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Analysis and interpretation of braids from the London excavations

Introduction

The Museum of London conducted a number of excavations along the north bank of the river Thames in London in the 1970s and 1980s. The medieval textile finds from these excavations were collected and described in "Textiles and Clothing c. 1150 – 1450" by Crowfoot, Pritchard and Staniland in 1992 and republished in 2001. Most of the chosen sites are dated quite exactly based on contexts and circumstances of deposition. Braids only take up a small part compared with all the other important textiles in this book. It is however pointed out in the text that accessories, such as purses and trimmings in which braids are abundant, were very important in proclaiming a person's status at the time.

The braids are classified in two groups in the book, loop braided and plaited. It is not clear though from the text how this distinction was made and no attempt was made at further structural analysis of the braids at the time.

Since the publication of the book, much new knowledge has been gained on braids in general and on loop braiding in particular. Noémi Speiser's (2000) pioneering work interpreted and located documents with braiding instructions and described the principles of loop braiding. Some of these instructions are from the first half of the 15th century and thus contemporary with the latest of the textiles found in London excavations.

It is therefore interesting now to analyse the braids from the excavations and compare them with written sources as well as with contemporary objects preserved elsewhere. Such objects are mainly relic purses kept in different European church collections. The textiles in these collections are generally well preserved both with regard to structure and colour, providing a better understanding of the finds and their probable application.

Noémi Speiser and I have in recent years analysed many braids in European collections and have come

to the conclusion that loop braiding is by far the most commonly used method for making fine, silk braids during the Middle Ages and Renaissance. The ease and speed of loop braiding, when handling delicate, thin silk and many strands, seem to be preferable to the more time-consuming and complex method of braiding with open ends (plaiting). Regrettably, the early braiding methods do not leave any tools which could help identifying the methods and the structural indications of the possible production methods can only be supported by iconographical and written evidence.

I investigated half of the braids described by Crowfoot, Pritchard and Staniland (1991), approximately an equal number from each of the two types. These are classified in terms of technique, structure, number of elements, loops and number of persons involved in the braiding (Table 1). The probable original use of some of the braids can be suggested by comparison with objects in other collections and with medieval frescos.

Description of the types

Tubular and flat 4-ridge braids

Tubular and flat 4-ridge braids belong to the basic structures of loop braiding. It is characteristic for production with loops that the ridges never can be of the same size. Tubular structures produced by plaiting with open ends can be absolutely symmetrical with all ridges of the same size when made with numbers of elements divisible by 4, for example 8 or 12 elements. Other numbers of elements will give the same asymmetry as found in the loop braided structures. All the tubular structures among these braids have ridges of different sizes. It can thus not be said with certainty whether these are made with loops or not, but the fineness of the silk speaks for loop braiding. Flat 4-ridge twill will always have one ridge wider than the others near the middle if braided with loops and all the flat 4 ridge braids show this feature

(Fig. 1). The division of many of these braids into tails of two 2-ridge braids is a further argument for loop braiding as this transition is easily made just by taking the loops differently and thus producing both tails simultaneously (Fig. 2). Tollemache and Harley manuscripts from the first half of the 15th century have instructions for 4-ridge flat and tubular braids, as well as two 2-ridge braids, which are among the earliest in these two collections of loop braiding instructions.

Compact braids

There are two compact, round braids produced by 8 loops both dating from the second half of the 14th century. The two braids are similar in looks and production method but structurally they are not completely identical. These structures can be produced by two persons holding 4 loops each. The braiding procedure is orthodox and simple but the inner hands of the two workers have to be crossed. They work only their own loops and there is no exchange of loops involved in the braiding procedure. These two braids were formerly classified as plaited with

8 elements. We have found several of these types of braids in other collections but have no original written instructions.

One braid (BC72 [150] <4007/3>) was made by taking the loops open and each worker thus producing two 2-eyed tracks. The structure forms characteristic grooves along the length of the braid. The same structure was found on Philip of Schwabia's belt from 1208 (Historisches Museum Rheinland-Pfalz, D 334), on a sealed document from 1590 (Boutrup 2008), and on hand reins in horse gear from 1673 (Kungliga Gåvan, 1673, Royal Armory, Stockholm).

The other braid (BC72 [55] <1787>) was made by taking the loops crossed, each worker producing a 4-eyed track. This braid has no grooves but is smooth and round. The same structure is found on a 14th century sudarium from Halberstadt in Germany now in V&A (Speiser 2000, 66) but there it is made with 10 loops and 4 different colours (Figs. 3-4).

Century	Museum number	loops	tails	structure	Tail Structure
13th(4)	TL74[2532]<2435>	10		4 hands unorthodox passages, unorthodox exchange, 10 loops	
14th(1)	CUS73[12]<1245>	10	2	4 hands unorthodox passages, unorthodox exchange, 10 loops	Unorthodox, 5 loops
	CUS73[12]<592>	10	2	4 hands unorthodox passages, unorthodox exchange, 10 loops	Unorthodox, 5 loops
14th(4)	TB585[150]<3231>	5		Unorthodox, 5 loops	
	BC72[89]<2368>	10		4 hands unorthodox passages, unorthodox exchange, 10 loops	
	BC72[55]<1849/2>	5	4	Unorthodox, 5 loops	2 two-ridge, 5 loops
	BC72[55]<1557>	5	4	4 ridge twill, 2332	2 two-ridge, 5 loops
	BC72[89]<4099/2>	10	2	4 hands unorthodox passages, unorthodox exchange, 10 loops	Unorthodox 5 loops
	BC72[55]<1659>	15	2	6 hands unorthodox passages, unorthodox exchange, 15 loops	Unorthodox 5 loops
	BC72[55]<1867>	15	2	6 hands unorthodox passages, unorthodox exchange, 15 loops	Unorthodox 5 loops
	BC72[55]<3753>	15	2	6 hands unorthodox passages, unorthodox exchange, 15 loops	Unorthodox 5 loops
	BC72[55]<1643/3>	20		8 hand unorthodox passages, unorthodox exchange, 20 loops	
15th(1)	TL74[275]<1154>	15		6 hands unorthodox passages, unorthodox exchange, 15 loops	
13th (4)	TL74[2532]<2434>a	5		2 ridges, 5 loops	
	TL74[2532]<2434>b	5		Unorthodox 5 loops	
14th(2)	BC72[150]<4007/3>	8		Compact round 8 ridges	
	BC72[55]<1787>a	5		Tubular 4 ridges, 2332, 5 loops	
	BC72[55]<1787>b	8		Compact, round braid, 8 ridges, 8 loops	
	BC72[83]<1915>	5?		Tubular 4 ridges, different sizes of ridges	
	BC72[150]<3615>	5?		Tubular 4 ridges, different sizes of ridges	
	BC72[150]<4007/1>	5		Tubular 4 ridges, 2332, 5 loops	
	BC72[150]<4007/2>	5		Tubular 4 ridges, 2332, 5 loops	

Table 1.

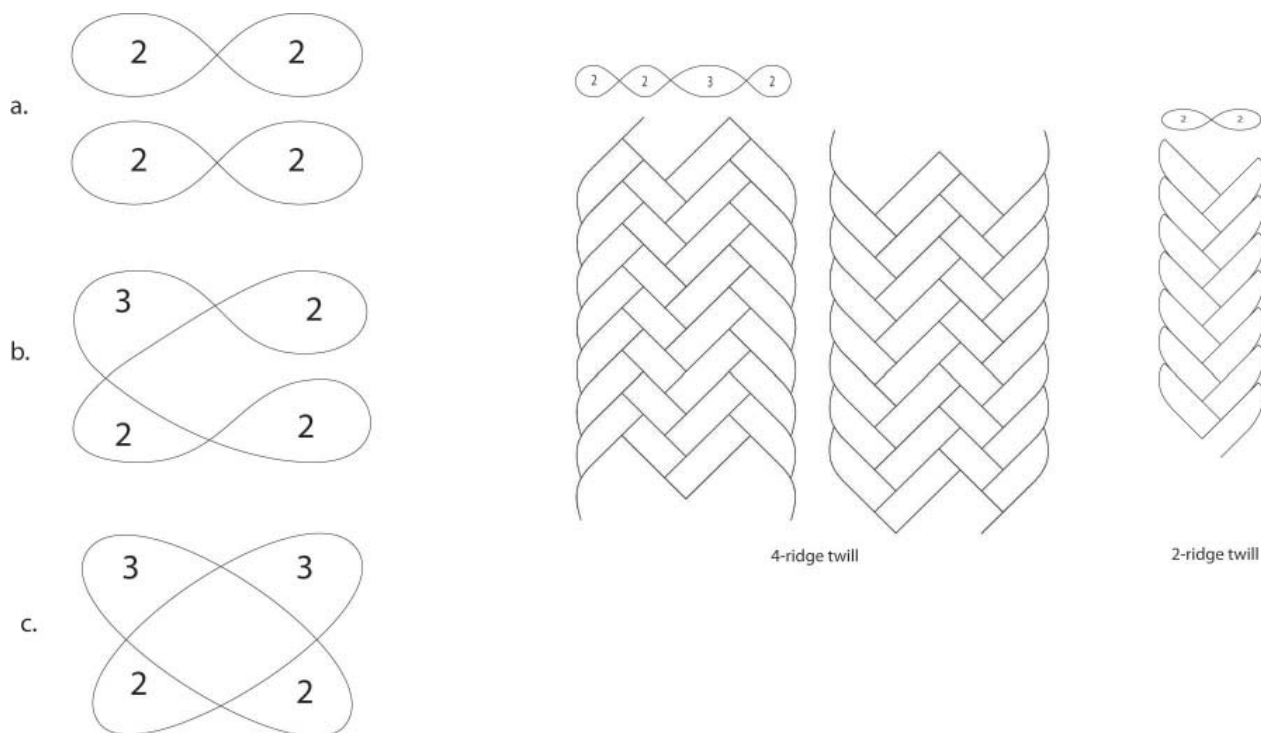


Fig. 1. Left: (a) both hands take the loops open; (b) left hand takes the loop crossed and the right hand the loop open; (c) both hands take the loops crossed. Right: the flat four-ridge braid when structure (b) is unfolded and the two ridge braids produced by (a).



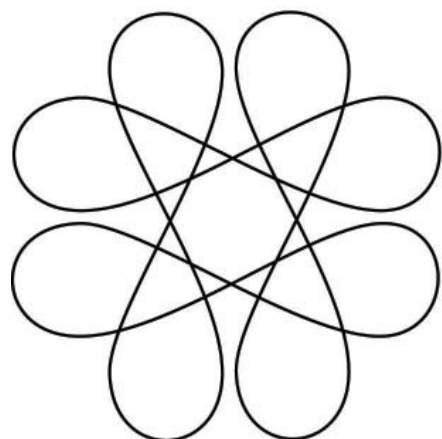
Fig. 2. Flat braid dividing into two two-ridge braids (BC72[55]<1557>, (Museum of London, Department of archaeological collections and archive).

Braids with unorthodox passages

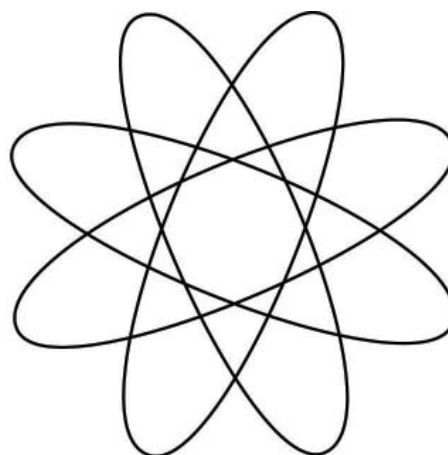
By “unorthodox passages” is meant that some loops are passed over and not penetrated during braiding. The structure is different on the two faces of the braid and this structure is only found in connection with loop braiding. All the braids classified as loop braided by Crowfoot, Pritchard and Staniland (1991) belong to this type. The unorthodox braiding procedure is the most widespread of all loop braiding methods and the most long-lived. In most places where loop braiding is still practiced such as Sweden, Denmark and Iceland, this is the only method known.

There are several braids of this type dividing into two ridge braids at one or at both ends and it is also found as tails on more complex structures (Fig. 5). Braids with unorthodox passages and unorthodox exchange.

These braids are based on the unorthodox structure mentioned above but made by two or more persons cooperating and exchanging loops in a special way. Characteristics of these braids are that the two faces of the braids are different. The obverse looks like a hopsack (panama) structure while the reverse has the look of irregular twill. They are dense and flat



Structure a



Structure b



Fig. 3. Trackplans and photos of the two compact round braids (a) made with open loops and (b) made with crossed loops. The trackplan of (a) shows the characteristic grooves in this structure.

and with shorter floats than braids produced with orthodox exchange. Only recently have these structures been understood through analysis of some early braids on relic purses in church collections of Sion, Switzerland, and Tongeren (Liege) and St. Truiden, Belgium. These braids are made by two, three or four persons co-operating. Each person is handling 5 loops and loops are exchanged between the workers after each braiding cycle. The braids are braided with unorthodox passages and unorthodox exchange of loops between the workers. The expression “unorthodox exchange” means that the two loops involved in the exchange both receive a half twist due to the exchange method. These twists give rise to extra ridges on both faces of the braids and shorten the floats. Braids with orthodox exchange from before 1400 have not yet been found and there are none among the braids investigated here.

Although there are manuscripts with loop braiding instructions dating from the mid-15th century, these structures are not described there and are only found in the Nun’s Book from the 17th century. The details

of procedure and structures are described in detail in “Orthodox and Unorthodox Exchanging of loops in cooperation” (Speiser and Boutrup 2009). The combination of these two unorthodox procedures results in rather complicated structures although the braiding as well as the exchange is very easy and simple to perform (Fig. 6). In other finds from the 13th to 15th century we have found many examples of this unorthodox combination produced by two persons. From later centuries there are also braids made by three and four persons (Speiser and Boutrup 2009, 26-32). The occurrence of not only five two-person braids but also four three-person braids and one four-person braid of this type among the investigated braids is thus remarkable. Several of the above braids have short remains of tails braided with 5 loops and unorthodox passages (Fig. 7).

Suggested applications for braids with tails

Several of the excavated braids are dividing into two tails at one or both ends as can be seen in Table 1. In loop braiding it is easy to split a braid into two braids. When two people are cooperating and the



Fig. 4. Compact round braid with structure a. used as seal string 1590 (Princess Anne of Denmark and Jacob VI of Scotland, Ratification of marriage contract 1590, Danish National Archives).

exchange of loops between the workers is stopped, each will make independent braids. It is just as simple to split the braid into two when just one person is working. If the loops are taken open instead of crossed in orthodox braiding with 5 loops, two separate 2-ridge braids are formed simultaneously, each with 5 elements.

A large number of the well preserved relic purses kept in churches in Switzerland and Belgium have loop braided strings as handle and drawstrings. Not only are the drawstrings and handles loop braided but the seams are often adorned with braids, sometimes with small Turkish knots or beads, and the upper opening reinforced by twined sewing. The latter is often referred to as tablet woven, which indeed is a possibility but the edge could just as well have been made using loops for the twining, as illustrated in a Dutch drawing from the 17th century (Zimmermann 2007, 399) and in a fresco in Florence from 1405 (Museum of Santa Croce, Maria and child, Giovanni Tani Fei).

Several of the purses have the handle dividing into

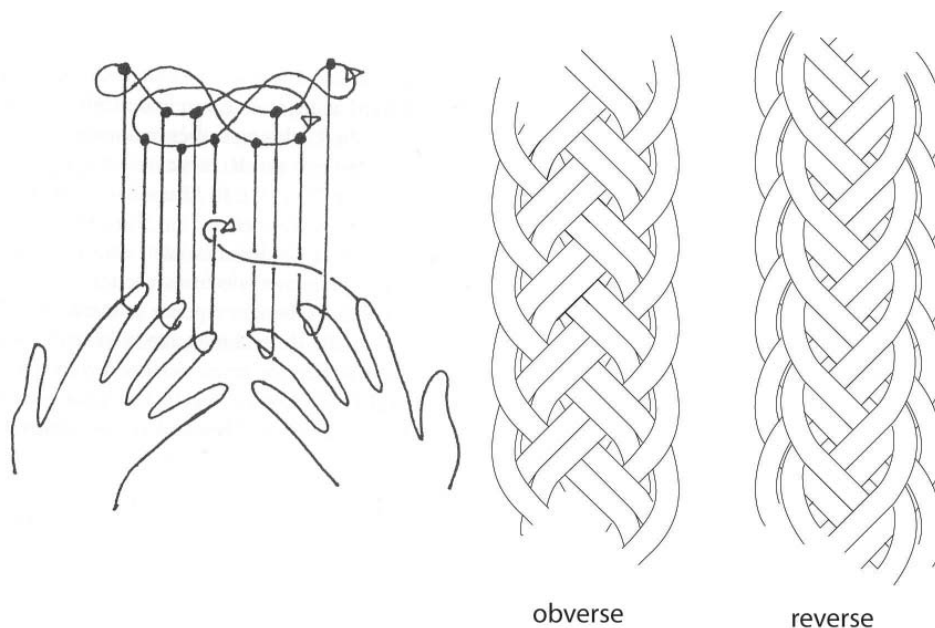


Fig. 5. Trackplan and the two different faces of the structure produced by unorthodox passages. Below a tail on a wider braid where the reverse face of this structure can be seen (Museum of London, Department of archaeological collections and archive).

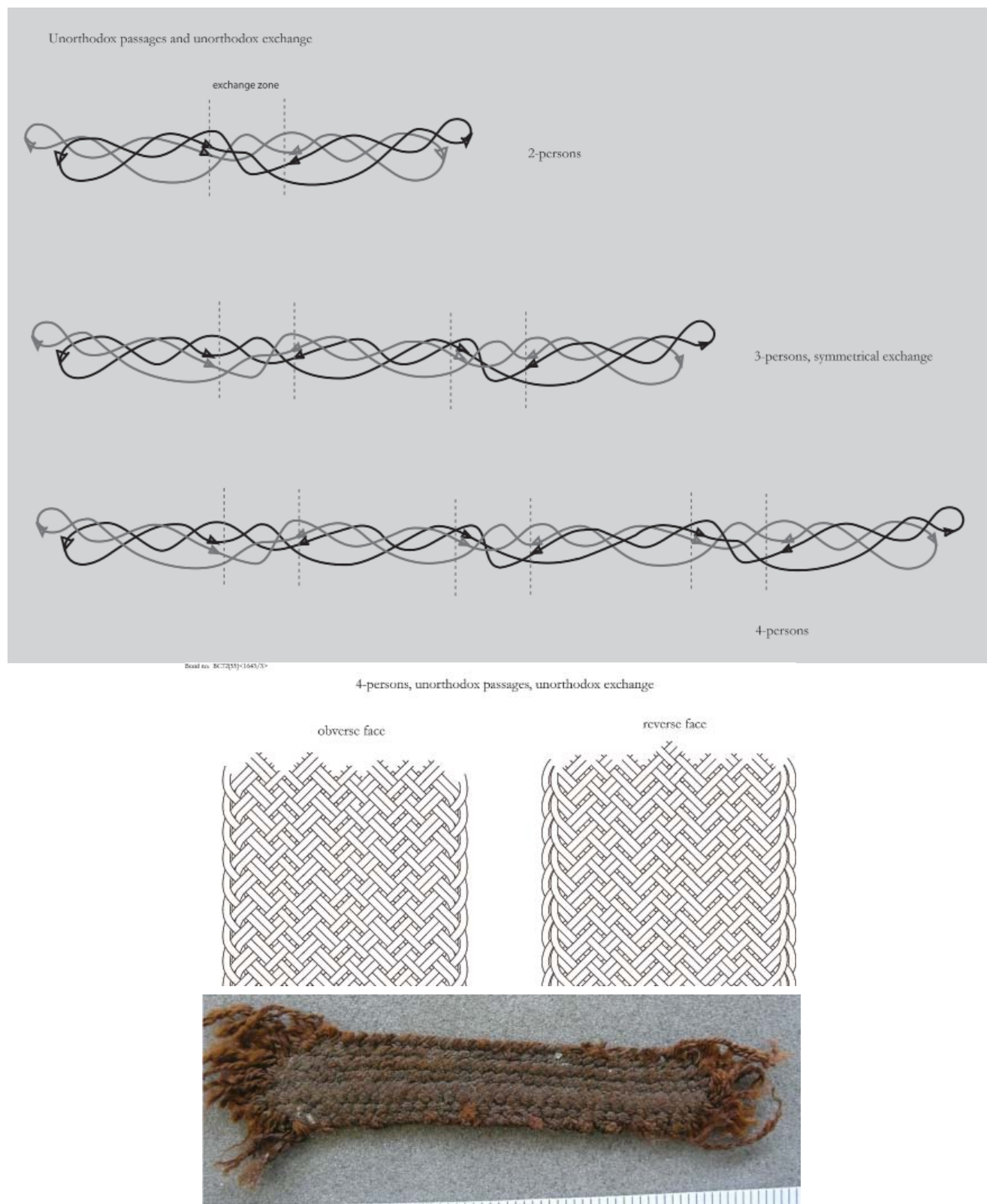


Fig. 6. Trackplans for the structures produced by two, three and four persons cooperating using unorthodox passages and unorthodox exchange. Below are the structural drawings of the two faces of the four-person braid and a photo of the obverse face of (BC72[55]<1659>), Museum of London, Department of archaeological collections and archive).



Fig. 7. Left: 14th-century purse from Tongeren (No. 43) showing the use of braids (Basilica of Tongeren, Belgium). Right: the two faces of a similar braid from the London excavations (Museum of London, Department of archaeological collections and archive).

two at both ends and thus continuing into the draw strings (Schmedding 1978; Sorber 1988). The transition is often covered with a Turkish knot. The purse would thus remain closed when hanging at the belt due to the pull at the handle by the weight of the purse. It is very probable that the excavated braids with remains of tails could have had a similar function. Some tails are not broken but still have the knot or wrapping usually connecting the draw-strings after the passage through holes in the fabrics (Figs. 8-9).

The connection between loop braiding and purses is evident in the dominant occurrence of loop braided strings on relic purses and other purses from the period in question. This connection is further supported by frescoes in the "Haus zur Kunkel" in Constance in Germany (Wunderlich, 1996). The "Haus zur Kunkel" translated into the "House of the Distaff" contains several frescoes. The frescoes are dated to before 1306 and are arranged in series. One series is the "weaver fresco" consisting of 21 scenes of women occupied in textile production, including spinning and weaving, purse making, loop braiding, tablet weaving, tapestry weaving *etc.*, and culminating with scenes of rest after these tasks. Four scenes in sequence show respectively cutting of fabric, purse making, loop braiding and tablet weaving clearly indicating the connection between these tasks (Fig. 10). Each scene has a sentence above in medieval German relating to the work at hand. The sentences are very short and rhymed. In the scene of purse making, the lady is sitting on a bench holding in one hand the purse she is working on while the other hand is reaching out for silk yarns in a basket on a stand.

Two finished purses are shown hanging on top of the stand. The following scene shows two persons, a young girl dressed in red and an older girl or young woman dressed in green. The young girl is holding the braid with her right hand and is beating the fell with the left. The young woman holds the loops and is in the middle of moving a loop from one hand to the other. The already braided part is hanging down on the left side of the red dress of the young girl. This scene was first interpreted as depiction of loop braiding by Frieda Sorber and later identified as really showing loop braiding by Masako Kinoshita and Noémi Speiser (Lmbric newsletter, No.1). Other scholars who have described the scene have been in doubt about the task depicted (Wunderlich 1996, 61-62) and assumed it was some sort of preparation for the tablet weaving shown in the following scene (Fig. 11). Over the loop braiding scene is written the sentence "Drgens sn wir vs nvt schame", the first word lacks two letters and should be "Dringen", which in medieval German means braiding. The connection of this word to loop braiding was later confirmed when it was found in the beginning of an instruction for loop braiding in a 15th century Heidelberg Manuscript (Cod. Pal. Germ 551, University Library Heidelberg, Germany). The later was identified by Ute Bargmann and presented at The Textile Society of America, 2002.

Conclusions

The separation of the braids into loop braided and plaited by Crowfoot, Pritchard and Staniland (1991) should be revised. Most of the braids with unorthodox features and all with tails were classified



Fig. 8. Braids with tails and the original knots (BC72[55]<1557> and TL73[2332]<2434> Museum of London, Department of archaeological collections and archive.

as loop braided by them and this corresponds exactly with the detailed analysis. The orthodox structures, though found in the other classification, are with very few exceptions probably also made by loop braiding. There are several features which support a general use of loop braiding:

- The delicate and thin silk strands make handling of free ends difficult.
- The division into two braids as well as the number of elements in the braids is consistent with loop braiding although some of them also could have been made by free end braiding.
- The many braids with unorthodox structures are further a clear indication of loop braiding as the production method. This structure only can be comfortably produced with loops.
- The finds of wide, flat braids made by two, three or four persons in the special structure produced by unorthodox passages and unorthodox exchange of loops correspond with braids found on contemporary relic purses.

The many braids with tails, some even with the tails knotted together make it probable that these braids were used as purse strings where the handle and the drawstrings are connected. Handles continuing into the drawstrings are found on many contemporary purses in different church collections.

There are no braids with orthodox exchange of loops. The method of orthodox exchange is explained in

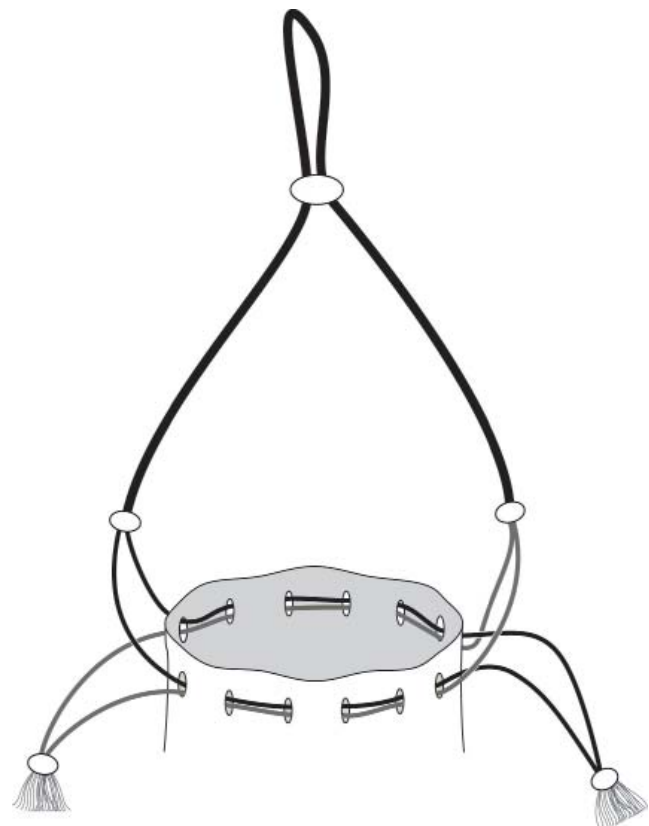


Fig. 9. Schematic drawing of the usual arrangement of handle and drawstrings on medieval purses.



Fig. 10. Left: a 14th-century relic purse from Turnhout, (Begijn Museum, Turnhout). Right: a 12-13th-century purse from Tongeren (No. 24), (Basilica of Tongeren, Belgium).

detail in the manuscripts from the first half of the 15th century. We have so far found no braids with orthodox exchange which with certainty are dated to before 1400. The frescos from Constance further confirm the medieval connection between loop braiding and purse making as the scene of purse making is followed directly by loop braiding.

Braids have been an important part of medieval and renaissance textiles but are often neglected in descriptions and analyses of garments, purses and decora-

tive embroideries. The studies of braids on purses and other items during the last years have brought new insight into the methods used in the workshops of the purse maker guilds. Loop braiding has for a long time been thought to be just one out of many possible methods of braiding, while recent investigations of the written evidence and extant braids including the braids from the London excavations demonstrate that it probably has been the prevalent braiding method at the time. The remaining



Fig. 11. Two scenes from "The Weaver Fresco c. 1300. To the left the purse maker and to the right a girl and a young woman loop braiding (Haus zur Kunkel, Stadt Konstanz, Baden Württemberg, Germany).



half of the braids described by Crowfoot, Pritchard and Staniland (1991) together with other finds from the 13th and 14th centuries will have to be analysed in order to get an overall picture of the applied methods.

Glossary

Loop braiding is a technique for braiding where the yarns are formed two and two into loops during braiding. In this way, many strands can be kept under tension and in order on the fingers.

Orthodox braiding is the standard method in loop braiding where all loops on the way are penetrated by the moving loop.

Unorthodox passages are braiding methods where one or more loops are passed over during the move.

Exchange of loops between braiders can be either orthodox, where the loops keep their direction or unorthodox where both loops receive a half twist after the exchange due to the method.

Trackplan is a projection of the track which each thread is following in the braid, a method of rendering structural features of braids

Bibliography

Boutrup, J., and Speiser, N. (2004) *Braids on relic purses in Sion, Switzerland*, Newsletter No. 7, www.lmbric.net

Boutrup, J. (2008) *Braids on a sealed document from 1590*. Strands.

Crowfoot, E., Pritchard, F., and Staniland, K. (1991/2001) *Textiles and Clothing c. 1150-c. 1450*. London.

Johansen, K., and Boutrup, J. (2003) *Danish Loop Manipulated Braids ca. 1630*, Newsletter No. 6, www.lmbric.net

Kinoshita, Masako & Speiser, N. (2002), www.lmbric.net, Newsletter No. 1.

Schmedding, B (1978) *Mittelalterliche Textilien in Kirchen und Klöstern der Schweiz*, Abegg Stiftung. Bern.

Sorber, F. (1988) *Randverschijnselen, Kwasten en Korden*. In O.-L. Vrouw Geboorte, Tongeren Basiliek, 89-99. Leuven.

Speiser, N. (2000) *Old English Pattern Books for Loop Braiding*. Self published.

Speiser, N., and Boutrup, J. (2009) *European Loop Braiding, investigations and results*, Volume I, Edited and published by Jenny Parry, supported by The Abegg Foundation

Wunderlich, W. (1996) *Weibsbilder al Fresco*. Konstanz.

Zimmermann, H. (2007) *Textiel in context, Én analyse van archeologische textielvondsten uit Groningen*. Groningen.

Original documents

"*The Nun's Book*", 2008.67.1, Pitt Rivers Museum, University of Oxford.

"*Harley Manuscript*", MS Harley 2320 (15th. Century), British Library. Transcription by E.G. Stanley: "Directions for making many sorts of Laces" Chaucer and middle English Studies, London 1974.

"*Tollemache Manuscript*": The Book of Secrets (15th. century), Tollemache Family, Transcription by Prof. J Griffiths, Facsimile publication by Roxburgh Club of Antiques, 1997.