplified, as objects might belong to more than one sphere. A piece of textile might be viewed as a prestige object, while at the same time being an item of personal clothing.

Anthony Harding (2000, p. 264) has suggested that each area had very specific ways of doing its weaving. He also suggests that the introduction of textiles from other areas could indicate the presence of "foreign" weavers, perhaps women who had moved through marriage. This works well with the hypothesis presented here, even though it is here suggested that single examples of "foreign" cloth might have entered the area through exchange networks rather than people moving by marriage. It is only when the new way of putting the yarn together becomes common that we have evidence for the influence of so-called "foreign women".

Conclusion

It has been shown here that the use of s- and z-spun yarn in the making of fabrics during the Middle Bronze Age in southern Scandinavia was a cultural construction and that it can be related to the way people saw themselves and their technology. The shift from s- and z-spun to only s/s-spun cloth occurred at a different pace from changes in bronze artefacts, for example. The change in textile techniques can be related to female networks and marriage between groups as well as social phenomena such as fashion and ideology. Therefore, we can say that even though the bronze artefacts changed, resulting in a greater degree of uniformity in Period II in terms of cultural ideas as to what a bronze object should look like, it took several hundred years more before the same standardization was adopted into textile production. It has thus been shown that textiles were a part of female exchange networks that were independent of male networks. This can be seen rather clearly for Period II, but is somewhat harder to demonstrate for Period III, when the picture is more blurred.

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Notes

1 A woven fabric consists of two sets of threads – warp and weft – woven together at right angles to each other. Tabby is the simplest technique, where the weft only passes over and under one warp thread at a time. In twill-weaving, the weft will pass over and under two or more warp-threads, thus creating patterns of diagonal lines in the fabric.

2 Whether a yarn is s- or z-spun depends on the direction the spindle was rotating in – clockwise or anticlockwise – when spinning the wool (Broholm & Hald 1935, p. 298).

3 However, the northernmost s/s find on Bender Jørgensen's map on page 17 and in her catalogue comes from the old "Valsømagle" region (Bender Jørgensen catalogue number DB 36).

4 The two authors have chosen to write the combinations differently z/s and s/z when they speak of the type in general. Some of the textiles have s-spun yarn in the warp and z-spun yarn in the weft and other the opposite. I have chosen to write s/z in the text.

5 Some of these lack full information about the thread, which has for example only information about one of the two threads, while others are the cord remains of the corded skirt. Below and in table 1 only the textile fragments belonging to cloth which has information about both threads are taken into account.

6 These numbers are based on Bender Jørgensen's and Ehler's catalogues as well as some articles. The numbers concern Sweden, Denmark, Schleswig-Holstein, Lower Saxony and Mecklenburg. Textile fragments from Mecklenburg have only been found from Period III and comprise only yarn of s/z and s/s type.

7 Only one fragment of each type has been counted, i.e. yarn, s/s, s/z or z/z.

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