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Two knitted mittens from a 17th century Dutch shipwreck

Abstract

Two knitted mittens (but not likely a pair) were found in the same shipwreck, known as Burgzand Noord 8, in the Dutch Wadden Sea off the island of Texel. They were knitted round, narrowing at the wrist and tips of the thumbs. One of the mittens was dyed blue according to chromatographic analysis. Both show traces of wear and spots of tar, which indicate they were used on board. Coins corroded on to the blue mitten indicate that it was close to money in the officers' quarters where it was found at the time of the wreck. The wool mittens were with other wool clothing, which suggests that the ship was lost in winter, while other finds pinpoint it to an infamous December storm of 1660. These mittens are two rare examples of knitted garments in the Netherlands, where gloves and mittens made from cloth seem to have been more usual.

Keywords: Mittens, knitting, clothing, maritime archaeology, Wadden Sea

Introduction

There is a long tradition of warm, wool, knitted mittens in the northern, colder parts of Europe. In Scandinavia, most of the excavated Medieval and Early Modern mittens and gloves are knitted, often with ornamentation, sometimes with fringes or in a range of colours. In the Netherlands, find contexts are often and famously favourable for the preservation of textiles (and other organic materials) due to the high water table. But surprisingly few of the excavated mittens are knitted, and they are of a very simple construction. This article focuses on two knitted mittens from a shipwreck in the Wadden Sea, lost near the island of Texel in the third quarter of the 17th century.

Mitten A

The two knitted mittens come from the same shipwreck. They are not likely to have been made as a pair (see gauges) although they may have been worn together. Mitten A (Willemsen 2015b: catalogue number H017) is for a right hand (figs 1 and 2). It is now in storage at the Cultural Heritage Agency, Maritime Archaeology (now in the Nieuw Land Erfgoed-building) at

Lelystad, The Netherlands, inventory number BZN8-220. It is 23.5 cm in length. The mitten could only be measured lying flat; the 2-ply yarn is approximately 1 mm in diameter and is lightly S-twisted. The gauge of the mitten is 42 to 43 wales per 10 cm and about 50 courses per 10 cm. The width at the cast-on edge of the mitten is 12 cm and the width over the palm of the hand is 11.5 cm, making a circumference of 23 cm to 24 cm. These dimensions suggest it was made for a man: modern fitted leather gloves for women are less than 9 cm wide, whereas for men their widths ranges from 10 cm to 12 cm (Willemsen 2015b: 82).

Mitten A is simple knit fabric, from a single yarn, starting at the cuff, which appears to have a cast-on edge; that is, the edge shows the half-loops typical of common casting on, not the rotated complete loops left by the usual method of casting off. It was knitted in the round, which is indicated by the lack of a sewn seam. At the top, the mitten rounds off over the fingers by means of decreases placed approximately over the index finger, on the side of the palm (not the back of the hand). The decreases are on either side of a band of five wales; every two courses, one wale on the right and one wale on the left vanish "under" this



band (fig. 3). A more usual way would be placing the decreases symmetrically on the folds of the mitten, as was done on the thumb of this one. There is a slight narrowing of the mitten at about 6 cm above the cuff edge. Three decreases are found between the cuff edge and the wrist; only two increases have been detected between the wrist and the thumb. The exact method of decreasing and increasing could not be established. The cuff edge is slightly rolled up into a tube with a diameter of 0.8 cm. The mitten is 0.5 cm thick with the back and palm measured together; the fabric thickness is about half that.

The thumb is 6 cm long, 4 cm wide at the base (32 wales), and starts 11 cm above the cuff edge. Half the

wales are continuous from the wrist up the thumb to the tip (the “outside”, visible in the figure). On the other side (towards the palm), there is a discontinuity, which corresponds to a common method of adding a thumb when knitting in the round. In the course corresponding to the base of the thumb, one diverts a few stitches from the course one is knitting onto a spare knitting needle or a piece of yarn, and replaces them with newly cast-on stitches, then knits on in the round as if nothing had happened, simply leaving behind a short slit. To start the thumb, half the stitches are the ones previously set aside, and the other half are picked up from the cast-on replacement stitches; knitted in the round, they grow into a tubular thumb



Fig. 1: Upper side of Mitten A from wreck Burgzand Noord 8, off Texel, The Netherlands, dating to shortly before 1660 AD (Image: Cultural Heritage Agency, Lelystad, inventory number BZN8-220)



Fig. 2: Underside of Mitten A from wreck Burgzand Noord 8, off Texel, The Netherlands, dating to shortly before 1660 AD (Image: Cultural Heritage Agency, Lelystad, inventory number BZN8-220)



Fig. 3: Detail of Mitten A (Cultural Heritage Agency, Lelystad, inventory number BZN8-220) showing the shaping by decreasing the number of wales towards the fingertips end (Image: Annemieke Willemsen)

rising from the preparatory slit. This tube is flattened by the decreases that shape the thumb-tip. These decreases are symmetrically placed on either side of the “fold” of the flattened tube. They are achieved by knitting together each third and fourth loop, counted from the fold; in knitters’ terms, one course is: knit two, knit two together, knit the rest until there are four loops before the fold, then knit two together and knit two, for one face of the thumb, then repeat with the other half of the stitches for the other face of the thumb (see fig. 3). The mitten’s surface seems to be intentionally abraded at the back of the hand where there are traces of tar too. There is damage where the thumb is attached on the inside.

Mitten B

Mitten B (Willemsen 2015b, catalogue number H015) is for a man’s left hand (figs 4 and 5). It is now kept in the stores of the National Museum of Antiquities at Leiden (RMO), inventory number g 2017/9.1. This mitten was donated to the museum by its finder, Hans Eelman, in 2017, together with some other textile fragments from



Fig. 4: Upper side of Mitten B from wreck Burgzand Noord 8, off Texel, The Netherlands, dating to shortly before 1660 AD (Image: National Museum of Antiquities, Leiden, inventory number g 2017/9.1)

this wreck, including a knitted stocking. It is 21.5 cm long, but some of the top of the hand and most of the thumb are now missing. This mitten was also measured lying flat; the diameter of the yarn was measured at 1 mm to 1.2 mm and it is lightly S-spun with a light Z-ply. The gauge of the mitten is 35 wales per 10 cm and 55 courses per 10 cm. The width over the wrist is 12 cm; the maximum width over the palm of the hand is 12.5 cm, making a circumference of 24 cm to 25 cm. These dimensions suggest it was made for a man. It is 0.6 cm thick with the back and palm measured together; the fabric thickness is about 0.3 cm.

Mitten B was knitted with one element (a plied yarn) in simple knit fabric, starting at the wrist and working towards the fingertips, and knitted round. The cast-on edge (fig. 6) is slightly rolled up and seems to be what is known today as a “purl cable cast-on” (Hemmons Hiatt 2012, 67, bottom right), probably using a double thread just for the edge.

There is a slight narrowing of the mitten at about 7 cm from the cast-on edge. The decreases achieving this shaping are symmetrical, on the back and palm of the



Fig. 5: Under side of Mitten B from wreck Burgzand Noord 8, off Texel, The Netherlands, dating to shortly before 1660 AD (Image: National Museum of Antiquities, Leiden, inventory number g 2017/9.1)

mitten, on both the left and the right sides. They were made five times after four courses; the method used is 'slip slip knit left decrease' Hemmons Hiatt 2012, 216-7) and 'knit two together right decrease' (Hemmons



Fig. 6: Cast-on edge on Mitten B showing evidence that the item was knitted from the cuff towards the fingertips. National Museum of Antiquities, Leiden, inventory number g 2017/9.1 (Image: Chrystel Brandenburg)

Hiatt 2012, 217). This is visible in the fabric where two loops in the same course have been knitted together from the same direction: either from the right or from the left. The new loops made by these methods lean in opposite directions.

Increases were made symmetrically five times after four courses on the back and palm, on both the left and right (fig. 7). The method used is 'knit right raised increase' (Hemmons Hiatt 2012, 209) on the right side of the mitten; on the left side it could not be determined. The thumb is now almost separated from the mitten, hanging on by two loops, which makes it difficult to see how it was started.

Mitten B has a lightly matted surface, either from fulling when it was made or through use. On the upper side is a circular piece of corroded metal, now stuck to the mitten but not originally part of it (see fig. 4). Two smaller fragments of similar metal are on the inner side, where there are also black spots, possibly from tar.

Colour

A sample was taken from the Mitten B on 21 September 2015, which was analysed using ultra-high-performance liquid chromatography (UHPLC) by Ineke Joosten (Cultural Heritage Service) in 2016. In the sample, indigotin and isatin were identified, which point to an indigoid blue dye plant. It is not possible to distinguish between woad (*Isatis tinctoria*) and indigo (*Indigofera tinctoria*) with this chemical analysis. Indigo was introduced into Europe in the course of the 16th century and had completely replaced woad by the beginning of the 17th century. Because the mitten is dated to the third quarter of the 17th century, indigo seems the most likely dye plant.



Fig 7: Detail of Mitten B showing the shaping by increasing the number of wales on the right side (Image: National Museum of Antiquities, Leiden, inventory number g 2017/9.1)

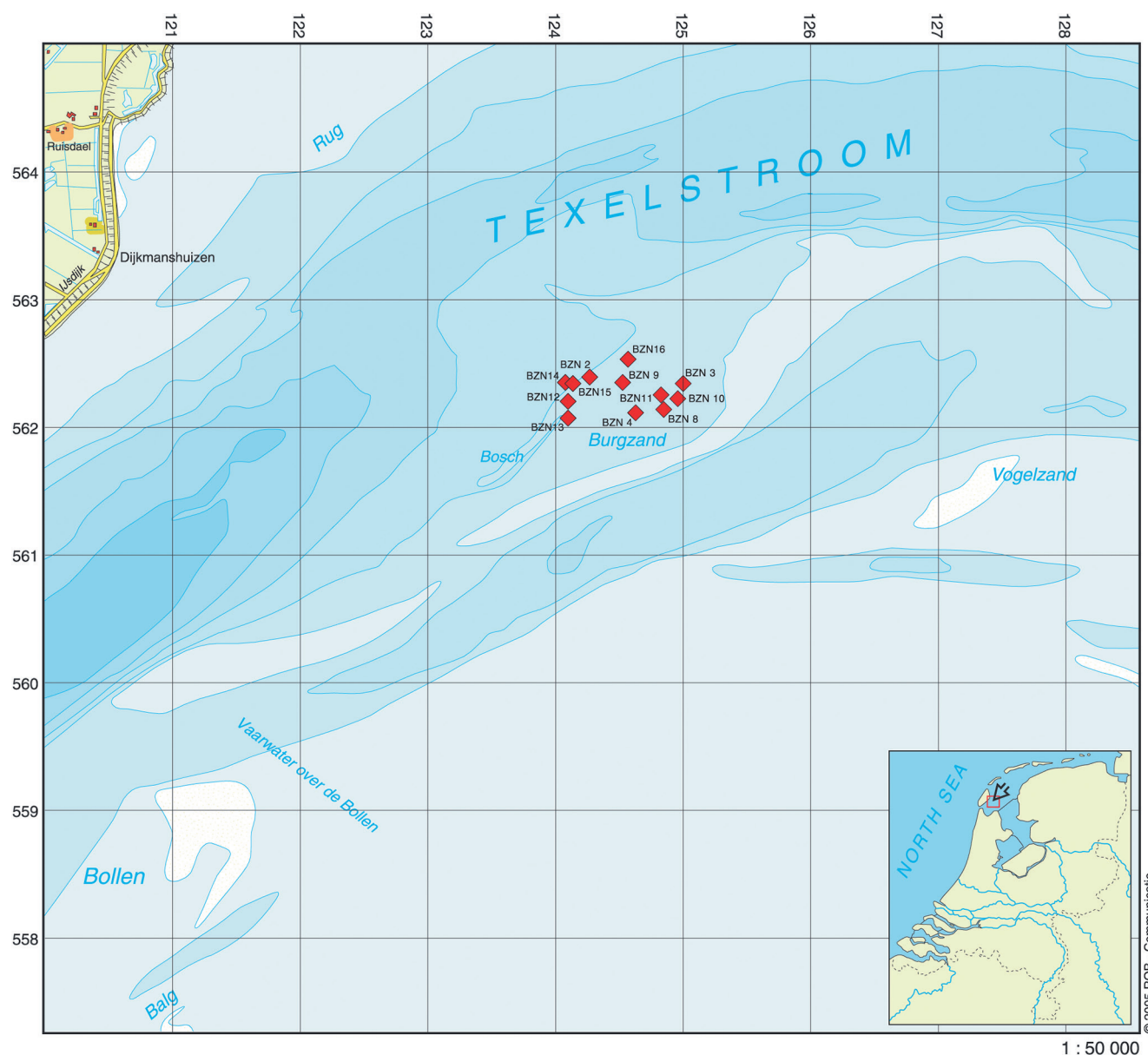


Fig. 8: The wreck location at Burgzand Noord by the island of Texel (Image © Arent Vos)

Analyses with a scanning electron microscope with x-ray microanalysis (SEM-EDX) show that typical elements from a marine environment such as salt and pyrite are on the fibres of this mitten. The presence of copper sulphite indicates that the fabric sample was close to copper-based metal (Joosten 2017). This might be from the metal stuck to the mitten, which was manually tested and found not to be magnetic. Both Hans Eelman and Arent Vos, experienced Texel wreck divers, mentioned that this is the way coins, especially silver ones, commonly corrode on to textiles in wrecks. This means that the mittens may have been

in the same location (such as a chest, a cupboard, a bag or a pocket) on the wreck when it sank. Mitten A (Cultural Heritage Agency), inventory number BZN8-220) has not yet been analysed for dye traces.

The mittens are of a similar size, and both narrow at the wrist. In addition, the find locations make it possible that these two mittens were originally worn together. However, the variations in the gauge and the characteristics of the knitted fabrics make it unlikely they were knitted as a pair.

Mittens on board

The shipwreck, called Burgzand Noord 8 (BZN 8) after its find location, was found by Texel diver Hans Eelman in 1997. It is one of ten wrecks identified



from hundreds of ships that are known to have been wrecked at this spot, called the Reede van Texel. It is an infamous ridge in front of the Wadden Sea where ships had to wait for favourable winds to sail into Dutch harbours further south (fig. 8). Eelman reported the wreck and recovered some loose items from the site, including Mitten B (inventory number g 2017/9.1) and two knitted stockings with decorative stitching; the latter are still in his personal possession.

Following Eelman's report, the archaeological diving unit (now closed) of the Cultural Heritage Service inspected the site in 1998 and concluded that it was under threat due to continuous sand erosion. A limited underwater excavation was carried out in 2002, which revealed a medium-sized ship of non-Dutch build with cargo including a bronze bell that was cast, signed and dated by the famous Hemony brothers in 1658. Among the more than 300 personal items of the ship's officers in the collapsed aft-deck was Mitten A (inventory number BZN8-220), and a left-handed leather mitten with a needlebound inner mitten (fig. 9; Cultural Heritage Agency, Lelystad, inventory number

BZN8-219; Willemsen 2015b, catalogue numbers H054 and H016). In 2003, the wreck was covered with gauze to let sand flush in and keep it there to slowly cover the wreck. A monitoring dive in 2016 showed the wreck still safely covered.

The wreck must date later than 1658, but not much after that, because of the presence of the bell and some other items inscribed 1657 or 1658. This means that BZN8 may be one of 100 or so ships that were lost off the coast of Texel in a ferocious overnight storm from 18 to 19 December 1660. The wool clothing, a protection against the cold but very rare on wrecks of seagoing ships in the Netherlands, is suggestive of a winter date for the wreck (Vos 2012, 193-217). The lining of the leather mitten is thus far the only securely identified needlebound item of the Early Modern era in the Netherlands, and it is possible (although impossible to prove) that it belonged to a crew member from Scandinavia, where needlebound mittens are common, rather than to a Dutchman.

It is not surprising that people took their warm mittens to sea. There are a few other wool mittens recovered



Fig. 9: Leather mitten with needle-bound inner mitten from wreck Burgzand Noord 8, off Texel, The Netherlands dating to shortly before 1660 AD (Image: Cultural Heritage Agency, Lelystad, inventory number BZN8-219)



Fig. 10: Knitted mitten from a waste assemblage at Prinsenstraat, Groningen dated 1500 to 1600 (Image: Stichting Monument & Materiaal Groningen, inventory number 15T15)

from Dutch shipwrecks (Willemsen 2015b, catalogue numbers H014 and H018). Four are known from the Dutch whaling station on Svalbard or Spitsbergen (Willemsen 2015b, 57). But these are all mittens cut and sewn from wool cloth, as are the majority of excavated mittens from the Netherlands. The wreck BZN 8 is the only one to have both knitted mittens and a needlebound mitten. There are at least another 12 woven wool mittens from the Netherlands (Willemsen 2015a, 4-8), in some of which traces of red or yellow dye were found (Joosten 2017). There is one other excavated knitted mitten, from Groningen (inventory number 15T15), for a man's left hand (28 cm high × 15 cm wide with an estimated circumference of 30 cm) and dated 1500 to 1600 (fig. 10). The same find assemblage also contained four knitted gloves, one of which must have been coloured red, and some with decorative stitching (Zimmerman 2007). Finally, two fragments of a possible knitted mitten were excavated from the metro track at Amsterdam, dated 1450 to 1600 (Willemsen 2015b, catalogue number H004). An extensive review of the archaeological record for mittens in the Netherlands (Willemsen 2015b) indicates that needlebinding was probably never used for mittens in the Netherlands.

Conclusion

Two knitted mittens, found in the same shipwreck (BZN 8) in the Dutch Wadden Sea near the island of Texel in 1997 and 2002, were probably not a pair. They do have similar dimensions, and one is for a right hand and the other for a left, but both the gauge of the knitted fabric and the techniques used for shaping by increasing and decreasing are different. At least one of the mittens was originally blue in colour (RMO, inventory number g 2017/9.1).

Both mittens were worn and used on the ship, as they show traces of wear and have spots of tar, which dripped on to them. The metal, which is likely a coin, corroded on to the blue mitten, indicates that at the time of wreck, the mitten was in contact with money. Their find location places them in the officers' quarters on the aft deck. With the other pieces of wool clothing recovered from this wreck, they are consistent with the idea that the ship went down in the winter season. That is also indicated by the possible dating of the loss of this ship to the December storm of 1660, based on dated items in the cargo. This dates the knitted mittens to shortly before 1660 AD. They remain two rare examples of knitted hand garments in the Netherlands, where



making mittens from cloth seems to have been more common.

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