18 Smooth and Cool, or Warm and Soft: Investigating the Properties of Cloth in Prehistory

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> 'Studies of materiality cannot simply focus upon the characteristics of objects but must engage in the dialectic of people and things' (Meskell 2005, 4).

A number of researchers have looked at the significance of the properties of cloth to understand their suitability to environment and function (*e.g.* Rast 1990, 125; Barber 1991, 15; Rast-Eicher 1997, 303). This research is a good basis and has potential to be developed further. In this paper I investigate the physical, chemical and aesthetic properties of linen, wool and lime bast fibres, and the structure of knotless netting, woven textiles and twining that were used to make cloth from the Neolithic to Bronze Age in the Alpine region of Europe. Through these results I look at examples of how these cloth types may have been used and valued in these societies.

Properties and Materials

The original idea for this research came from a conversation with a social anthropologist. She pointed out that while archaeologists are excellent at dealing with the technology and production of cloth, they are not as good at dealing with cloth as a material, and the social importance of materials in terms of *materiality* (*e.g.* Küchler 2003; Küchler and Were 2005). This investigation of materials poses particular problems for archaeologists examining cloth in prehistoric societies. Usually, preserved fragments of cloth are fragmentary, fragile and decayed and do not retain their original properties. To overcome this problem and understand the properties of these materials, archaeologists need to analyse the preserved fragments, and compare the results with modern examples. The analysis of preserved fragments is currently carried out to a high standard at many sites following standard cataloguing systems (*e.g.* Walton and Eastwood 1988; Bazzanella *et al.* 2003). The results from these analyses are highly suited for identifying the properties of the archaeological materials.

However, the identification of properties is only one part of a materials analysis; the relationship between people and materials or *materiality* is equally significant (Meskell 2005, 4). Through everyday encounters, people associate ideas with the surfaces and structures of materials such as cloth in complex and subtle ways (Küchler and Were 2005, 198). This occurs through a combination of factors including the performance of cloth based on its properties, and the way people interact with it, and associate meaning with this relationship. To take an everyday example, doctors around the world wear a white coat. The colour of this garment is a selected property, as white is believed to show up dirt and is associated with hygiene and cleanliness. However, the actual significance of this material is more than this. Through a combination of the colour and cloth type, the shape of the garment and the context in which it is worn, the doctor's white jacket is imbued with beliefs about the wearer's ability to heal the sick. In this example, a material is deemed appropriate due to some of its properties, but takes on meaning that is more than a sum of these. While a *materiality* approach to materials is arguably more difficult to research in prehistoric archaeology than social anthropology, it is necessary to ensure that an investigation of materials does not limit itself to investigating properties. Therefore, a materials approach should see these materials as surfaces that people engaged with as socially understood materials.

Archaeological Evidence of Cloth from the Neolithic to Bronze Age in the Alpine Region

The majority of preserved cloth fragments in the Alpine region are made of plant fibres and come from the waterlogged contexts of lake dwellings, and belong to sites dating from the early 4th to mid-2nd millennium BC. Excavation reports of these sites identify a rich variety of cloth constructions including twined cloth, woven textiles, knotted netting, knotless netting and woven basketry; the raw materials used were often tree bast and flax plus unmodified fibres from grasses and rushes (Winiger 1981, 57–64, 148–171; Rast-Eicher 1997, 302–310; Körber-Grohne and Feldtkeller 1998). Other important sources of preserved cloth include the frozen Iceman dating to the late Neolithic/Copper Age (Egg 1992, 35–100) and the mainly wool woven textiles from

Properties	***What is this?***
Abrasion resistance	Resistance to flexing, compression, twisting, rubbing; variables including type of abrasion, pressure, speed, tension
Air permeability	The readiness with which air can pass through the cloth
Dimensional stability	The extent a fabric retains its original dimensions subsequent to manufacture
Drape	The way a cloth hangs under its own weight
Elastic recovery	Force applied to extend below the breaking point and then allowed to recover
Elongation	Force applied so it extends and eventually breaks
Fibre fineness	Mass per unit length of fibre
Flammability	Behaviour when in contact with a flame
Handle	Subjective properties assessed by touch and feel such as smooth, rough, limp, stiff, drape
Insulation	Heat loss by conduction and convection
Lustre	Reflection of light
Prickle	Caused by coarse and stiff fibres protruding from the surface
Regain	Weight of water in a material expressed as a percentage
Resistance to biological attack	Resistance to microorganisms
Tensile strength	Maximum tensile force when extended to breaking point
Tickle	Caused by fabric hairiness
Twist	The number of turns per unit length, direction measured as S or Z
Water absorption	Two determining factors; the speed of water uptake and the quantity
Water repellency	The prevention or delay or water penetration or absorption
Windproofing	Resistance to wind penetration by coating or using a tight weave
Yarn fineness	Weight per unit length of yarn

Table 18.1. List and description of a selection of industrial tests (After Saville 1999; Airoldi 2000, 21–33; Wulfhorst 2001, 9–10).

the Middle to Late Bronze Age galleries of the Hallstatt salt mines, Austria (Grömer 2005).

Flax and tree bast from indigenous lime, oak, willow and elm were important raw materials in the Neolithic (Rast 1995, 149). As a raw material, tree bast is less represented in the Bronze Age (Rast-Eicher 2005, 127; Médard 2005). Although wool is rarely preserved in the lake dwelling, other lines of evidence suggest it was probably an important raw material in the Bronze Age, whereas flax seems to become less important in this period (Rast-Eicher and Reinhard 1998, 285; Schibler 2005, 153; Rast-Eicher 2005, 127–128). In terms of cloth construction techniques, twining was common in the Neolithic with many variations known from the Neolithic lake dwellings of the Alpine region (Vogt 1937, 12–32; Rast-Eicher 1997, 307–308; Cardon 1998, 17–18). Knotted netting and variations of knotless netting are known throughout the Neolithic, Copper Age and Bronze Age but are not known continuously in all areas (Rast-Eicher 1997, 305; Cardon 1998, 17–18). Plain weave was the preferred weave structure in the Neolithic; the earliest appearance of twill weave dating to the Beaker period or early Bronze Age (Rast-Eicher 2005, 124–128).

Sources of Comparative Evidence

The investigation of a materials approach depends on the identification of the archaeological cloth remains to understand the raw materials, thread diameter, thread count, cloth structure and other attributes. Once this information is established, it is then possible to compare the ancient cloth types with modern or historically known cloth types. Textile industry tests that measure the properties of different cloth types are a useful source for archaeologists to compare with ancient cloth types. Such industrial tests measure and investigate an extensive range of physical, chemical and aesthetic properties. Some of the properties tested for are outlined in Table 18.1, with a short description of their meaning.

However, these comparisons should be used with the following reservations in mind. First, hand processing as practised in prehistory may create different effects to modern mechanical processing; for example, industrial tests on sheep wool do not take into account the presence of lanolin on the fibres. Second, some raw materials have changed since prehistory. For example, Neolithic flax stems were only *c.* 30 cm in length (Körber-Grohne and Feldtkeller 1998, 137) and therefore shorter than modern plants. Similarly, Bronze Age sheep fleece was coarser and hairier than in later periods (Ryder 1969, 500–501). Experimental archaeology and the modern ethnographic or historical accounts of craftspeople are useful for understanding how non-industrial processes affect the properties of cloth and to understand fibres and fabrics that are rarely encountered in the present day, such as knotless netting and lime tree bast (Table 18.1).

Results – the Fibres

Flax Fibres

The properties of flax fibres are outlined in Table 18.2. Cool, crisp and smooth to the touch with its excellent ability to absorb moisture, such as body sweat (Needles 1981, 62; Airoldi 2000, 30–34), the properties of flax fibres show how suitable they are for summer clothing. This summer clothing aspect of linen has come up in interpretations of woven linen (Barber 1991, 14–15). In addition, with a handle that is comfortable close to the skin, woven linen can be used for undergarments as part of a layered costume, suitable for any time of year.

Flax fibres	
Physical properties	Strong Good tensile strength 20% stronger when wet Standard regain 12% Good heat conductivity Good water absorption Rigid fibre, creases on bending Break under repeated flexing Low elongation at break, but fairly elastic at low elongations Stable shape and size Resists abrasion Highly inflammable
Chemical properties	Good resistance to insects and micro organisms Only susceptible to mildew in extremely moist conditions Slow degradation by sunlight Resists acids, bases, chemical bleaches
Aesthetic properties	Dull fibre but becomes more lustrous if beaten (*beetling*) Natural colour: white, golden yellow, silver grey Accepts dyes, but the application of a mordant improves fastness
Handle	Soft Cool Crisp Smooth

Table 18.2. Properties of flax fibres (After Kornreich 1952, 11–17; Needles 1981, 60–62 and 73; Puliti 1987, 21–22; Airoldi 2000, 12–35).

However, the fineness or coarseness of linen depends on the quality of the fibres. The short (*tow*) fibres produce coarser cloth, which was historically used for sacks, work cloth and towels; the long (*line*) fibres produce a more lustrous, stronger, smoother cloth which was used for fine clothing and bedding (Chandler 1995; Mott and Tomasoni 2000, 15, 206). Besides the significance of linen cloth for clothing, the diverse properties make flax useful in other ways.

Flax fibres were one of the strongest fibres available to people in prehistoric Europe. In addition, its resistance to abrasion and chemical attack was probably useful in cloth for working tools and equipment. Not only strong, but increasing in strength when wet, it was a very suitable fibre for the knotted fishing nets that are excavated from the Neolithic lake dwellings (Körber-Grohne and Feldtkeller 1998, 135–137). Other properties are that it resists decay from mildew and does not loose its shape when wet (Needles 1981, 62; Airoldi 2000, 34–35). The appearance of cloth made from flax is also interesting as although naturally dull, flax fibres become lustrous when they are beaten (*beetling*) or smoothed (Needles 1981, 62; Airoldi 2000, 34). As I understand from experienced weavers, this can occur also through extensive wear. This aesthetic property brings to mind the attention researchers have given to the colour and shiny, luminous surface of metals in the Copper Age (Keates 2002, 111). One negative property of flax fibres is their flammability (Needles 1981, 62). So much so that historically in Britain, the waste from preparing cellulose plant fibres (scutching and breaking debris) was sold as fuel (Evans 1985, 23). Although the burnt layers in the prehistoric lake dwelling settlements cannot be attributed to the presence of flax fibres and linen cloth, their presence shows that it is likely that they contributed to these blazes.

Wool Fibres

The properties of sheep's wool fibres are outlined in Table 18.3. Wool cloth is often associated with winter clothing. This is supported by its excellent insulating properties, warm feel, and ability to absorb nearly 40% of its weight in water (Needles 1981, 88) and still feel dry and warm (Chandler 1995, 205). In contrast to plant fibres, wool has a low to moderate strength, with decreased strength when wet (Needles 1981, 88). An elastic fibre, it is even more elastic when wet, but will return to its normal shape and size except in very humid conditions (Needles 1981, 88). In many contexts, wool's stretch, resistance to flexing and ability to absorb shocks compensates for its lack of strength (Kornreich 1952, 12–14).

These qualities were possibly exploited in the Hallstatt Bronze Age salt mines where coarse rags of fulled wool textiles may have been used to carry the mined salt (Grömer 2005, 20; Reschreiter 2005, 13). As the salt would have been a dry filling, wool's weakness and over-elasticity when wet was probably not important. The salt mines are an interesting context to evaluate, as here many of the textile fragments appear to be reused from clothing, showing how cloth of the same type was valued for different properties depending on the context of use. For example, it probably did not matter that wool is a good insulator or good at taking dyes when reused to make containers. Another compelling reason to have wool in the salt mines rather than linen or other plant fibres could have been its resistance to fire. This may well have been useful in the confined environment lit by burning wooden spills (Barth and Lobisser 2002, 15). As mentioned above, linen is highly flammable, which may be why it is rare in the mines.

The stiffness of wool depends on the fineness of the

Wool fibres	
Physical properties	Low to moderate strength Weaker when wet Good heat insulator due to low heat conductivity and bulkiness Wool degrades and chars on heating Burns very slowly even in contact with a flame Elastic Good stretch and recovery except in very moist conditions Standard regain 13-18% Highly absorbent: can hold nearly 40% of its weight in water Resists repeated flexing Absorbs shocks Fairly abrasion resistant Will felt if agitated in warm water Slow drying Stiffness will vary according to breed and diameter of individual fibre
Chemical properties	Susceptible to attack by moths Quite resistant to mildew Resistant to acids Vulnerable to bases, even in low dilutions Slow degradation and yellowing in contact with sunlight
Aesthetic properties	Readily dyed and good colourfastness High to moderate lustre Natural colour: white, yellowish, reddish-brown, black
Handle	Warm Soft, moderate or rough Drapes well

Table 18.3. Properties of sheep wool fibres (After Kornreich 1952, 10–17; Needles 1981, 88–90; Puliti 1987, 11; Airoldi 2000, 12–35; Wulfhorst 2001, 11).

Lime bast fibres	
Physical properties	Stronger than elm or oak bast, particularly if prepared without retting 47% stronger when wet Low water absorption Limited swelling when wet Lightweight Low extensibility Low resistance to wear Floats on water Quick drying*
Chemical properties	Resistant to attack by moths * Resistant to decay
Aesthetic properties	Natural colour: light to medium golden brown*
Handle	Retted lime bast is soft

Table 18.4. Properties of lime bast fibres (After Myking et al. *2005), *observations from own experiments working with lime bast fibres.*

individual fibres, which therefore affect the handle. When spun into thread, coarser fibres can be uncomfortable to the skin, producing what industry calls 'tickle' (hairiness) and 'prickle' (coarseness) (Saville 1999, 232). Before and during the Bronze Age, wool contained a mixture of fine underwool and hairy kemp fibres (Ryder 1969, 500–504; Rast-Eicher 2005, 27) and was therefore hairier, stiffer and coarser than modern specialized fleece.

Tree Bast Fibres

Tree bast is extracted from the inner bark of lime, willow, oak and elm.[1] The species of tree bast fibres have different properties and provide a range of natural colours from nearly white to dark brown (Körber-Grohne and Feldtkeller 1998, 156). However, the information on the properties of these fibres concerns mainly lime as this has been subject to industrial testing.

The properties of lime bast are outlined in Table 18.4. A strong fibre, lime bast is particularly interesting in its reaction to water. It is substantially stronger when wet than dry and is resistant to decay. Lime has a low extensibility, floats and due to its low water absorption does not swell in contact with water (Myking *et al.* 2005, 69–70). From my own experiments, I found that lime bast dries quickly, presumably because of the low water absorption. Undoubtedly, these are good properties for fishing equipment, but would also be a good choice of material for shoes, floor or wall coverings, clothing and containers by people living and working in wet environments, such as the Alpine lake dwellings. Historically,

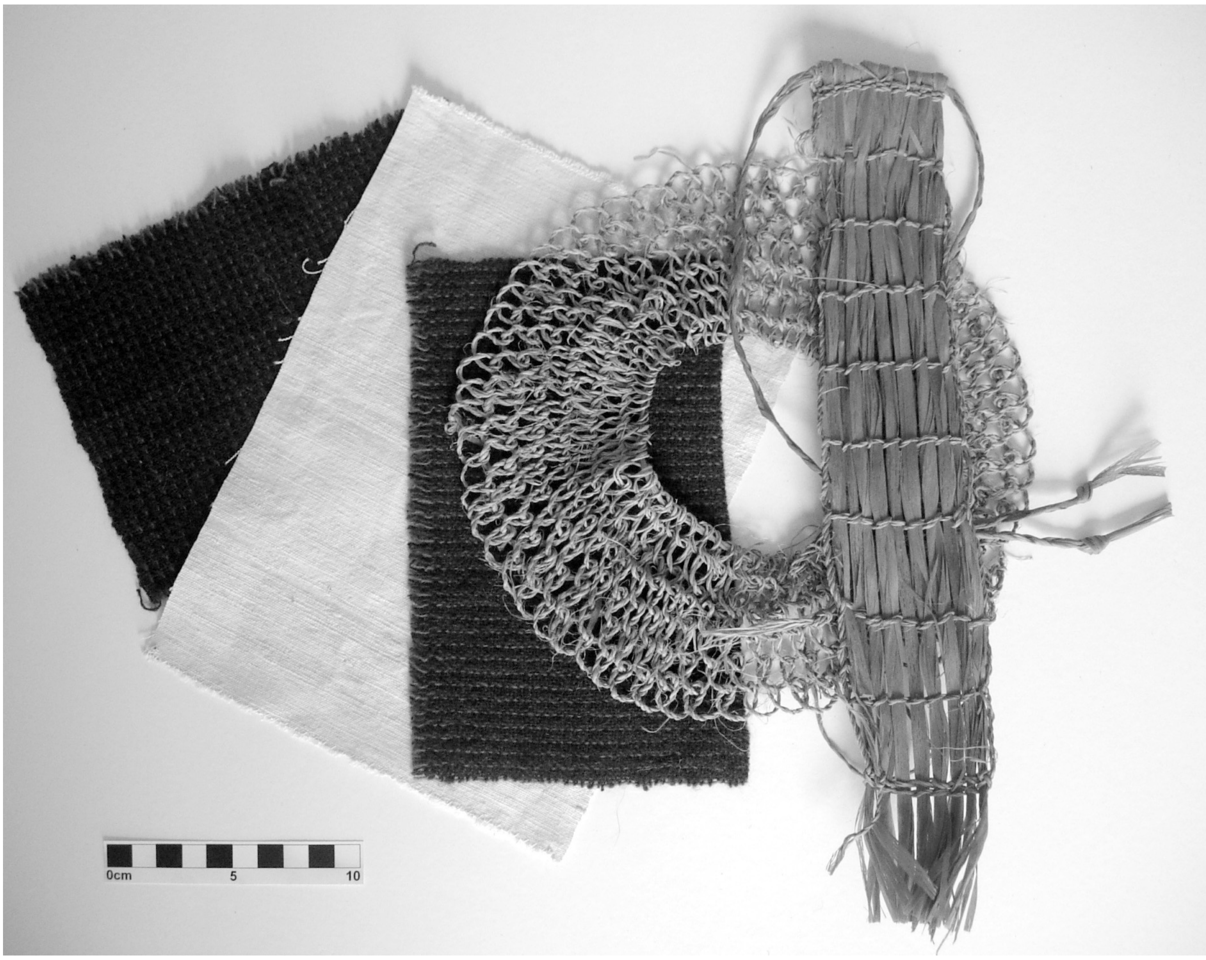

Fig. 18.1. Modern samples of cloth types from left to right: twill weave sheep's wool, plain weave linen, plain weave sheep's wool, open looping with single twist from lime tree bast, twining from lime tree bast (Photo: © S. Harris).

lime bast rope was considered soft to handle in industries where manual work was carried out without gloves (Myking *et al*. 2005, 70). However, this softness depends on the fineness of fibres; the finest fibres lie close to the wood, whereas those extracted from near the bark are noticeably coarser. On the negative side, lime bast is prone to wear, making it less durable than other fibres.

Results – Cloth Structures

The properties of the finished cloth depend on the properties of the fibres, the thickness and spin of the threads (tight or loose, single or plied) and the way they are interworked. With this in mind, each fragment of cloth can be considered for its individual merits based on the technical analysis of the original preserved fragment. In the following section, I look at some general ideas of how different structures (Fig. 18.1) affect the properties of the finished cloth.

Knotless Netting

Looped cloth types, such as knotless netting, are the most flexible and elastic cloth types; the extendibility and firmness depends on the looping method and mesh width (MacKenzie 1991, 128–129; Seiler-Baldinger 1994, 11). Combined with strong fibres and thread, knotless netting provides a structure with no distinct direction of maximum strength; this is unlike textiles where the maximum strength is in the direction of the warp or weft (MacKenzie 1991, 132–133; Saville 1999, 154). Examples from prehistoric Europe are often open looping (*e.g.* Winiger 1981, 190–191, taf. 76.2 and 3). Such open looping is strong, lightweight, flexible, expandable, permeable and see-through. These properties make it suitable for bags carrying heavy loads and stretching round awkward shapes. Some knotless netting archaeological artefacts are interpreted as possible bags (Winiger 1981, 190).

In Papua New Guinea, knotless netting bags (*bilums*) are associated with women and women's labour. As well as expandable, 'strong and capable of hard work', the open looping means that people can see the contents of the bag, which in turn reveals the owner's capacity to contribute to society (MacKenzie 1991, 129–136). Such permeable and see-through properties of open knotless netting are in contrast to dense cloth structures. These properties may be important in the way they can conceal or reveal their contents.

Twined Cloth

In the Neolithic, twining was used to produce a rich variety of cloth types of different thread thickness, warp and weft spacing. Although mainly spun, plaited threads are also employed as the passive element, as are fronds of tree bast or grasses. In some cases, the threads are tightly packed creating a dense structure; in others, they are widely spaced creating gaps in the structure; some are recognised as sieves (Körber-Grohne and Feldtkeller 1998, 144). Some examples are covered with tufts, known as pile (Rast-Eicher 1997, 308). This wealth of variation indicates the skill involved in manipulating the cloth structure to control the properties of the finished product. Here I consider some examples of how twined cloth has been used across the world as a way to understand how structure relates to properties.

With widely spaced warps and wefts, twining can produce an open construction that is lightweight, permeable and see-through. As mentioned above, such structures seem to have been used as sieve bottoms in the Neolithic (Körber-Grohne and Feldtkeller 1998, 144). Open twining was (and is) used for fish traps and large containers in Australia and North America (Aboriginal people of Jumbun 1992, 20–24; Fienup-Riordan 2005, 55–57, fig. 2). By contrast, closely twined warps and wefts produce a dense and solid cloth. In New Zealand, closely twined capes made from plant fibres covered with narrow strips of dog skin were reputed to be strong enough to withstand a 'spear thrust'. On the basis of this property they were worn by warriors and were highly valued (Roth 1923/1979, 50–51, pl. XIX). Twined cloth made from thick threads has the ability to insulate, cushion and absorb shocks. This combination of warm, lightweight and insulating properties is recognised in the interpretation of the large twined grass item found with the Copper Age Iceman, identified as a cape or mat (Spindler 1995, 144–145; Reichert 2006, 9).

Examples of hats, shoes and large pieces that may be used for capes or mats show the use of twining for clothing in the Neolithic (Feldtkeller and Schlichtherle 1987, 78–80). However, the types of garment that could have been produced are more extensive than this. In North America, twined cloth from grasses, tree bast and other plant fibres were (and are) used for garments such as capes, coats, socks, boots, mittens to protect from the cold, as mats to sit and sleep on and as covering to protect fragile pottery (Turner 1998, 32, 68, 109, 145; Fienup-Riordan 2005, 54–58). Twining with a pile surface provides a water resistant surface as the tufts encourage the water to run away (Rast-Eicher 1997, 308). Such tufted surfaces could also provide warmth; the Maori of New Zealand made rain cloaks out of twining with pile, using coarse plant fibres that were described as impervious to rain and also warm (Roth 1923/1979, 46–48).

Aesthetically, twined cloth has a distinctive texture and drape; a stiff structure with poor drape, it falls in flat sheets rather than fine gathers (see Turner 1998, 123; Anawalt 2007, 348, figs 562–564). Archaeologists note the thick, furry appearance of twining with pile and its similarity in appearance to fur (Feldtkeller and Schlichtherle 1987, 78–79; Rast 1995, 150). In terms of visual properties, twined cloth from fine thread is quite distinct from twining with thick threads; it is worth noting that, historically, on the Northwest coast of America, fine close-twined cloth was highly valued and exchanged and worn in the potlatch (Gillow and Sentence 1999, 64; Anawalt 2007, 352).

Woven Textiles

The properties of woven textiles are affected by the fineness of the threads, the number of threads per centimetre (the thread count), the way the threads were spaced on the loom (the set), the weave structure (*e.g.* plain weave or twill), and the post loom processing (the finish). A number of these attributes are recorded in the regular cataloguing of archaeological textiles (Walton and Eastwood 1988). During some periods of the Neolithic, the structure of linen textiles is noticeably uniform (Rast 1995, 149). At other times, there is more variation in thread count, thickness and set (*e.g.* Bazzanella *et al.* 2003, 161–172; Grömer 2005, 28–32). Woven textiles made of fine threads such as the examples of plain weave linen from the lake dwellings are flat and thin and would have draped well. Balanced plain weave drapes well and is good for non-tailored clothing, although by comparison twill will drape better and is more pliable than plain weave (Chandler 1995, 132). A weft or warp faced cloth (*reps*) will be more pliable in one direction than another (Chandler 1995, 120–121, 132). Twill has a slightly more textured surface and is particularly noted for its flexibility, however this is relative; looped cloth types such as knotless netting are more flexible (Chandler 1995, 132).

Although weaving patterns, dyes and finishes such as fringes are the most obvious sources of decoration in prehistoric textiles (Barber 1994, ch. 3), these would not have been the only way that value and meaning was associated with the visual appearance of cloth. The appearance of cloth without decoration known from everyday situations is also a significant visual statement. In this, the smooth, flat, thin properties of woven textiles are distinctive and would have contrasted with the twined or netted cloth structures, although in some cases fine twining appears very similar to weaving (Rast-Eicher 2005, 123).

In many cases, it is assumed that woven textiles were used for clothing. Yet, taking note of historical examples, we should remember that textiles were used as sacks and sheets in agricultural work, for bedding and towels, as cloths for rubbing dishes and floors as well as shirts, skirts and underwear (Mott and Tomasoni 2000, 15). Therefore, when we find fragments of woven textiles, they may have had any number of uses.

Discussion

Through the combination of raw materials, processing methods, thread type, cloth structures and finish, each fragment of archaeological cloth would have had multiple properties. This makes the task of understanding materials complex in several ways. Properties of a material that were important in one context of use, such as colour or absorbency, may have been irrelevant in another. This also makes it difficult to understand which properties were valued and which were of secondary significance. How far were fineness and the ability to conceal important from the Neolithic to Bronze Age in contrast to cloth types that were thick and cushioned or see-through? Neither should we expect that properties were used in optimal ways. Flammable fibres may have been used in pyrotechnical activities and coarse cloth may have been worn close to the skin. In addition, the exploitation of properties can be contradictory, showing how difficult it is to separate cultural beliefs from properties. For example, historically in Britain there are contradictory accounts as to whether light or dark fishing nets were more effective on the basis of their invisibility to fish (Geraint Jenkins 1974, 79). However, through understanding the materials better, we are better able to approach these debates.

By looking at the range of properties of fibres, threads and cloth, it is possible to expand the range of possible uses of the fragments of cloth found in excavation. This expands the potential role of cloth beyond 'textile' research. For example, the potential use of dense twining as armour to protect against piercing and cutting suggests a relationship between cloth and weapons; the resistance of wool to a naked flame suggests its use in pyrotechnical industries, or the strength of linen textiles for sacks, harvesting and food collection.

To the more regularly cited properties such as insulation, strength and thickness, I have added aesthetic properties such as texture, drape, lustre, colour and the ability to conceal or reveal. This is significant in appreciating that even when not specially decorated or dyed, cloth would have been an aspect of visual culture in past societies; something that can be considered the aesthetics of the everyday. In this way, the range of cloth types at any one time would have represented a visual norm in past societies; the characteristic drape of clothes, the texture of cloth covers, the area of the body a cloth was expected to conceal or reveal. The aesthetic of cloth surfaces and structures may also have drawn comparison with other material surfaces. There are some hints towards these relationships, textured pottery surfaces that appear like textiles or other cloth structures, the tufted surface of twining with pile that resembles fur or the lustre of beaten linen textiles and metals. This approach is not new to archaeologists; as mentioned above, the colour and luminosity of metals in the Copper Age is seen as part of their value in addition to the properties of cutting and durability. Such an approach to cloth is also necessary.

In this paper I have approached some of the most common fibres and cloth structures in the Alpine region from Neolithic to Bronze Age; there are more types to examine. Another approach could be to investigate individual fragments in a site context and chart the range of properties held by different cloth types at a particular time and place. It would also be interesting to consider change and continuity in the materiality of cloth from the Neolithic to Bronze Age, alongside change and continuity in the technology of cloth production.

Conclusions

With exceptions, archaeologists have focused on understanding techniques and technology above materials. Yet, the material surfaces and structures of cloth are as much an indication of social values and meaning as any other item of material culture such as housing, pottery and stone tools. A materials approach is therefore worth developing to understand the role of cloth in past societies.

The investigation of a materials approach depends on the accurate analysis of the preserved cloth. Fortunately, the standard cloth cataloguing system offers a ready resource, including the identification of raw materials, thread diameter, thread count, cloth structure and other attributes. These factors can then be compared with modern samples, reports of craftspeople, and experimental archaeology to understand the original properties of cloth, before the decay and degradation resulting from the preservation processes. From this knowledge, it is then necessary to evaluate these materials in the context of the societies they belonged to. This helps understand how cloth types may have been used, and why they were used in particular ways. In addition, as an aspect of visual culture, the aesthetic properties of fibres and cloth structures bring to attention the everyday aesthetic of cloth for clothing, housing and equipment in prehistoric societies.

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Note

1 Although Médard questions whether oak fibres were actually used for textiles, or, if in the fibre analysis they have been confused with elm bast (Médard 2005, 101).

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