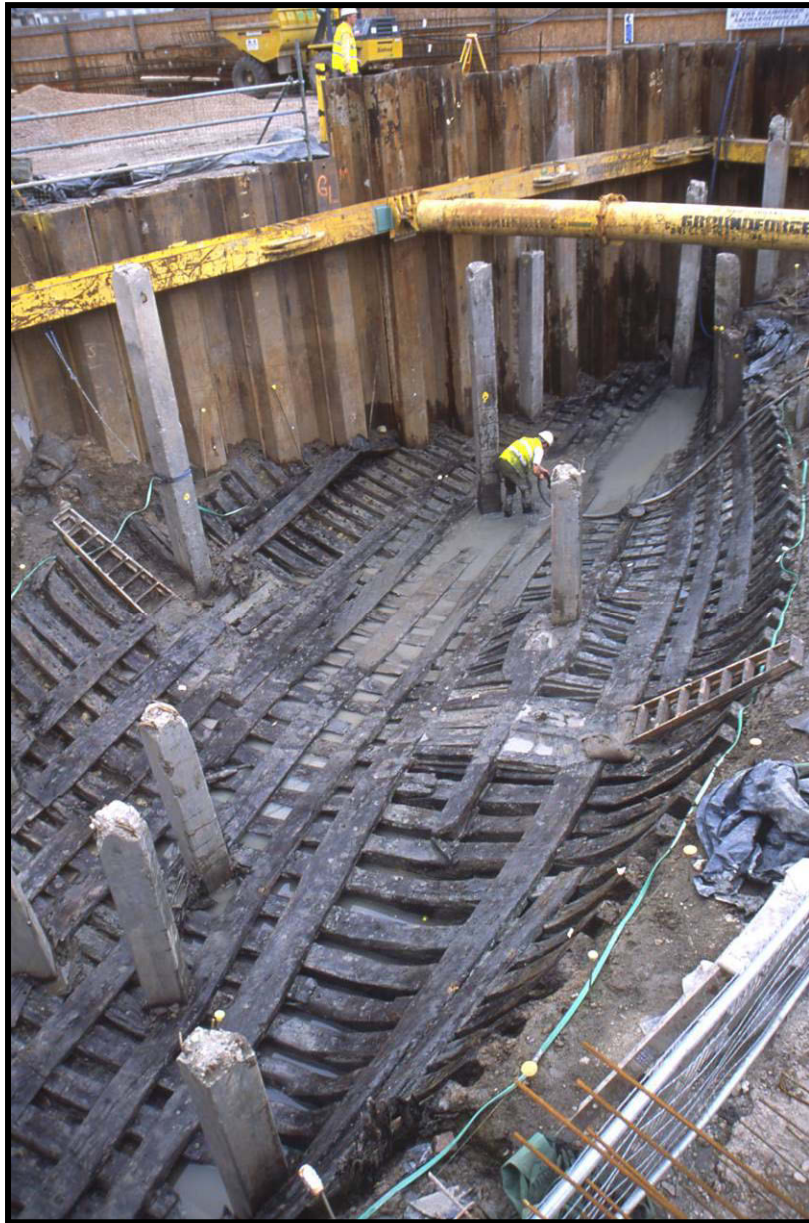


# Newport Medieval Ship Project

## Specialist Report:

# LEATHER



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by Quita Mould, 2012
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The Newport Medieval Ship Project would like to acknowledge the generous financial support provided by a Salaman Award Grant from the Tools and Trades Historical Society (Registered Charity No 290474), which enabled the detailed analysis, conservation and illustration of the numerous leather artefacts discovered during the ship excavation.

Note: All archaeological illustrations are by Anne Leaver, with some information provided by Quita Mould.

# **The Newport Ship Project**

## **Introduction**

In 2002, during the construction of the Riverfront Theatre, on the banks of the River Usk in Newport, South Wales, an archaeological find of great significance was unearthed. In the summer of that year, while undertaking the excavations for the theatre's orchestra pit, the well-preserved remains of a 15th century clinker built merchant vessel were discovered.

The site, which was surrounded by a cofferdam, was being monitored by the Glamorgan Gwent Archaeological Trust at the time of discovery. The ship lay in what is locally known as a pill or small inlet, with its stern closest to the river and its bow facing into the inlet. The timbers were covered in thick alluvial mud, which created an ideal anaerobic environment for successful preservation. Seventeen strakes of planking remained on the port side and thirty-five on the starboard side of the ship. The vessel was approximately 30m in length.

A silver French coin was found purposely inserted into the keel of the vessel, dating the ship to after May 1447. Dendrochronological research has shown the hull planking to be from the Basque country and after 1449 in date.

After a much publicised 'Save Our Ship' campaign, it was decided that the ship would not be recorded and discarded but excavated with the aim to conserve. The riders, stringers, braces, mast step, frames and overlapping clinker planks and keel were dismantled one by one and lifted. Almost 2000 ship components as well as hundreds of artefacts were excavated.

This report examines and lists the leather artefacts recovered during the Newport Medieval Ship excavation.

## **The leather from the Newport medieval ship**

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### **Acknowledgements**

Quita Mould's text has benefited immeasurably from discussion with Marquita Volken regarding the high-throated slip-on shoes and the manufacture and subsequent cutting down and recycling of tall legged boots.

### **Methodology**

The leather was initially examined at the Newport Ship Project premises in February 2008 and a written assessment submitted in March of that year. While the majority of the leather had been conserved, a small number of finds remained in the condition in which they were excavated; these were subjected to a small amount of preliminary cleaning by the Project's artefacts conservator allowing an initial identification to be made. Three items were not seen as they were on display to the public elsewhere and a further three could not be located at that time. Subsequently, all the material was fully examined and catalogued in May and June 2012. The majority had been freeze-dried; a small number were suffering from excessive moisture on the surface and these are noted where appropriate. Three items (MSG012, MSG552 and MSG879) had not been conserved and were wet when examined at the project's premises on 25<sup>th</sup> June 2012.

A basic record of the leather in the form of an Excel Worksheet accompanies this report for inclusion in the site archive. The entries are in context order. The leather finds have been subjected to several differing numbering systems: a small finds number, a Cardiff University number, a Lab. number and finally a MSG number. Currently all the leather has an MSG number serving as its unique identifying number and may have any, all, or none of the others. All the numbers from each system have been included on the basic record. The MSG numbering system is used in the text.

All measurements are in millimetres (mm) and are taken from the conserved material unless stated otherwise. No allowance has been made for shrinkage. Leather species were identified by hair follicle pattern using a low-powered magnification. Where the grain surface of the leather was heavily worn identification was not always possible. The grain pattern of sheep and goat skins are difficult to distinguish and have been grouped together as sheep/goat when the distinction could not be made. Similarly, the term bovine has been used when uncertainly arose between mature cattle hide and immature calfskin. Shoe bottom components and repairs are assumed to be of cattle hide unless stated otherwise.

The drawing conventions and terms used in the text are those commonly employed in the relevant literature and the constructions and seams are fully described elsewhere (Grew and de Neergaard 1988:44-51; O. Goubitz, van Driel-Murray and Groenman-van Waateringe 2001:35-8; Evans and Mould 2005:59-63). The term scrap has been used in the basic record to describe fragments of leather with all edges torn and no diagnostic features present.



Illustrated items are accompanied by a full catalogue description at the end of the relevant section of text and are indicated in the text by their published catalogue number in bold followed by their MSG number and an asterisk (**MSG\***).

## Introduction

An interesting group of leatherwork was recovered from the excavations coming from fourteen contexts (76 items) and also found unstratified (4 items). The largest amount of leather, over 37%, came from context 128, an extensive deposit of dark brown/black silty clay containing many woodchips thought likely to relate to the damage or salvage of the ship. A further 24% came from context 130, a natural accumulation of mid blue/grey clay that lay directly beneath. This natural alluvium deposit (context 130) contained items apparently within on the ship. Two items derived from context 152 found lying directly on the inside of the hull planks and which may represent possible residues accumulated in the bilges, or any 'in wash' prior to the accumulation of the alluvium directly above (context 130). The remainder, 39%, came from natural accumulations of alluvium within the vessel (context 121), or dump deposits (contexts 129, 1001) or other alluvial accumulations in and around the vessel (1002, 1021) after the ship was abandoned. While the vast majority of the leatherwork recovered related to the ship and/or local activity shortly after its abandonment, a small number of items clearly did not. A wooden sole from a clog was found unstratified early on in the excavations (July 2002) and does not relate to the ship or activity regarding its salvage. In addition, two items came from Test Trench 6 (context 2027) not directly associated with the ship: a narrow strap, likely to be a handle (**MSG204**), and a cut down seam (**MSG201**).

## Ships equipment

### Pump components

The elm pump 1682 [associated with pump base 3114] located toward the stern at frame station 58 contained a fragmentary burr valve (upper valve) (**2 MSG1287\***) and a leather hinge (flapper) from the lower valve (**4 MSG1292\***). Two other pump components (**1 MSG879\***, **5 MSG012\***) were found separately on the ship. A further number of leather items recovered might conceivably be broken from burr pump parts but now lack any diagnostic features that would allow a positive identification. Four leather washers were found that may also be pump components.

#### *Burr valves (upper valves)*

A complete upper valve of leather (**1 MSG879\* photo**) still attached to the wooden spear (pump rod) of common ash wood (*Fraxinus excelsior* L.), the central rod-like handle by which the valve was moved up and down, was found in just aft of Frame 15\_2 above plank S12\_3 in context 130: unfortunately it was not closely associated with any of the lower valve (foot valve) parts recovered though a valve claque, from a lower valve (**5 MSG012\***) was recovered from the same context (130) between F33-38 on the starboard side. This complete upper valve (**1 MSG879\***) is an important find confirming that the burr pump mechanism was in use in the fifteenth century as suspected by Oertling (1996:16) and being potentially a hundred years earlier than other examples known to date. While the mechanism of the burr pump and the components have been fully described elsewhere (Oertling 1996: 16-21 and figure 3) in view of the importance of the find the complete burr valve is

described in detail here. The dimensions of the individual components are summarised in Table Leather 1 and a schematic diagram of its construction provided (Figure Leather 1). The valve was examined wet and, as the 'sleeves' were still attached to the spear, measurements are approximate but have the advantage that it is unlikely that they have experienced any shrinkage. The leather valve comprised a conical inner and outer sleeve of cattle hide, each made from a single tapering panel joined by a single, vertical, butted edge/grain seam. The seams had been made more watertight by the insertion of a leather rand, known as a bead; the inner sleeve had a rectangular-sectioned bead while the outer sleeve had a folded bead of U-shaped section. The outer sleeve was nailed to the end of the spear with two rows of round headed iron nails spaced c. 28mm (1 inch) apart, the shorter inner sleeve, positioned 15mm above the end of the spear, was attached by the upper row of nailing only. This attachment point appears to have been further strengthened by cord as the impression of four loops of cord was visible on the outer sleeve running along the upper line of nailing. The mouth (upper opening) of the outer sleeve was attached to the wooden spear by four straps 25mm wide each sewn to the top of the sleeve at their lower ends and nailed to the spear at the other. The position of thread impressions indicated that the flesh side of the straps had been sewn to the flesh side (interior) of the outer sleeve. The grain/flesh stitching was sunk into a stitching channel on the outer face of the sleeve so protecting the thread from rubbing against the inner face of the wooden pump chamber (tube) in use. These straps, with a single nail at the upper end and a double row of grain/flesh stitching at the other, are distinctive and have been used to identify the presence of a burr valve elsewhere, see below. The inner sleeve had been slashed open from the top edge running vertically down to the nailing following the line of the seam of the outer sleeve. This is a secondary feature and may possibly have been cut in order to remove a foreign body fouling the valve; it is not part of the original construction.

Component	Length	Width max.	Thickness	Stitch type	St length
Outer sleeve	210mm	140mm (mouth)	2.09mm	Edge/grain seam	8mm
Inner sleeve	167mm		4.86mm (del.)	Edge/grain seam	8mm
Flat bead		5mm	3mm	Grain/flesh	8mm
Folded bead		8mm	2.09mm	Grain/flesh	8mm
Strap	289mm	25mm	3.79mm	Grain/flesh 2 rows 7 st	
Strap	250mm	25mm	5.57mm	Grain/flesh 2 rows 8 st	
Strap	279mm	25mm	4.46mm	Grain/flesh 2 rows 8 st	
Strap	293mm	25mm	4.29mm	Grain/flesh 2 rows 10 st	

Table Leather 1: Components of complete burr valve (1 MSG879\*) from the Newport ship (St. =stitch/es: del.= delaminating)

The remains of a second burr valve (**2 MSG1287\***) were found within pump 1682 and associated with pump base 3114, located at frame station 58. The fragmentary burr valve comprised pieces of nailed panel that had been broken from the outer sleeve, pieces broken from the outer or inner sleeve, along with a flat bead from within the seam and broken straps of characteristic type nailed at one end and stitched at the other. The straps had the impression made by wound thick thread or cord at their nailed ends indicating that the nailing attaching them to the central wooden spear had been further strengthened by tightly wrapping cord around it; a feature noted on later examples (Oertling 1996:17 figure 3). Though highly fragmentary this burr valve appears to have differed slightly from the complete example (**1 MSG879\***) described previously. The sleeves and straps were

of thinner leather, being of calfskin around 2mm thick. While the nailed outer sleeve appears to have been of similar construction the presence of a curving moulded seam some 16mm in diameter with remains of a butted vertical seam to either side suggests that the inner sleeve was made of two matching panels and was stitched at the lower end to the outer sleeve. The attributes of the principal pieces recovered are given in table Leather 2 for comparison with those of the complete example (1 **MSG879\***).

Component	Length	Width max.	Thickness	Stitching	nailing
Panel frag	150+mm	115+mm	0.91mm	Torn vertical seam	yes
Panel frag	92+mm	70+	1.90mm	Butted seam sl 4mm	yes
Panel frag	95+mm	40+mm	1.32mm	No	no
Panel frag	86+mm	80+mm	1.52mm	Grain/flesh sl 7-8mm	no
U-shaped seam	12+mm	41+mm	1.75mm	Grain/flesh sl 5-6mm; butted edge/flesh sl 3mm	no
Flat bead	86+mm	8mm	1.78mm	Grain/flesh sl 8-9mm	no
Strap	242+mm	23mm	4.46mm	Grain/flesh 2 rows, cord impressions	yes
Strap	208+mm	21mm	del.	Grain/flesh 2 rows 4 st, cord impressions	yes
Strap frags	75+	23mm	1.84mm	Grain/flesh 2 rows	

Table Leather 2: Principal fragments of the burr valve (2 **MSG1287\***) within pump 1682 from the Newport ship (St. =stitch/es: sl = stitch length, del.= delaminated)

Other broken panel fragments recovered might also come from burr valves but cannot be identified for certain being fragmentary and lacking any association with other parts that characterise this type of pumping mechanism. They are briefly described here and their individual properties are summarised in Table Leather 3; while each has features that might suggest they have been broken from burr valves they might all derive from other items made from large stitched panels but lack any diagnostic features by which they could be readily identified. A panel of bovine leather (**MSG553**) of truncated conical shape, roughly 270mm long, 185mm at the wider end tapering to 90mm at the narrower, came from a light grey/brown silty clay with moderate stone/slag inclusions (context 1001) interpreted as material dumped after the deposition of the ship. It was originally lifted supported on a soil block but the leather was in poor condition with the grain surface cracked in places and the flesh surface delaminating; it proved insufficiently robust to survive the conservation process intact but remains of a grain/flesh seam can be seen on some of the fragments preserved. The distinctive shape originally evident when it was lifted suggests it to be a sleeve from a third burr valve though it was notably larger than the complete burr valve recovered (1 **MSG879\***) from the vessel. Small pieces of a seamed and nailed panel (**MSG860**), apparently cut down from a much larger item, possibly originally deriving from a burr valve, were found in context 130 the mid blue/grey clay considered to be a natural alluvium deposit containing items directly associated with the vessel. Other pieces (3 **MSG573\***) that might also be part of a burr valve occurred at the stern in the same deposit (130). These comprise the remains of a calfskin panel (3 **MSG573.1\***) with a sloping grain/flesh whip stitched seam and a separate triangular panel of thicker bovine leather (3 **MSG573.2\***) with two converging closed grain/flesh seams; the stitching on the two panels is directly comparable in length, size and shape and they may well have joined. The triangular panel was folded

lengthwise and may have acted as a gusset; the calfskin panel was heavily folded in the manner of a concertina or bellows. One description of a working burr valve says that the 'leather cone closed on the downstroke, opened on the upstroke (much like an umbrella)' (Oertling 1996: 16) which might account for the pleating or folding noted here, however, no such folding is evident on the complete burr valve (**1 MSG879\***) recovered from the Newport ship.

MSG	Context	Dimensions	Species	Stitching	nailing
553	1001	170x157x1.90mm (largest fragment)	Bovine	Grain/flesh seam sl 4mm	no
573	130 Stern	258x135x1.53mm	calfskin	Grain/flesh whip st seam sl 6-7mm	no
573	130 Stern	204x144x2.22mm	Bovine	Grain/flesh closed seam sl 6-8mm	no
860	130	45x40x1.85mm	Bovine	Edge/flesh butted seam sl 5mm	yes
860	130	58x16x3.46mm	Cattlehide	Grain/flesh closed seam sl 5mm	no
860	130	30x26x1.38mm	Bovine	No	yes

Table Leather 3: other panel fragments that might be broken burr valves from the Newport ship

#### *Lower valves*

A flat, circular, leather claque (**4 MSG1292\***) with a projecting, integral, strap hinge was found at the base of pump 1682 (context 120). Originally the claque (a hinged disc) had been nailed to a circular wooden valve weight like that of **5 MSG012\*** (see below) with a series of large round-headed nails the impressions of which survive on the flesh side. The strap hinge had been nailed with three parallel rows of smaller round-headed nails on the opposite (grain) side. A piece torn from a burr valve strap was found directly associated with it.

A complete claque valve (**5 MSG012\***) was recovered from context (130) between F33-38 on the starboard side of the vessel. The valve comprised a turned hemisphere of possible elm wood (*Ulmus* spp?) with a leather claque hinge nailed to the flat face and an inner piece of leather of rectangular shape below lying directly on the flat face of the wooden hemisphere. The integral strap hinge has been torn from the leather disc and it would appear both the upper disc and the lower rectangular piece had extended into a strap hinge, now missing, suggesting the lower piece served to strengthen the hinge. The wooden hemisphere was faceted below the integral strap hinge enabling it to sit comfortably when the valve was open and in the upward position.

The recovery of these disc-like leather clagues (**4 MSG1292\*** and **5 MSG012\***) allows other potential examples to be recognised. It can be suggested that the large, nailed, leather disc found in the thirteenth to fourteenth century re-cut of the outer ward ditch at Carlisle castle (Mould 2009: 856 and figure 519 no 53) may have been cut from a claque from a lower valve of a burr pump; folded sheet fragments found in the same deposit possibly being from the upper burr valve (ibid. 856-7 and figure 519 no 54). If so, the disc of cattle hide with a diameter of 214mm came from a pump of significantly larger size than the Newport ship examples.

## Washers

Four leather washers were found: three complete and one (MSG 143) broken. All were of cattle hide c. 5-5.5mm thick, one (MSG144) was heavily worn and now significantly thinner. One (**6 MSG131\***) was found on the starboard side of the inter-frame space F30-31 in the basal dark brown/black organic layer (context 152) thought to contain residues accumulated in the bilges or washed in shortly after the ship was sunk. As such one might infer that the washer came from a bilge pump but a second item (MSG147, see Table Leather 5 below) found in the same context, however, clearly was unrelated to pumping equipment. This washer (**6 MSG131\***) differs from the rest in being distinctly dished with a clear circular impression c 38mm in diameter around the central hole producing a stepped inner profile suggesting it was originally seated within a cylinder possibly a lower valve. The other washers were flat. Three sizes were apparent a smaller at 44mm, medium at 54mm and a larger at 80mm. The largest example (MSG568) had been cut from leather salvaged from another item as unrelated stitch holes and slits were present. All four washers had been cut 'freehand', none had been cut from a compass drawn template suggesting that they may have been replacement parts made by the crew as and when needed.

MSG	Context	Location	Diam.	Thickness
131	152	F30-31 STBD	54mm	5mm
143	149	F45 STBD	55mm	4.98mm
144	128	BOW	44mm	1.5mm
568	128	F34 amid ships	80mm	5.5mm

Table Leather 4: Leather washers from the Newport ship

## Catalogue of illustrated pump components

### 1 Leather burr valve attached to a wooden spear from a burr pump

Conical valve c. 210mm wide at the mouth and c. 35mm at the base, comprising a larger, outer sleeve and a smaller, inner sleeve each made from a single tapering panel with a straight upper and lower edge, their sides joining with a single, vertical, butted edge/grain seam, stitch length 8mm. A U-sectioned bead, folded flesh side to flesh side, 8mm wide and 5mm across with grain/flesh stitching, stitch length 8mm, was placed between the two edges of the seam on the outer sleeve, with a flat bead 5mm wide with grain/flesh stitching placed between the edges of the seam on the inner sleeve. The two seams are not aligned; the inner sleeve has a secondary slash running vertically down from the top edge to c. 20mm of the bottom roughly following the line of the seam of the outer sleeve. The top edge of the inner sleeve lies a minimum of 18mm below the top of the outer, and the bottom edge 15mm above that of the outer. The sleeves both have their grain surface facing outward (away from the spear) and their flesh face inward toward the spear. The outer sleeve is attached to the bottom of the central wooden spear with two rows of iron round-headed nails; the lower c. 12mm from the bottom, the upper row c. 28mm from the bottom serves to attach the inner sleeve also. The impression made by four rows of cord is present on the outer face of the outer sleeve above the upper row of nailing. Four double, vertical rows of grain/flesh stitching varying between c. 45-57mm in length, are present placed equidistant around the inside of the

mouth (top) of the outer sleeve, the stitches sunk into a stitching channel on the grain side of the sleeve only. Four straps, now torn into several joining parts, have a straight ends with clipped corners producing slightly rounded ends. Each has an iron nail c. 25mm from one end to attach to the wooden spear and a double row of grain/flesh stitching with thread impression on the flesh side only at the other by which they were attached to the inner face of the mouth of the outer sleeve. Outer sleeve length 210mm, max width at the mouth 210mm, min width around the spear 35mm. Leather worn cattle hide. In addition, two small rectangular pieces of strap 35x30x5.35mm; 17x27x4.42mm) with cut ends and two rows of grain/flesh stitching. Their width does not match the four straps from this valve nor do the four straps have any impressions or other indication that they were originally sewn to them suggesting that they come from another valve. Leather cattle hide 4.86mm thick, inner sleeve cattle hide delaminating, straps cattle hide 4.29-5.57mm thick. **MSG879 SF116 (130)** [seen wet]

## **2 Leather fragmentary burr valve from within pump 1682**

Broken panel fragment (150x115x0.91mm) with three nail holes with impressions of round heads 12mm in diameter, spaced 25-30mm (1-1 ¼ inch) apart and a torn, vertical seam. A fragment (92x70x1.90mm) with nail holes and a small length of a torn butted seam. A fragment (86x80x1.52mm) with the remains of a torn grain/flesh seam with saddle stitching, stitch length 7-8mm and a pair of grain/flesh stitch holes. A fragment (95x40x1.32mm) with a cut curved edge surviving. A U-shaped grain/flesh seam, stitch length 5-6mm, broken from the base of the inner sleeve? with a butted edge/flesh seam, stitch length 3mm surviving to each side for a height of c. 12mm (illustrated). Small fragments with broken seams or nail holes and other fragments with all edges torn (largest 116x56x1.81mm). Length of flat rand 8mm wide with grain/flesh stitching, stitch length 8-9mm, from within the vertical seam of the sleeve. Two near complete straps (illustrated) each with straight and pointed ends with nail hole at one end and two rows of grain/flesh stitching to attach to the sleeves at the other. A series of seven horizontal cord impressions run across the nailed ends c. 20mm from the terminal. Five other similar strap fragments and a narrower strap (35x14x2.22mm) broken at each end with four widely spaced grain/flesh stitches, stitch length 8-9mm along one end and cord impressions. Leather calfskin, some delaminated, the straps c. 2mm thick. **MSG1287 (120) pump 1682**

## **3 Leather stitched panels possibly from a burr valve**

1. Remains of a sub-rectangular panel with a whip stitched edge, stitch length 6-7mm, surviving for a length of 64mm along one side and the suggestion of a second straight edge on the opposite side, all other edges are now torn away. Much folded when recovered. Leather calfskin 1.53mm thick delaminated in places. Surviving length 258+mm, width 135mm. A second fragment (80x23x1.07mm) of calfskin with similar whip stitching broken from it. 2. A triangular shaped panel folded along its length with a plain cut top edge and tapering sides meeting at a pointed tip; the sides each have a closed grain/flesh seam, stitch length 6-8mm. Leather bovine 2.22mm thick. Length 204mm, max width 144mm. **MSG573 SF109 (130) Stern.**

## **4 Leather valve claque from base of pump 1682**

Flat disc, broken along one side, and extending into a strap 53mm wide with the end torn away. The disc is pierced by a series of seven nail holes with occasional smaller ones around the edge. The strap



has three rows of nail holes, seven along one side, six along the other and four down the centre. The impressions of round nail heads 7mm in diameter are present on the grain side of the strap. The impressions of round nail heads c. 16mm in diameter are present on the flesh side of the disc. Leather delaminated cattle hide. Length 180+mm, diameter 103+mm. **MSG1292 (120) from base of pump 1682**

### **5 Lower valve of wood with leather valve claque**

A turned hemisphere of possible elm wood (*Ulmus* spp?) with a shallow bevel, c. 70mm long and c. 38mm deep, on one side. A flat disc of leather is nailed to the flat surface grain side upward with one nail in the centre, five around the central nail and further nailing around the edge. Two round nail heads survive c. 10-12mm in diameter. A second, sub-rectangular or 'tongue-shaped' piece of leather, approximately 70mm wide and 4mm thick, lies below the upper disc directly on top of the flat surface of the wood. One side of the disc and the corresponding end of the second piece have been torn away directly above the bevel marking the former position of a strap hinge. Leather cattle hide 5mm thick. Diameter 114mm. **MSG012 SF139 (130) F33-38 STBD** [seen wet]

### **6 Leather washer**

Circular washer with an irregular central hole, 27mm in diameter, and a dished profile. The central area has a clear circular impression, 38mm in diameter, around the hole on the flesh side producing a stepped inner profile. The outer face, the grain surface, is curved, smooth and heavily worn. Leather cattle hide 5mm thick. Diameter 54mm, estimated height of curve c. 10mm. **MSG131 (152)**

### **The archer's wrist guard**

A decorated wrist guard (**7 MSG154\***) or bracer was recovered from the base of the mast step (context 130) on the ship. The eight-sided wrist guard is rather crudely cut with four straight sides connecting with four concave sides. It comprises a front panel of cattle hide with a calfskin lining placed flesh side to flesh side with their grain side outward. The front panel and lining are unstitched so the lining may have been stuck in place originally. The front panel has stamped decoration combining four repeated inscribed banners with floral motifs and a plain central border defined by a pair of converging lines of stamped pellets (circles). The Latin inscription executed in Black Letter script is thought by Redknap (Redknap 2013) to possibly be 'armilla', which, appropriately, may be translated as 'bracer' (Trett 2011:19). The front panel also has a pair of central, opposing 'arrow-shaped' cut-outs. Coincidentally, a decorative feature commonly seen on the metal plates backing Georgian and early Victorian coffin handles. These cut-outs suggest that the lining below may have been of a differing colour originally to the upper panel which would have shown through to further decorative effect. A pair of fastening holes is present to either side, rather crudely made with the point of a blade, marking the position where a pair of bifurcated straps had been attached: they are now missing. No impressions were visible to indicate how the straps were attached but small metal rivets may have been used as the holes show no evidence of having thongs passing through them. Though it survives in good condition, there is no doubt that the wrist guard had been used many times as an area of the grain surface has been worn away in the centre of the front panel.

The wrist guard (**7 MSG154\***) may best be compared with those found onboard the Mary Rose, which sank off Portsmouth harbour in July 1545, approximately a hundred years after the Newport

ship. The Newport ship wrist guard is marginally smaller than the twenty-two leather wrist guards from the Mary Rose and might be considered to fall into their 'rectangular with mitred edge' category, being closest perhaps in shape to 80A0901 (Soar 2011: 659 figure 8.61). The nature and arrangement of decoration, type of strap attachment and the use of a separate lining (Soar 2011) can all be seen to be in the same tradition. An undecorated example (80A1308 Soar 2011: 644 and figure 8.63) from the Mary Rose was thought to have been dyed red which may lend support to the suggestion of a front panel and lining of differing colour on the Newport ship wrist guard.

### **7 Leather wrist guard, decorated and with a lining**

Eight-sided front panel of cattle hide with four concave curving and four straight sides varying slightly in length. A pair of crude fastening holes is present along the upper and lower sides, spaced 16mm and 10mm apart respectively. A pair of opposing arrow-shaped cut-outs, each 12-13mm long and 11-12mm wide, spaced 40mm, is present in the centre. Decorated with a pair of gently converging lines of small stamped circles each 1.5mm in diameter, with two paired banners above and below, each 10mm wide with Black Letter inscription within a double border ending in pelleted finials with a stamped six-petal floral motif 12mm in diameter. The front panel is backed with a matching lining of calfskin. Front panel 117x113x3.94mm cattle hide, lining 108x107x2.00mm calfskin. **MSG154 SF164 base of the mast step (130)**

### **The footwear**

The remains of at least eight shoes were recovered from the ship; while some are now highly fragmentary there is little doubt that they were essentially whole when discarded. Similarly at least three tall boots may be identified, see below. In contrast, a larger group of individual shoe parts were also recovered that appear, for the most part, to have been thrown away separately and not part of complete or near complete shoes. These shoe parts are itemized in Table Leather 5 below. A significant proportion had been cut up before being discarded indicating that they represent a group of cobbling waste possibly the sweepings from a cobbler's shop of the worn out shoe parts from which no further usable leather could be salvaged. All the footwear, with the exception of the wooden clog (MSG552) mentioned below, share similar characteristics of general construction and date and so may be considered as a single group for discussion here. Four styles of footwear could be recognized: a high-throated slip-on shoe, a side tie-lacing shoe, strap and buckle fastening ankle boots and a tall, wrinkled legged boot (see Figure Leather 2).

#### *Shoe construction*

The shoes and shoe parts were principally of randed turnshoe construction consistent with the mid fifteenth century date of the group. A single example (MSG134) of a shoe of turn-welted construction was found in context 130 at F13-14 on the starboard side of the vessel. Turn-welted construction was a transitional method between the turnshoe and the welted constructions, used for a relatively short period of time during the fifteenth and the sixteenth centuries. The example found here comprised the tip broken from the pointed toe of a turnshoe sole (MSG134) accompanied by its matching area of rand. The rand had an edge/flesh butted seam to attach to the lasting seam of the shoe and an additional line of stitching to secure a second, or 'outer' sole

marking it clearly as coming from a shoe of turn-welted construction. Part of a sole (MSG 142) differed from the rest in having a grain/flesh (rather than an edge/flesh) stitched seam. While it may come from a welted sole, it is more likely in this context, that the fragment had been broken from a sole of a multiple layered leather overshoe known as a patten: a relatively common type of footwear in the fourteenth and fifteenth centuries (Grew and de Neergaard 1988:101; Goubitz 2001:267-70). A persuasive case has been made for footwear of this particular construction being sandals rather than overshoes (ibid.) and it is possible that they were worn by members of religious orders. The sole (MSG142) was recovered from context 130 at F41-42 on the starboard side of the ship.

The soles had pointed toes and narrow waists. Some of the toes were short points but others were long and outward curving and highly fashionable. Long, pointed toes were fashionable during the 1460's and a sumptuary law was passed in 1463-4 in the reign of Edward IV to restrict the wearing of the 'pike or poulaine', as they were known, to two inches in length, as it had been in a previous sumptuary law of 1368 during the reign of Edward III (Swann 1975; 19-20). The longest toed shoe from the Newport ship (**8 MSG155\***) exceeded this limit by some measure being over 3 inches in length (c.80mm). Moss stuffing was noted in the toes of at least three shoes (**8 MSG155\***, **14 MSG545\*** and MSG559). Samples were examined from two shoes (**8 MSG155\*** and **14 MSG545\***) and it was clear that the moss came from two differing locations (Hall:2012); an area of grassy heathland (**8 MSG155\***) and a clearing in a wood on calcareous soil (**14 MSG545\***) which might suggest that the two shoes were not made in the same workshop or even, perhaps, the same town. While the likelihood of either of the shoes being a local Newport product, or from slightly farther afield, such as Bristol, could not be determined, it is unlikely that either was of Mediterranean original (Dr. Allan Hall pers. comm.).

#### *Location of the 'complete' shoes*

The complete and near complete shoes were found principally in the deposits of alluvium within the ship (contexts 121 and 130) and the deposit containing large quantities of woodworking waste (context 128) lying above and thought to be related to the salvage of the vessel. One example (**8 MSG155\***) was found when excavating the keel lying below the ship on the port side in a localized deposit of mid grey/brown clay rich in slag (context 172) with another (**12 MSG055\***) in a mid grey coloured alluvial accumulation also containing slag (context 1002).

#### *Shoe styles*

##### High-throated slip-on shoes (Figure Leather 2 no 1)

The best preserved shoe (**8 MSG155\***) came from a slag rich deposit lying below the ship (context 172). The complete shoe had been an item of high fashion having a long, pointed toe, stuffed with moss to hold its shape, extending at least 80mm beyond the foot; though heavily worn it had not been repaired before it had been thrown away or lost. The shoe was of a high-throated slip-on style extending high up the instep and with one-piece quarters that wrapped around the sides of the foot to join with a single vertical seam running down the heel. The quarters had a deep vertical slash cut down each side to reveal the ankles; while the slashing would act as a decorated feature to reveal the colourful hose being worn, the fact that the slashing cut through one side of the heel stiffener within suggests it to be a secondary feature, though if it had been intended to relieve a foot or ankle problem then the nature of that physical problem is uncertain (but see below). A second shoe (**9**

**MSG554\***), found near the bow on the port side between F4-5 in context 128, shared this same uncommon construction whereby the quarters wrapped around the foot to join with a seam down the heel. The shoe, with a shorter point to the toe, extended slightly higher up the instep but both were made of cattle hide and were of similar size. This example had been heavily worn and had been repaired with patches to the tread and seat and these too were heavily worn. This unusual constructional feature was also seen on a shoe of calfskin from the final phase of activity in tenement 1235 at Carlisle of likely late fourteenth to early fifteenth century date (Mould 2009: 851-2 figure 517 no 40); an unusual wear pattern exhibited on the sole and vamp suggested that the wearer of that shoe had suffered from a foot deformity (ibid. 843-5). Additional stitching on the throat area pointed to the former position of a strap and buckle fastening across the instep (ibid: figure 512 no 18) or possibly a decorative pewter badge.

These shoes share a highly unusual primary cutting pattern deserving further comment. Shoe styles and constructions have been the subject of extensive research over the past thirty years and, for the most part, the cutting patterns of the principal types of footwear worn in north-western Europe can be identified and dated with confidence. It is all the more surprising then that cutting pattern of these shoes appears to be such a rarity. The peculiar design of the quarters of these shoes is notable, though the leg section of tall boots may take this form (Goubitz 2001:229; Volken 2012: 203-4 and figure 202 Worcester-DD). Other features such as the triangular insert at the vamp throat of 8 MSG155\* with the secondary slash running from its apex down toward the toe are difficult to explain in either design terms or for ease of fit. The cutting pattern appears unnecessarily awkward; an unlikely choice by the shoemaker whose preference would be for a construction that was easy and quick to assemble and, hence, more profitable. It is possible, or even likely, that these shoes were made from cut down tall legged boots. Particular features present such as the change from butted seams at each lower side of the vamp to whip stitching at the instep of 9 MSG554\* being a technical solution for removing the last and turning the boot leg during the original construction (Marquita Volken pers. comm.). This might also provide an explanation for the home-made vertical slits present in the quarters of shoe 8 MSG155\* as they would provide useful when taking off a long legged boot particularly when negotiating a tall tight leg over the heel of the foot. High legged boots were popular in the middle years of the fifteenth century (see below) and are frequently depicted in art works of the time but relatively few examples have been recovered from the archaeological record; in the Netherlands the ratio of boots to shoes recovered has been found to be 1 to 3000 (Goubitz 2001:230). It is presumed that the majority of boots were cut down and any reusable leather salvaged and recycled leaving little recognizable evidence. It was common for old shoes to be refurbished and then re-sold, a part of the cobbler's trade known as 'translation', and boots were cut down to make other footwear. While the leg leather could be reused to make and repair other items, the worn out 'foot section' of tall boots would be discarded but those with some 'life left in them' could be retained and made into a different type of footwear. The two unusual high-throated slip-on shoes may well be examples of this practice and be the result of cutting down tall boots.

Diagonal tie-lace fastening shoe (Figure Leather 2 no 2)

A broken vamp (**10 MSG566\***) with one large fastening hole surviving, also found in context 128, appears to be a rare example of a shoe with a diagonal side closure. A butted edge/flesh seam present along both sides of the long opening on the right side of the vamp suggested that a bellows tongue was formerly present as seen on an example of thirteenth century date from Dordrecht

(Goubitz 2001: 181 figure 20 for shoe reconstruction). This is a rare variant (Type 50 variant III Goutitz 2001: 176-7) of the commonly found side laced fastening shoe (Type 50) with only four examples known to Goubitz at the turn of this century. So few have been found that their close dating has not been established but the commonly found side-lacing style of shoes and ankle boots enjoyed a long period of popularity throughout the thirteenth, fourteenth and first half of the fifteenth centuries (ibid: 175).

#### Strap and buckle fastening ankle boots (Figure Leather 2 no 3-4)

The other shoes recovered were of a general style that we would call ankle boots today, with closed fronts and quarters that extended to just above ankle height, but are strictly speaking ‘ankle shoes’ or ‘high shoes’ (Goubitz 2001:23-4 and figure 7 and 8): for clarity they have been termed ankle boots here. While at least one example (MSG559) appears to have been made principally of a one-piece upper the majority had a separate vamp and two quarters joining with a back seam; a feature of shoes of this period. One ankle boot of cattle hide (**11 MSG156\***) had a vamp with a high concave throat that fastened across the instep with a short strap and a small iron buckle, with the end of the strap tucking into a small loop or ‘keeper’ below. Others (**12 MSG055\***, **13 MSG119\***) also had a buckle and strap fastening across the instep but had closed fronts with the buckle and strap keeper located across the side seam. This small constructional feature appears to have been common to ankle boots of mid to late fifteenth century date and has been found in London in an assemblage dated to AD1480-1500 at Tooley Street (Richardson 2006; Saxby, Egan, Richardson and Holder in prep.) and at Coventry in groups from the defensive town ditch at Belgrade Plaza (Mould forthcoming) and east of Cox Street (Thomas 1986) for example. Another shoe (MSG058) appears to have been an ankle boot but was too fragmentary for the cutting pattern to be established, while individual parts cut from ankle boots were present amongst the unassociated shoe parts found (MSG115, MSG137, MSG153), see Table Leather 5 below. Ankle boots were working wear; some had been made with insert pieces (e.g. **11 MSG156\***, **13 MSG119\***) allowing smaller pieces of leather to be used in the construction and likely to have been an economy measure on behalf of the shoemaker.

A small number of the shoes were either so poorly preserved or had been cut up before being discarded so that they lacked any diagnostic features that might indicate their original style. A heavily repaired shoe (**14 MSG545\***), for the right foot, had much of the upper part of the vamp cut away before it was discarded so that its original style is unknown. The shoe, clearly cobbler's waste thrown away once any reusable leather had been salvaged, was recovered adjacent to F22 on the port side of the ship in context 128. Another repaired shoe (MSG556), now highly fragmentary, was found at the bow of the ship in the same context (128).

#### Unassociated Shoe parts

Context	Location	MSG	Parts	Leather	Repaired	Sec cutting
128	F4-5 Bow	113	Sole, rand	Cattle	No	No
128		114	Clump seat	Cattle	Yes	No
128	Bow	115	Right quarters	Sheep/goat	No	No
128		128	Heel stiffener	Bovine	No	Yes
128		130	Upper	Cattle	No	Yes
128		133	Clump	Cattle	No	Yes

128	F34	136	Tongue	bovine	No	No
128	Bow	138	Upper	Calfskin	No	Yes
128		141	Quarters	Sheep/goat	No	No
128	Bow	152	Upper	Bovine	No	No
128		153	Upper	Calfskin	No	Yes
128		566	Vamp	Cattle	No	Yes
128		567	Sole	Cattle	Yes	Yes
130	F8-9	122	Upper	Bovine	No	No
130	F21-22	127	Heel stiffener	Cattle	No	Yes
130	F13-14 STBD	134	Sole, turn-welt	Cattle	No	No
130	Stern	137	Right quarters	Cattle	No	Yes
130	F41-42 STBD	142	Sole (patten)	Cattle	Yes	No
130	F9-10 PORT	148.1	Clump	Cattle	No	No
130	F5-6 PORT	149	Upper	Bovine	No	No
152	F6-7	147	Heel stiffener	Calfskin	No	No
1001		140	Clump	Cattle	No	No
1001		789	Upper	Bovine	No	No
1002	Aft of S12	543	Vamp	Calfskin	No	No
1007		312	Clump	Cattle	Yes?	No
1021		058	Upper	Cattle	No	No
U/S		132	Heel stiffener	Bovine	No	Yes

Table Leather 5: unassociated shoe parts recovered from the Newport ship

#### *Boots (Figure Leather 2 no 5)*

The remains of three, or possibly four, high legged boots were recognized amongst the assemblage though they were represented by highly fragmentary upper parts only. Parts torn from a stitched panel of worn calfskin (**15 MSG557\***) were found with a boot strap at the bow of the ship to the north-east in an unstratified context. The panel was heavily folded when found suggesting it comes from a tall, wrinkled boot leg of soft leather. Loose fitting high boots with wrinkled legs of soft leathers were popular in the fifteenth century (Swann 1975: 20). The complete boot strap that accompanied the panel (**15 MSG557\***) is characteristic of high legged boots, occurring in pairs attached one to either side of the interior of the leg and used to help pull the boot on. This example may be compared with that found on the well preserved high boot of mid fifteenth century date from the Town Wall site in Coventry (Thomas 1986: Fig 21-22 part b). A larger, split, boot strap (MSG558) and a delaminated fragment of cattle hide appear to come from a heavier boot of thicker leather. These pieces also came from the north eastern side of the bow from context 128. The boot straps on several of the pairs of thigh boots recovered from the Mary Rose also had a central split (Evans and Mould 2005:74-6. Boot straps with a central split may suggest that the boots were pulled on with the help of a pair of small hooks as in later centuries. The boot strap (MSG558) differs, however, as the narrow, rather than the wider, end is slit and, as no stitching is now visible, the identification, while likely, is not certain. Fragments torn from the 'back part' of a boot leg, with small areas of the lasting margin and a butted edge/flesh seam present, and a heel stiffener for a right foot of adult size (MSG555) come from another boot with a soft wrinkled leg of calfskin. They were recovered from context 130 but no location on the ship was recorded. A piece broken from a panel (MSG129) of thick bovine leather with a butted edge/flesh stitched seam surviving for a length



of 190mm with a plain cut edge at right angle to it may also come from the leg of a tall boot of cattle hide but no other distinguishing features were present to allow a more certain identification. The panel (MSG129) was recovered from context 149, associated with the salvage of the ship (similar to context 128), at F33 on the starboard side of the ship.

MSG	Context	Location	Part	Dimensions	Species ID	Stitching
129	149	F33 STBD	Upper?	215x103x2.69mm	Bovine	yes
555	130		Heel stiffener	53 highx1.53mm	Bovine	yes
555	130		Upper frags	265x236x1.39mm	Calfskin	yes
557	U/S	BOW NE	Upper frags	251x157x1.44mm	Calfskin	yes
557	U/S	BOW NE	Boot strap	130x50x1.57mm	Bovine	yes
558	128	BOW NE	Upper frags	144x136x3.19mm	Cattle hide	no
558	128	BOW NE	Boot strap, split	213x63x2.10mm	Cattle hide	no

Table Leather 6: Tall boot parts from the Newport ship. (The dimensions of the largest piece is given in each case: length x max width x thickness)

### *Clog*

A beech wood (*Fagus sylvatica* L.) sole from a clog (MSG552) of adult male size with irons to reinforce the tread and seat was found unstratified. A small amount of leather from the clog upper was preserved around the iron tacks nailed around the rebated edge of the sole. The clog sole is most likely to date from the mid nineteenth to the first half of the twentieth century (Atkinson 1984); the use of beech wood for the sole, the common choice of factory-made clog soles, may suggest a twentieth century date (Vigeon 1977:12). The clog is working wear formerly in common use by those employed in a number of industries and other activities where hard wearing dry footwear was required included workers on docks and wharves (ibid: 24 appendix).

## **Catalogue of illustrated footwear**

### **8 Leather turnshoe of slip-on style, left foot, adolescent/small adult size**

Complete turnshoe sole with long, pointed toe (c. 80mm toe extension) curving outward, narrow waist and medium seat. Edge/flesh seam, stitch length 5mm. Rand around seat area 13mm wide. The vamp is worn through above the lasting margin at the little toe joint and broken at the base of the extended toe. The high throat runs across the instep with a single horizontal seam, incorporating a triangular insert on the left side with a small vertical slash 25mm long below at centre front. The throat seam joins to a one-piece quarters that extends the height of the throat by a further 20mm wrapping around the sides of the foot to join with a single butted edge/flesh seam at centre back 85mm high. A heel stiffener c. 80mm high is present at centre back, grain outward to the foot. Each side of the quarters has a vertical slash starting c. 9mm below the top edge and stopping very close to the lasting margin. Leather upper cattle hide 2.38mm thick, heel stiffener bovine 1.76mm thick. Sole length 310mm, width tread 75mm, waist 26mm, seat 45mm. Estimated Adult size 3(35) allowing for the toe extension. **MSG155 (172) below ship port along keel** [seen when reconstructed]

### **9 Leather turnshoe of slip-on style, left foot, adolescent/small adult size**

Turnshoe sole with outward curving, pointed toe, tip now missing, narrow waist and medium seat. Edge/flesh seam, stitch length 5mm. Worn stitching at the toe, waist and seat from repair. Matching clump repairs for the tread and seat with tunnel stitching on the flesh side. Four pieces of rand 8mm wide with edge/flesh seam and stitching to attach repair clumps. The vamp, heavily worn along the lasting margin on the outer (left) side, has a short, pointed toe and a high whip stitched throat extending into low butted edge/flesh side seams, stitch length 3mm, 40mm high on either side. One-piece quarters of 'bridge-shape' with a slightly arched upper edge, the lower concave curving edge joins to the vamp throat with a whip stitched seam and the butted side seams, only a small area of one side seam survives. The quarters join at centre back with a vertical, butted, edge/flesh back seam, stitch length 3mm, 92mm high. Heel stiffener, flesh side outward to the foot, is placed across the back seam on the inside of the shoe. Leather upper worn cattle hide 1.58mm thick, heel stiffener worn bovine 1.74mm thick. Sole length 258mm, width tread 80mm, waist 27mm, seat 43mm. Estimated Adult size 3(35) allowing for slight toe extension. **MSG554 SF124 (128) F-4-5 Port Bow**

#### **10 Leather vamp with diagonal side closure, adult size**

Vamp with part of a pointed toe surviving on the right side, the lasting margin, stitch length 5mm, broken off in other areas. A small area of the butted edge/flesh left side seam, stitch length 3mm, present extending into a straight throat. A diagonal opening with butted edge/flesh seams, stitch length 3mm, runs toward the toe on the right side with a single large oval fastening hole surviving close to the junction with the side seam, which is now missing. Leather worn cattle hide 2.24mm thick. Surviving length 200mm. **MSG566, Lab No 1203 (128)**

#### **11 Leather ankle boot, strap and buckle fastening, right foot, adult size**

Turnshoe sole with pointed toe, narrow waist and medium seat, heavily worn at the exterior tread and seat areas. Edge/flesh seam, stitch length 6mm. Worn stitching from repairs to tread and seat. Eight pieces of rand max 13mm wide. Vamp with pointed toe, heavily worn along the right side, with high, concave, whip stitched throat with small central slit and high butted edge/flesh side seams, stitch length 4mm. A narrow strap on the left side of the throat fastens through a circular iron buckle 14mm in diameter and a strap keeper of thong 6mm wide on the left. Right and left quarters with butted back seam 115mm high, and an insert piece with curving side seams and whip stitching from a lapped seam at the front openings to attach the 'bellows' tongue. Stitching to attach a heel stiffener across the back seam is present and the lasting margin from the heel stiffener survives, the upper part having been cut off. Leather upper worn cattle hide 2.45mm, heel stiffener and tongue calfskin 1.92mm thick. Sole length 250mm, width tread 78mm, waist 29mm, seat 45mm. Estimated Adult size 5 (38). **MSG156 SF158 (130)**

#### **12 Leather back part of a buckle and strap fastening ankle boot, adult size**

Eight principal and numerous small fragments broken from a turnshoe upper. Remains of left and right quarters with a vertical, butted, edge/flesh back seam, stitch length 2mm, surviving to a height of more than 80mm and a plain, straight cut top edge. The straight front opening 45mm high with whip stitching from a lapped seam to attach a tongue (now missing) and the sloping, butted, edge/flesh side seam, stitch length 3mm, surviving on the right side with a circular iron buckle, 16mm in diameter, attached by a leather thong 5mm wide with a strap keeper of similar thong below, each knotted and lying across the seam. A complete heel stiffener 72mm high, grain outward

to the foot, is placed across the back seam. Also a fragment broken from the vamp and three smaller pieces broken from it (not illustrated). Upper leather worn calfskin 1.24mm thick, heel stiffener calfskin 1.28mm thick. **MSG055 SF321 (1002)**

### **13 Leather buckle and strap fastening ankle boot, right foot, adult size**

Turnshoe sole with pointed toe and narrow waist, now torn into three pieces, much of the tread area missing and the seat cut off. Edge/flesh seam, stitch length 5mm, and stitching to attach repairs to the tread and seat. Fragments of rand max 13mm wide, two with stitching to attach a repair (not illustrated). Vamp fragment with part of the pointed toe present. Left and right quarters with butted edge/flesh back seam surviving to a height of 83+mm. Left quarters has a dog-leg side seam, both front openings have whip stitching from a lapped seam to attach a tongue (now missing) and join to pieces broken from the high concave curving throat area of the upper sewn with whip stitching. A thong 3.5mm wide is present across the seam of the right quarters to hold a fastening buckle and form a strap keeper. A heel stiffener, grain outward to the foot, is placed across the back seam on the interior. A clump seat repair (MSG126) from the same context is likely to belong to it (not illustrated). Upper worn bovine leather 1.62mm thick, heel stiffener 1.47mm thick. **MSG119 SF107 (121)**

### **14 Leather turnshoe unknown style, right foot, adult size**

Turnshoe sole with long pointed toe (c. 45mm toe extension) with moss toe stuffing, tread displaced slightly inward, narrow waist and medium seat. Edge/flesh seam, stitch length 5mm, cut away at the seat. The sole has several lines of stitching from repairs to the tread and seat. A matching clump repair at the tread, worn away at each side. Four pieces of rand 10mm wide have occasional stitches from repair. Strip (100x16mm) with matching stitch holes has been incorporated in the lasting seam as a repair. Vamp with toe torn off, cut and torn into two pieces with much of the throat area cut away and the butted side seams, stitch length 4mm, surviving to a maximum height of 46mm. Left quarters broken along the top edge survives to a height of 65mm with butted edge/flesh front and back seams. A large heel stiffener, 6 9mm high, grain side outward to the foot, lies across the back seam on the inside of the shoe. Upper worn bovine leather 1.36mm, heel stiffener worn bovine 1.96mm. Sole length 260+mm, width tread 71mm, waist 25mm, seat 41mm. **MSG545 SF103 (128)**  
**F22-23 adjacent F22 Port**

### **15 Leather fragmentary upper from tall boot**

Torn panel fragment (251x157x 1.44mm) with four stitches from a whip stitched lapped seam, stitch length 3mm, present on the grain side along a small surviving area of cut edge, all other edges torn away. Fragment (107x42x1.16mm) with a small area of original cut edge, other edges torn (not illustrated). Fragment (84x51x1.34mm) with three stitches from a butted edge/flesh seam, stitch length 4mm (not illustrated). Seven other very small fragments (not illustrated). Leather all worn calfskin. A tongue-shaped bootstrap with a rounded terminal tapering to a narrow, straight-ended strap with a seam of grain/flesh stitching, stitch length 5mm, running around the edge. Three pairs of irregular holes, 10mm apart, run slightly off centre down the wider end. Leather worn bovine 1.57mm thick. Length 130mm, max width 50mm, min width 11mm. **MSG557, SF113 (U/S) BOW NE**

### Other possible items of clothing

Fragments broken from a panel (MSG123, MSG151), possibly from a garment, were recovered from a localized deposit of sandstone blocks in mid brown/grey silty clay (context 129) towards the stern of the ship, though to have been dumped after the ship was abandoned . The larger fragments, of heavily worn bovine leather with much of the grain surface lost, were heavily folded when found. A double row of stitching running across the largest piece of bovine leather might mark the position of a pocket or an area of decorative appliqué. The presence of fragments of sheep/goatskin with similar stitching, including one with a rounded corner, may suggest that the garment was originally lined. A piece of calfskin (MSG135), possibly torn from another garment, was found unstratified.

### Cut down seam

A length of butted edge/flesh seam (MSG121) cut from an item of worn calfskin was found at the bow of the ship in context 128. It had been cut from the upper of a tall ankle boot, high boot or garment panel when reusable leather was being salvaged. As such it represents waste material disposed of by a cobbler or other leather worker and may best be considered with the waste below.

### The waste leather

Secondary waste is produced when cutting out pattern pieces and trimming them to size when making or repairing leather goods, in this case shoes. Eleven pieces of secondary waste were recovered from the ship. They were found principally in the blue/grey alluvium filling the ship (context 130) and the alluvial deposit immediately above relating to the salvage/damage of the ship (context 128). A single piece was recovered from the mid blue/grey clay alluvium within the ship that accumulated after the abandonment of the vessel (context 121) that lay on top of context 128. To this must be added the only piece of primary waste (MSG118) recovered, an edge cut from a piece of cattle hide over 6mm thick, found in context 128. Where the location has been recorded all the waste leather comes from the bow of the ship which might suggest a single dumping episode of this material. While small in number, the waste leather found can be seen to be associated with the shoe parts recovered suggesting that the shoe parts and waste leather represent the clearance of a cobbler's workshop. The work of the cobbler, engaged in the repair and refurbishment of old shoes, would result in a selection of old, worn-out shoe parts, some cut up to salvage re-usable leather, and trimmings from cutting out replacement parts and shaping them to size to be discarded. The quantity of the material here would represent only a few days work. There is no evidence that might either support or deny that the work was being carried out onboard ship rather than being thrown over the quayside by those disposing of rubbish from the settlement, though the latter is perhaps more likely.

Context	Location	MSG	Length mm	Width mm	Thickness mm	Species	shape
121		120	98	11	1.44	Calf	trimming
128	F11-12 STBD	116.1	77	15	5.34	Cattle	trimming
128	F11-12 STBD	116.2	58	22	2.09	bovine	trimming
128	Bow	117	153	114	2.38	Cattle	Sub-rect.
128		118	180	64	6.65	Cattle	Hide edge
128	Bow	125	71	7	2.4	Bovine	trimming

128		153.2	66	18	2.54	Cattle	trimming
130	F6-7	139.1	83	4	1.5	Bovine	trimming
130	F6-7	139.2	48	5	0.59	Bovine	trimming
130	Below <77>	146	172	79	2.78	Cattle	triangular
130	F9-10 PORT	148.2	85	15	4.94	Cattle	trimming
130	F5-6 <153>	817	40	16	3.66	Cattle	triangular

Table Leather 7: Waste leather from the Newport ship

## References:

Atkinson, J. (1984) **Clogs and clogmaking**. Shire Album **113**. Princes Risborough: Shire Publications Ltd.

Evans, N. and Mould, Q. (2005) Footwear. In Gardiner, J. with Allen M. J. (eds.) **Before the Mast. Life and Death Aboard the Mary Rose**, 59-94

Goubitz, O., C. van Driel-Murray, C. and Groenman-van Waateringe, W. (2001) **Stepping through Time. Archaeological Footwear from Prehistoric Times until 1800**. Zwolle: SPA.

Grew, F. and de Neergaard, M. (1988) **Shoes and Pattens**, Medieval finds from excavations in London: 2 London: HMSO

Hall, A. (2012) **Identification of further samples of plant material from the Newport medieval ship**. Report from the Department of Archaeology, University of York dated January 2012.

Mould, Q. (forthcoming) The Leather. In Mason, P. , McAree, D. and Soden, I. **Coventry's Medieval Suburbs. Excavations at Hill Street, Upper Well Street and Far Gosford Street**. Northamptonshire Archaeology Monograph 3/BAR British Series

Mould, Q. (2009) 'The Medieval Leather'. In Howard-Davis, C. **The Carlisle Millennium Project Excavations in Carlisle, 1998-2001**. Volume 2: Finds, 841-857. Lancaster: Oxford Archaeology North

Redknap, M. . (2013) **Selected Artefacts from the Newport Medieval Ship Excavation**. Unpublished Archive Report. Newport Medieval Ship Project.

Richardson, B. (2006) The leather from Tooley Street, Southwark (TYT98) typescript of MOLAS monograph

Saxby, D., Egan, G., Richardson, B. and Holder, N. (in prep.) A large group of early Tudor artefacts from Southwark: archaeological excavations on the More London site in Tooley Street. Surrey Archaeology Society Journal.

Soar, H. (2011) Wristguards. In Hildred, A. (ed.) **Weapons of Warre: The Armaments of the Mary Rose**. The Archaeology of the Mary Rose Volume 3 Parts 3 and 4, 644-665

Swann, J. (1975) Shoe fashions to 1600. In Doughty, P.S. (ed.) **Transactions of the Museum Assistants' Group for 1973, 12**, 14-27. Belfast: Museum Assistants' Group Ulster Museum.

Thomas, S. (1986) Leather report. In Bateman, J. and Redknap, M. **Coventry: Excavations on the Town Wall 1976-78**, Coventry Museums Monograph Series 2, Coventry City Council, 78-91

Trett, B. (ed.) (2011) **Newport Medieval Ship A Guide**. Newport: Newport City Council

Vigeon, E. (1977) Clogs or wooden soled shoes. Reprinted from **The Journal of the Costume Society** **11**, 1-27

### **Figure captions**

Figure Leather 1: schematic diagram of construction of burr valve MSG879 from the Newport ship

Figure Leather 2: Footwear styles present on the Newport ship (no. 4 after Goubitz 2001: 181 figure 20), no. 5 after Mould forthcoming).



Leather Catalogue - Key



Flesh view



Cut edge



Torn edge



Grain view



Edge / flesh stitch



Whip stitch



Iron



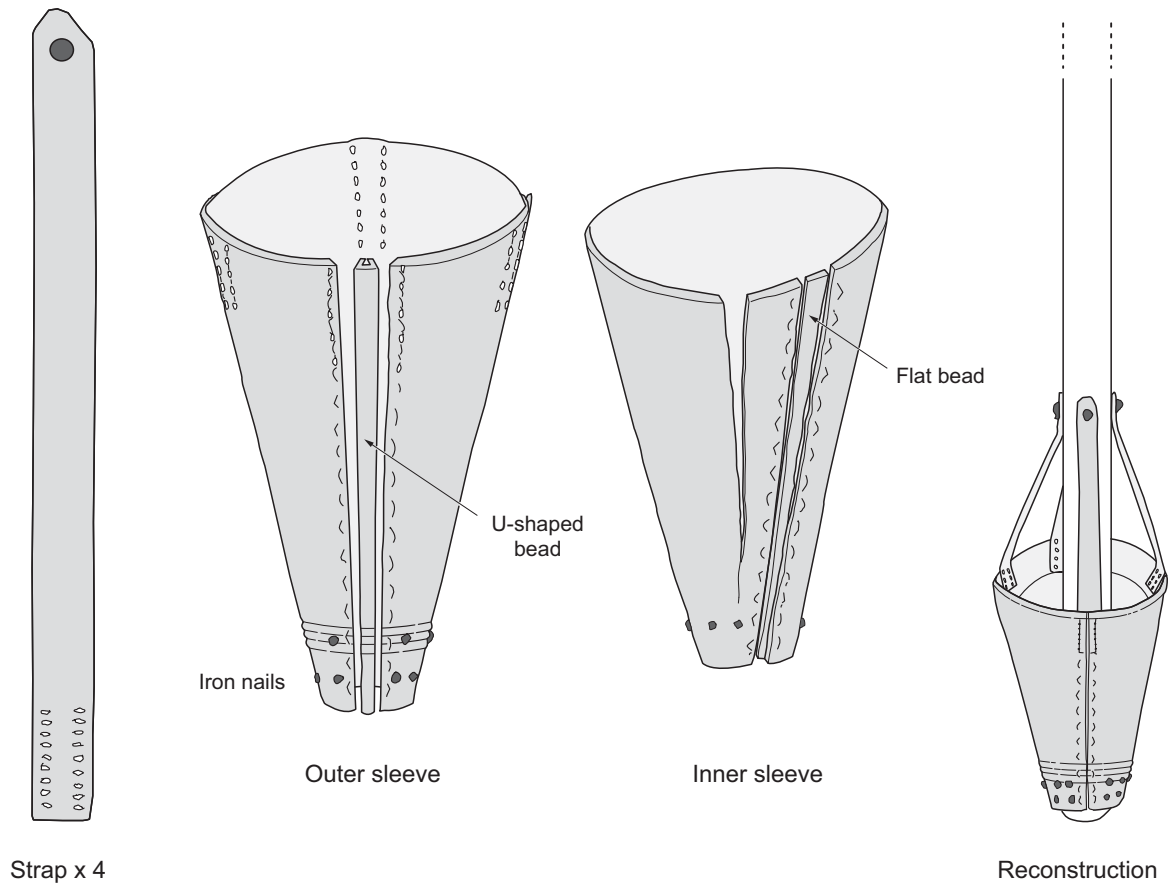
Grain / flesh stitch



Whip stitch from a lapped seam

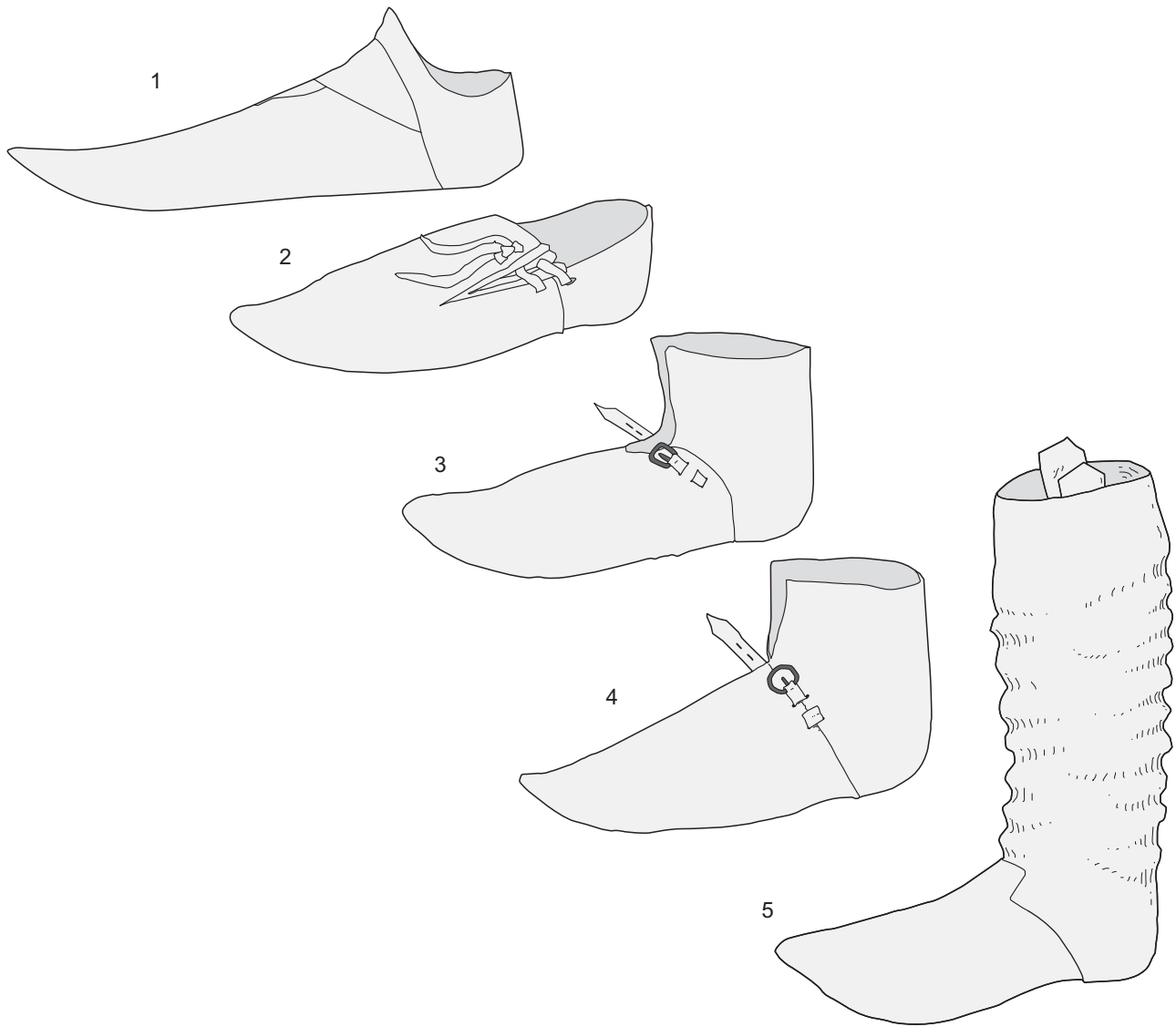
Figure Leather 1: schematic diagram of construction of burr valve  
MSG879 from the Newport ship

MSG 879



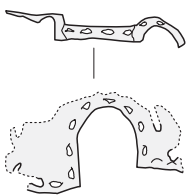
(Drawing by Anne Leaver)

Figure Leather 2: Footwear styles present on the Newport ship  
(no. 4 after Goubitz 2001: 181 figure 20), no. 5 after Mould  
forthcoming).

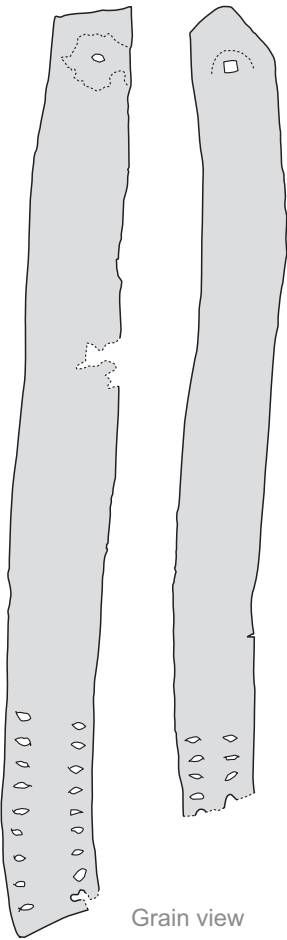


(Drawing by Anne Leaver)

Leather Catalogue 2  
MSG 1287

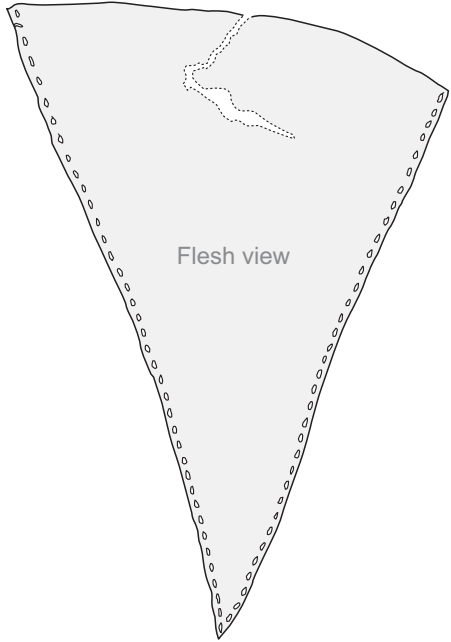
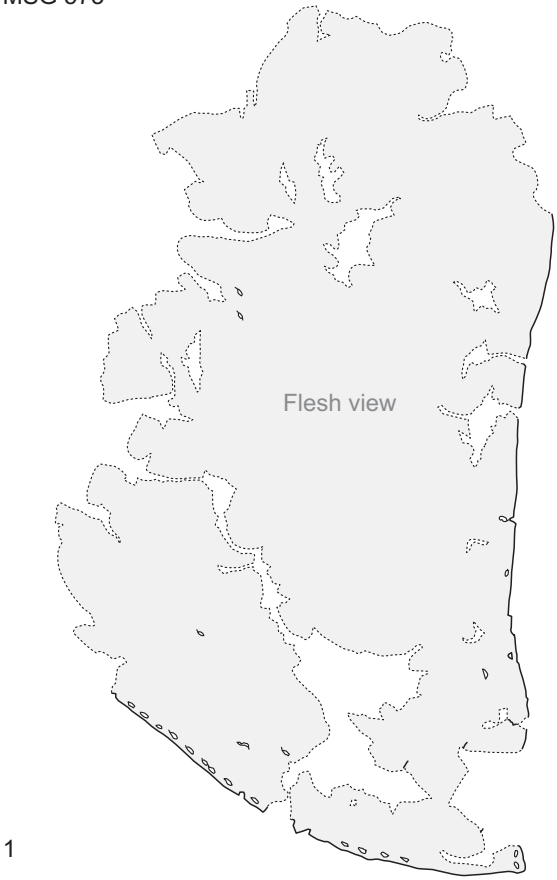


Flesh view



Grain view

(Drawing by Anne Leaver)

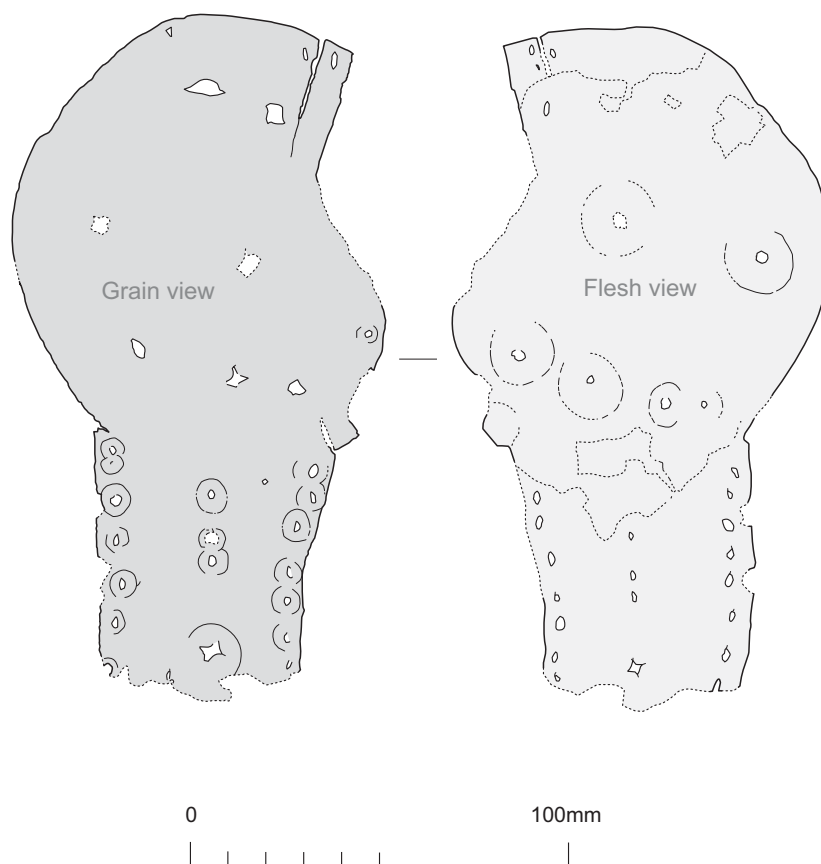


0 100mm

A horizontal scale bar with a vertical line at each end. There are six vertical tick marks between the ends, dividing the bar into seven equal segments. The number '0' is at the left end and '100mm' is at the right end.

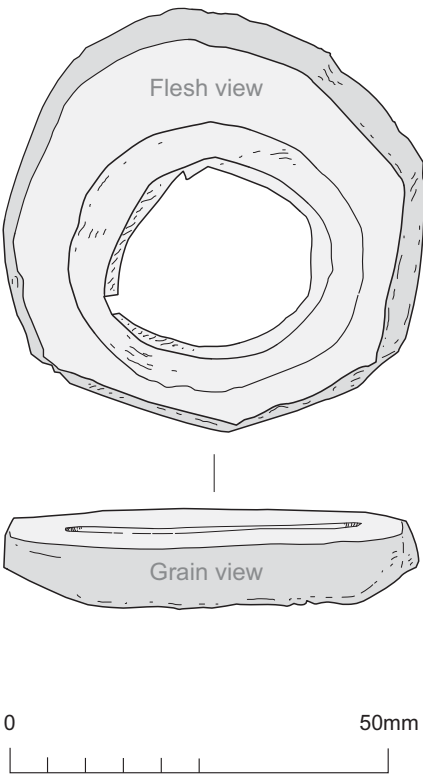
(Drawing by Anne Leaver)

Leather Catalogue 4  
MSG 1292 from  
base of pump CT1682

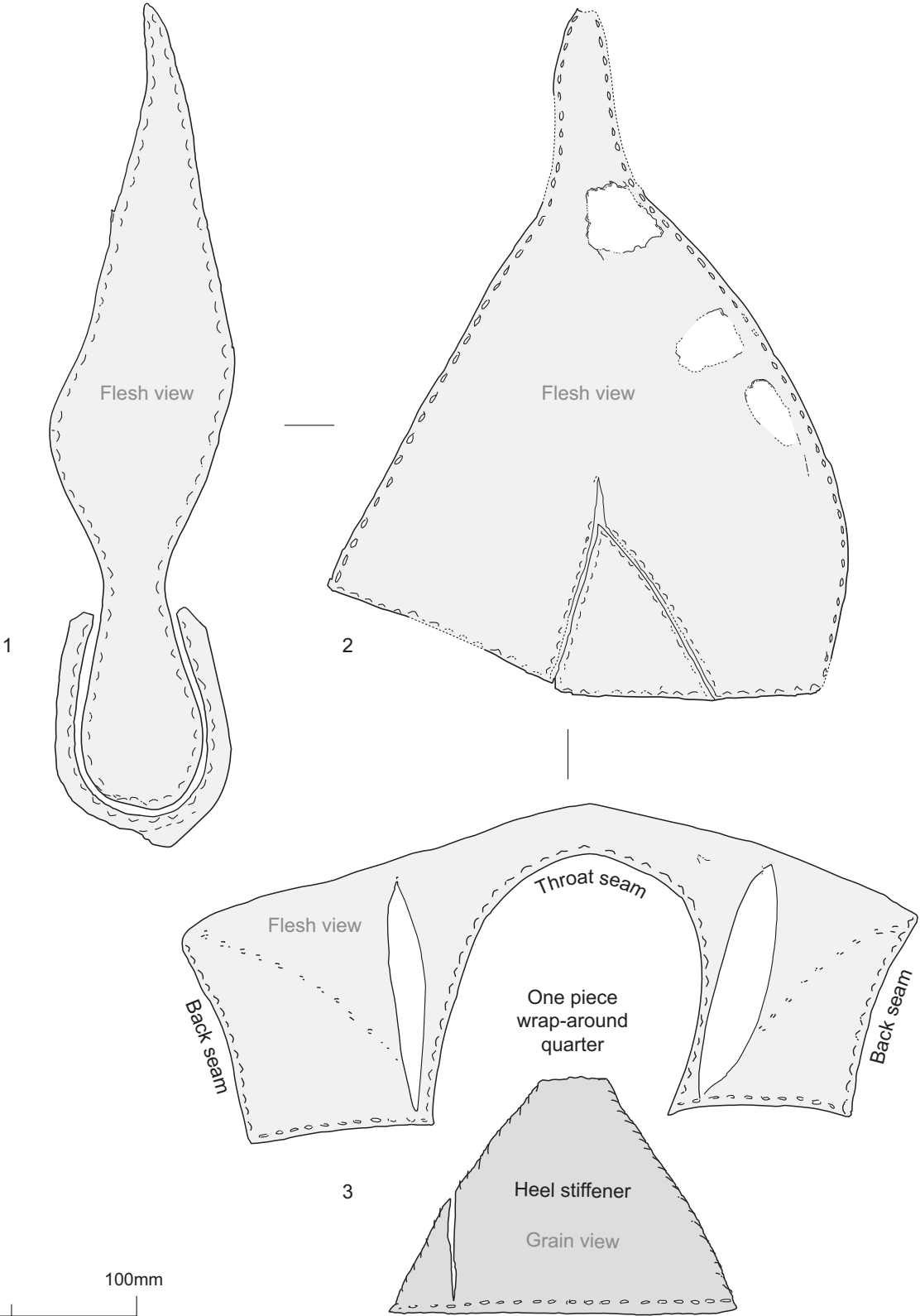


(Drawing by Anne Leaver)

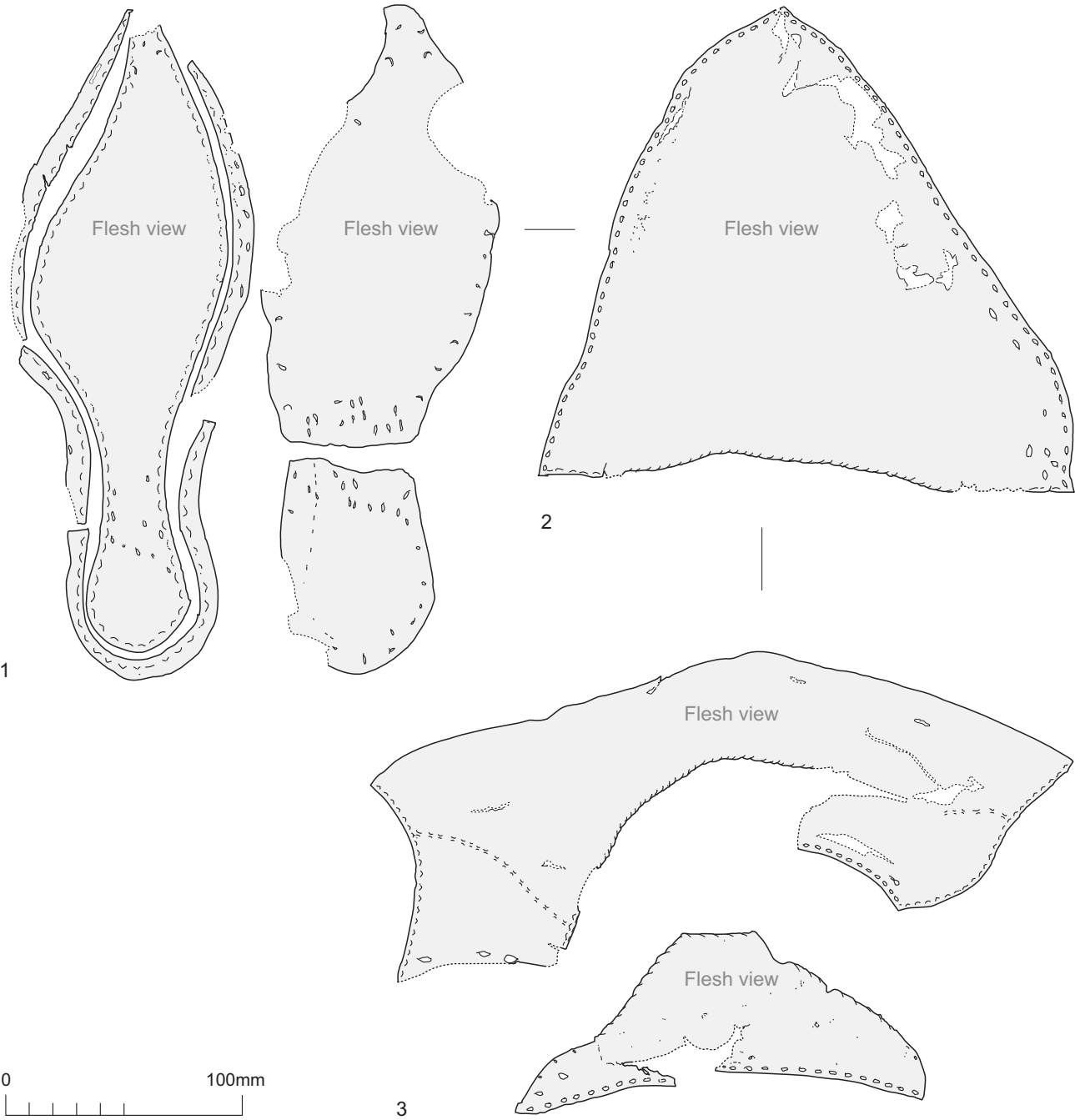




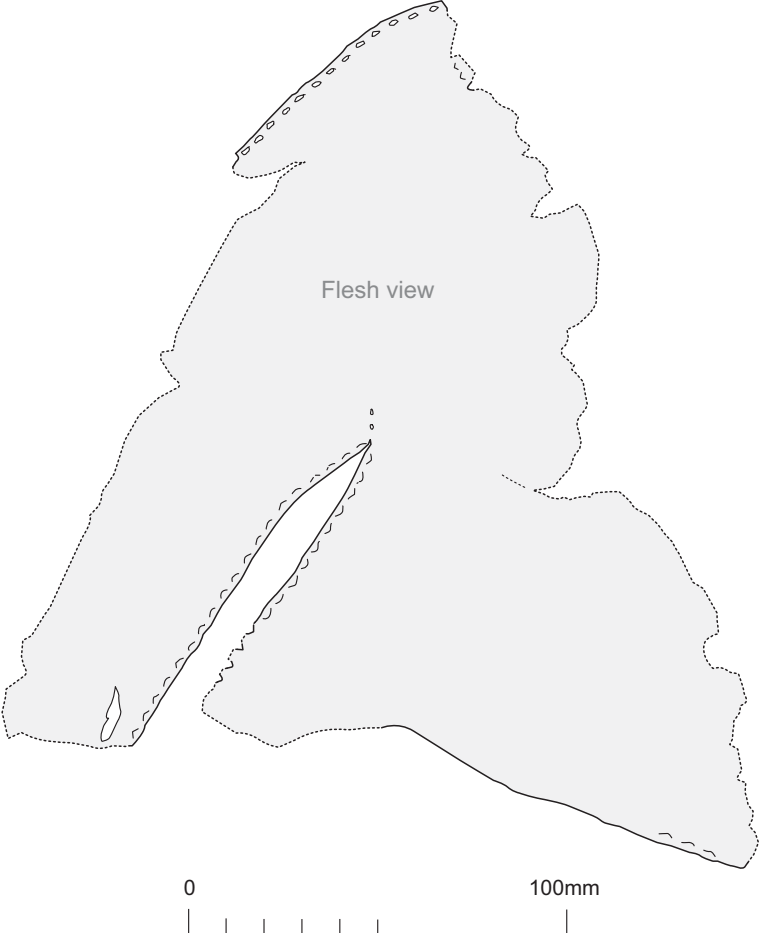
(Drawing by Anne Leaver)



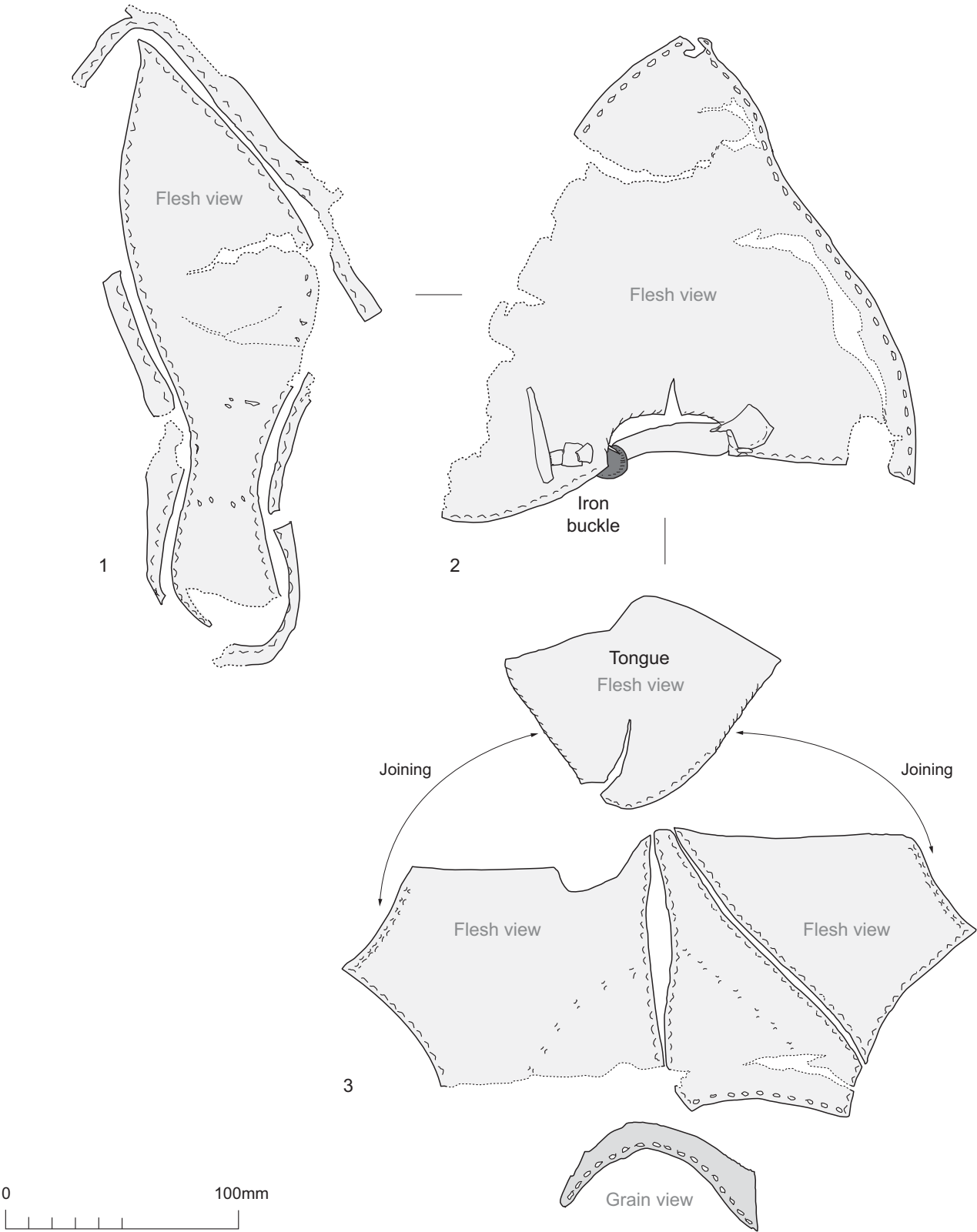
(Drawing by Anne Leaver)



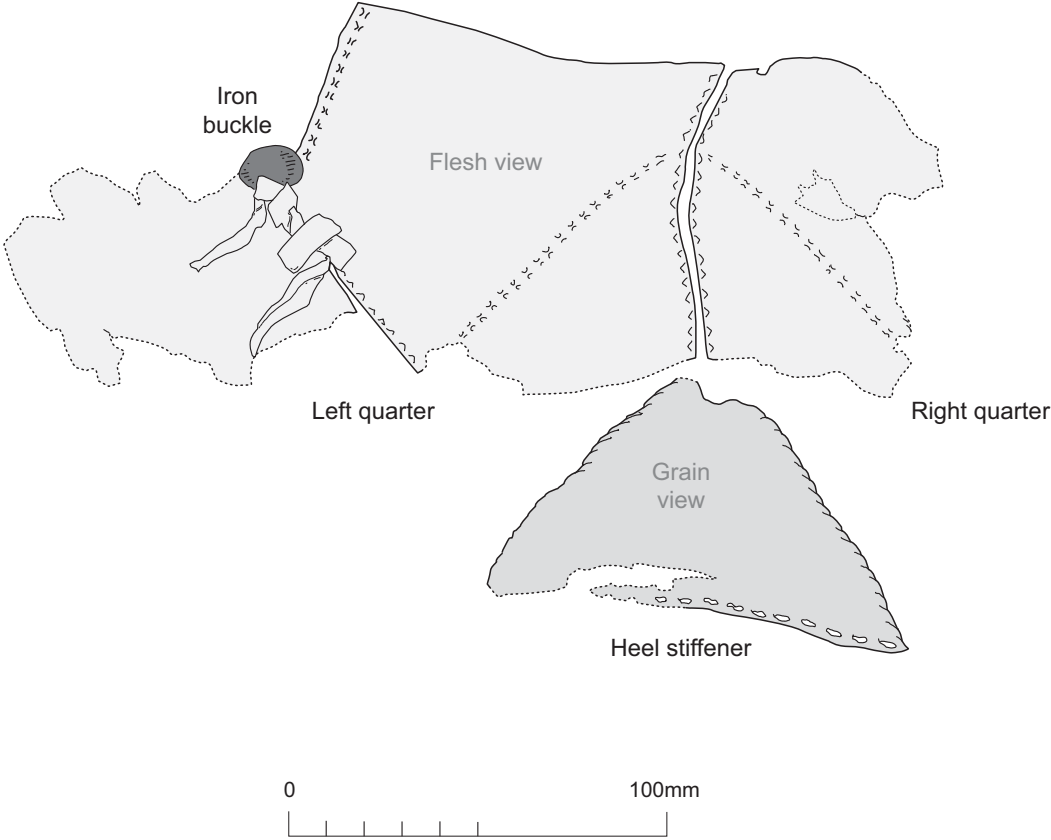
(Drawing by Anne Leaver)



(Drawing by Anne Leaver)



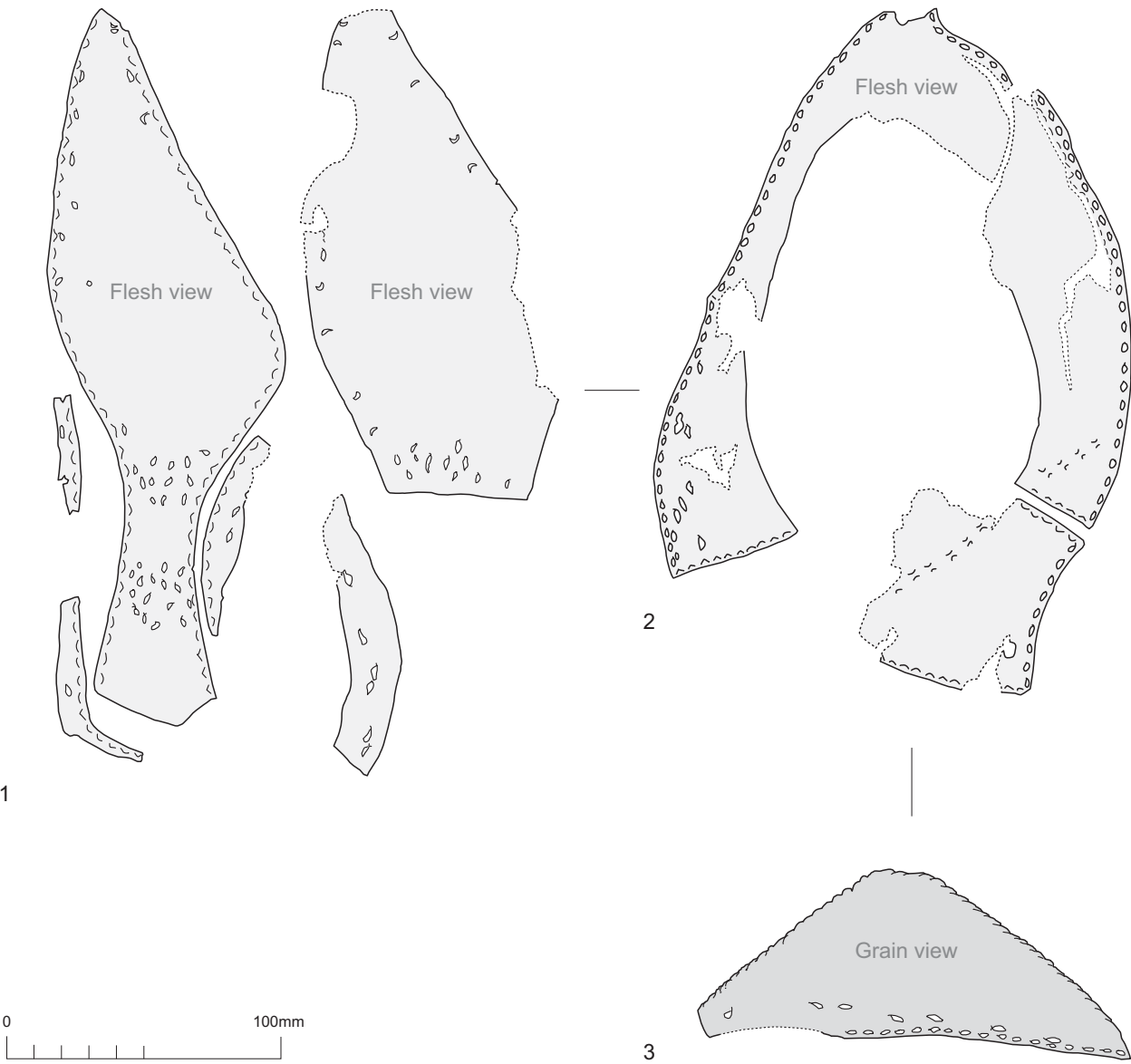
(Drawing by Anne Leaver)



(Drawing by Anne Leaver)

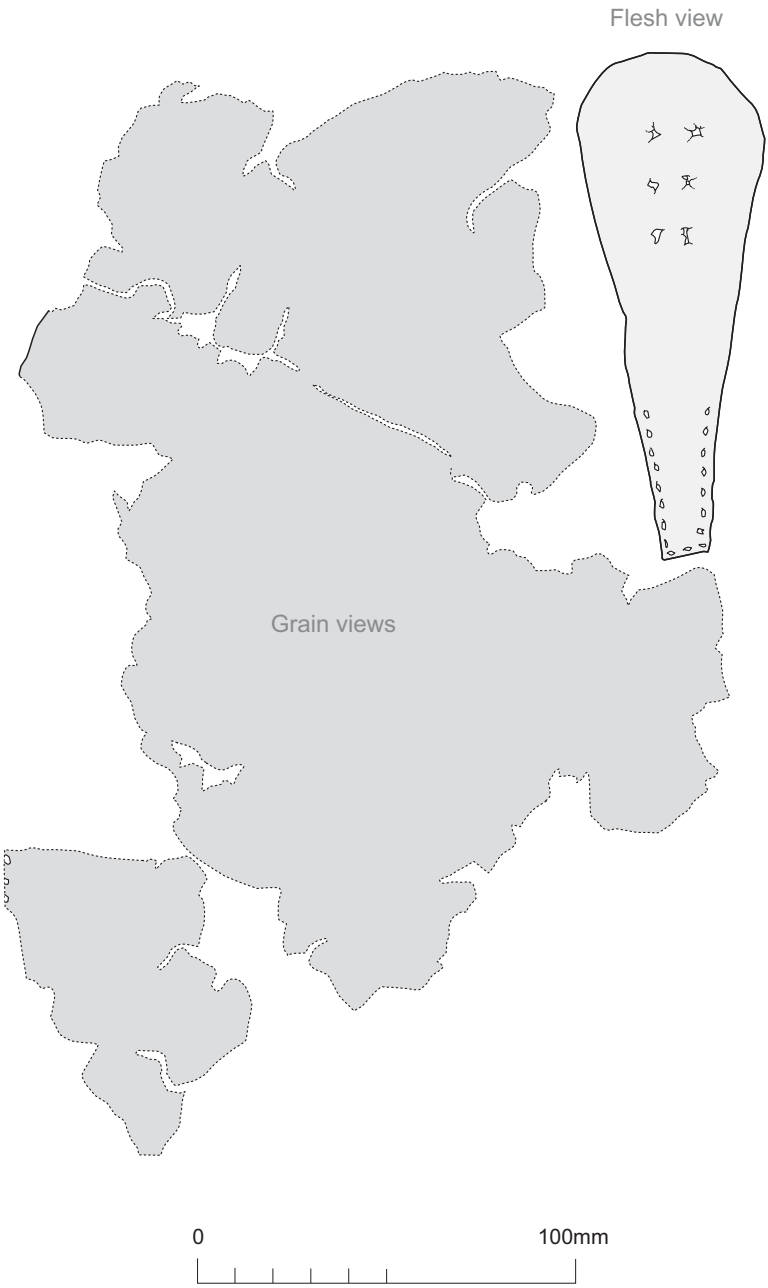


(Drawing by Anne Leaver)



(Drawing by Anne Leaver)





(Drawing by Anne Leaver)

## Leather from the Newport Ship

Context	MSG No	SF No	Material	Name	Type	Part	Description
120	MSG1287	0	Leather	Pump	Burr valve	valve panel, straps	1. broken valve panel (150x115x0.91mm) with 3 nail holes spaced 25-3-mm apart with impression of round nail heads diam 12mm and square shanks, torn away along a vertical seam. 2 fragment of valve panel ( 92x70x19mm) with nail hole and small area of butted seam stitch length 4mm. Fragment with curved cut edge (95x40x1.32mm). 3. Panel fragment (86x80x1.52mm) with torn remains of grain/flesh seam 6mm from the edge and saddle stitched grain/flesh stitch length 7-8mm. Fragment broken from a U-shaped moulded grain/flesh closed seam stitch length 5-6mm from the bottom of a tapering panel, with a short area of butted edge/flesh seam surviving to either side for a max height of 12mm. Grain facing inward bovine 1.75mm thick. Opening 16mm in diameter. 5.fragments of plain strap width 23mm with two rows of elliptical stitching. Narrower strap with horizontal, parallel ridged impressions at one end, and a line of 4 widely spaced grain/flesh stitching. Length of bead/rand of flat section 8mm wide, stitch length 8-9mm. Other small fragments. 5 Strap almost complete with straight ends 242mm long 23mm wide with two rows of elliptical stitching running for 58mm along
120	MSG1292	0	Leather	Strap			delaminated plain strap fragment, torn at each end
120	MSG1292	0	Leather	Pump	Valve claque	Hinge	delaminated clack valve leather hinge of circular shape (broken along one side) extending into a strap like hinge on one side. Circular leather has a series of angular nail shank holes present with impression of the large roundnail heads (16mm diam) on the flesh side. The strap has three lines of nail shank holes present with impressions from the round nail heads (7mm diam) visible on the grain side.
120 or 130	MSG154	SF164	Leather	Archer's wrist guard	inscription and stamped decorated	wrist guard, lining	eight-sided panel with 4 concave curving and 4 straight cut sides. Pair of crude fastening holes in each side with opposing arrow-shaped decorative cut outs (12-13mm long, 11-12mm wide, 40mm apart) in the centre. Converging pair of lines of single stamped pellets (circles diam 1.5mm) along the centre with 4 ribbons of stamped Black Letter inscription each with a stamped 6 petal floral motif to each end. Grain surface worn away in the central section. Separate matching plain lining of calfskin placed flesh to flesh (grainside outward to the arm).
121	MSG119	SF107	Leather	Shoe	Ankleboot, buckled	turnshoe sole, randx4, vamp, 2 part quarters, heel stiffener, tongue	ankleboot for right foot with short pointed toe and narrow waist, 27mm wide, with stitching from clump repairs.Vamp with high throat and instep leg extension. Thong to attach a buckle with strap keeper below
121	MSG120	0	Leather	Waste	Secondary	Trimming	Elliptical trimming with curving profile, pointed at each end, a single stitch hole present at one end suggesting it has been cut from a larger item
121	MSG126	SF136	Leather	Shoe	Repair	clump	clump seat repair for right foot, broken away along the bottom edge. Likely to belong to MSG119 above
128	MSG113	SF122	Leather	Shoe	Sole	turnshoe sole, toe of sole and matching pieces of rand	turnshoe sole for right foot with toe and great toe joint worn away, and medium waist, 37mm wide. 3 pieces of matching rand 8mm wide, 4th piece may not belong. Short pointed toe broken from sole does not fit directly to the rest of the sole and could come from a different shoe, with matching piece of rand 10mm wide
128	MSG114	SF105	Leather	Shoe	Repair	clump	complete large seat repair for right foot, adult size. 2 sets of stitching indicate it has itself been repaired with a second patch
128	MSG115	0	Leather	Shoe	Upper	Quarters	piece cut from the top of a right two part quarters with edge/flesh butted back seam, curving front seam and whip stitched front opening and top edge. Tear-drop shaped fastening hole at the junction of the front seam and leg opening.
128	MSG116	0	Leather	Waste	Secondary	Trimming	tapering triangular shaped trimming with a skived (bevelled) edge
128	MSG116	0	Leather	Waste	Secondary	Trimming	triangular shaped tapering trimming
128	MSG117	0	Leather	Waste	Secondary	cut from shoe upper	sub-rectangular piece with cut edges, torn across one corner, appears to be cut from a shoe upper
128	MSG118	0	Leather	Waste	Primary	hide edge	hide edge cut from cattle hide
128	MSG121	0	Leather	Seam	cut down seam		Long butted edge/flesh seam, stitch length 5mm, cut from a larger item, now curled inward to have a U-shaped profile
128	MSG125	0	Leather	Waste	Secondary	Trimming	

Context	MSG No	SF No	Material	Name	Type	Part	Description
128	MSG128	0	Leather	Shoe	Upper	heel stiffener	one side of a heel stiffener, the other removed with a vertical cut. Stitching above the lasting margin from a repair to the sole seat
128	MSG130	SF115	Leather	Shoe	Upper, cut down	Quarters?	square piece with 3 cut and a torn edge. Two whip stitches from a lapped seam present on the flesh side along the torn edge indicating it has been cut from a shoe upper
128	MSG133	0	Leather	Shoe	Repair	clump, cut down	rectangular piece with worn stitching along both sides cut away at the upper and lower edge. Wear and stitching indicate it is cut from a clump repair piece
128	MSG136	0	Leather	Shoe	Upper	tongue	Complete triangular shaped tongue with a straight cut top edge, the sides tapering in width to a rounded base. Sides and base are whip stitched
128	MSG138	0	Leather	Waste	Secondary	cut from shoe upper	sub-rectangular piece torn in one small area all other edges cut. An oval hole 14x5mm lying close to one edge has been carefully sewn with whip stitching around the edge suggesting it to be a fastening hole to secure a strap fastening and probably cut from a shoe upper or other item of clothing
128	MSG141	0	Leather	Shoe	Upper	Quarters?	piece torn from shoe upper with a butted edge/flesh seam and a length of whip stitched edge at right angle to it with a small fastening slot, 5mm wide for a narrow strap close to the junction of the two seams. A line of whip stitching for a lap seam runs down one plain side suggesting it to be a front opening. May be part of MSG115 above
128	MSG144	0	Leather	Washer			sub-circular outer edge with 7 cut facets, inner edge has an irregular circular shape with a series of small nicks in the edge
128	MSG145	0	Leather	Scrap	Upper?		fragment of sub-rectangular shape with a small length of cut edge along each side, both ends torn away. Possibly broken from a shoe upper
128	MSG152	0	Leather	Scrap	Upper?		fragment with a cut edge and remains of a torn seam (4 stitch holes) at one end. Small piece of tree bark also present
128	MSG152	0	Leather	Scrap	Upper?		4 fragments and other very small fragments or worn leather, the larger with a cut edge
128	MSG153	SF114	Leather	Shoe	Ankleboot, cut down	3 pieces of upper, 4 very small fragments broken from them	upper fragment (150x67x1.80mm) with a butted edge/flesh seam, stitch length 4mm, meeting a sloping grain/edge whip stitched seam at a point. Pointed strap-like piece (162x36x1.80mm) cut from an upper with a butted edge/flesh seam, stitch length 6mm changing to a sloping grain/edge seam, stitch length 4mm, half way along its length. Cut down the opposite side, with other edges torn. Suggestion of a sloping line of tunnel stitching present on the flesh side running toward the torn area. Roughly triangular fragment (190x70x1.72mm) with a long whip stitched edge, all other edges torn
128	MSG153	SF114	Leather	Waste	Secondary	Trimming	tapering relatively wide trimming tapering to a point, other end has clipped corners
128	MSG545	SF103	Leather	Shoe	style unknown	Turnshoe sole, forepart clump repair, rand x4, vamp fragments, left quarters, heel stiffener, repair strip	turnshoe of uncertain style for right foot, adult size. Sole with long pointed toe with 45mm extension and narrow waist 25mm wide and matching forepart clump repair. Toe area of vamp, fragment broken from the left side of vamp, right vamp wing. Left of two part quarters and matching heel stiffener. Sole heavily stitched across waist from repair, upper lasting margin also has repair stitching and a strip with similar stitching appears to be from an internal upper repair.
128	MSG554	SF124	Leather	Shoe	High-throated slip on shoe	Turnshoe sole, forepart and seat clump repairs, 4 x rand, vamp, vamp throat extension that wraps around to form a one-piece quarters seamed at centre back, heel stiffener	complete sole for left foot with long pointed toe with c35mm extension curving outward and narrow waist 27mm wide. Vamp with high wide throat and very low side seams, joining to a 'wrap-around' instep piece that forms a one-piece quarters seamed at centre back

Context	MSG No	SF No	Material	Name	Type	Part	Description
128	MSG556	0	Leather	Shoe	Ankleboot? Highly fragmentary	Turnshoe sole, randx6, small upper fragments, possible tongue, possible heel stiffener	sole with narrow waist 23mm wide, broken away across lower tread and upper seat. 6 fragments of rand 11mm wide including 3 with stitching to attach a repair. 8 small fragments of upper including 1 with fine whip stitching that may be from a tongue and 1 apparently from a heel stiffener
128	MSG558	0	Leather	Unknown	Slit strap		tapering tongue-shaped piece with rounded ends and a long central slot 45mm long, starting 18mm from the narrower end. Now torn into two pieces but complete
128	MSG558	0	Leather	Scrap	Panel?		large delaminating fragment of thick leather with all edges torn and no distinguishing features surviving, and numerous small fragments broken from it
128	MSG566	SF119* (wrongly numbered)	Leather	Shoe	Upper	vamp for left foot	vamp with part of a pointed toe surviving on the right side, lasting margin broken off in all other areas. Vertical central opening running down toward the toe has a delaminated edge/flesh seam along both sides. Left side seam has been cut away and only 3 stitches remain. A large oval thong slot present at the junction of the central opening and the right side seam
128	MSG567	SF107	Leather	Shoe	Sole, cut down	turnshoe sole	sole with edge/flesh seam removed to produce a tongue-like piece, wear suggests was for a left foot, narrow waist preserved 27mm wide, worn stitching from repair
128	MSG568	0	Leather	Washer			Large, sub-circular washer with faceted cut outer edge and irregularly cut circular inner edge. Random worn slits and paired stitch holes indicate it has been cut from another item. Leather varies in thickness. No impression present on either face, so may not have been used
128	MSG816	from sample <033>	Leather	Scrap	Upper?	broken from shoe upper	piece with a small cut area, rest of the edges torn. A single stitch hole remains, apparently broken from part of a shoe upper
129	MSG123	SF108	Leather	Panel		panel, lining (described below)	1. torn panel (230x198x1.6mm) with a small area of cut edge remaining with paired stitch holes, all other edges torn. A double line of grain/flesh stitching spaced 8mm apart runs across the centre with no thread impression on either face. Grain surface heavily worn. 2. Second fragment (100x81x 1.52mm) originally folded or pleated with similar grain/flesh stitching with stitching medium surviving. 4. rectangular piece (95x81x1.7mm) with two cut edges meeting at a curved corner. 5 fragment (128x88x1.65mm) with all edges broken and an oval hole 9x6mm probably a fastening slot raised on one face from a small strap passing through it, now folded. 6. Numerous small fragments broken from them
129	MSG123	SF108	Leather	Panel		lining	3. Sub-rectangular piece with all edges broken and widely spaced grain/flesh stitching running in a curved line across one side, no thread impression visible on either face.
129	MSG151	SF108	Leather	Fragments			now in 17+ fragments, all edges broken and no distinguishing features. Grain pattern surface heavily worn on the majority. The largest piece (125x72x2.09mm) has a small area of cut edge with widely spaced grain/flesh preset suggesting a seam, this has well preserved grain surface and is clearly sheep/goatskin. No doubt broken from same object as MSG123
130	MSG012	SF139	Leather, wood, iron	Pump	Valve claque	turned wooden hemisphere, leather hinge, rectangular piece below, both nailed to the wood	turned hemisphere of elm wood diameter max 114mm, min c 42mm, with leather hinge secured to the flat upper face with iron nails, 14 remaining. The leather hinge is disc shaped with one side torn where the projecting hinge strap was been torn away. A second rectangular piece of leather lies below, placed directly on the flat wooden surface. The side of the hemisphere directly below the torn strap hinge is faceted presenting a flat face roughly 70mm wide and 38mm deep.
130	MSG122	0	Leather	Shoe	Upper	tongue/heel stiffener	triangular shaped delaminated fragment torn from a tongue or heel stiffener, with a straight cut edge and a sloping whip stitched edge.
130	MSG127	0	Leather	Shoe	Upper, cut down	heel stiffener	grain/flesh lasting margin and 2 whip stitches from the side edge, cut away 13mm above the lasting margin
130	MSG134	0	Leather	Shoe	toe area, style unknown	turn-welted sole, rand, upper lasting margin fragments	pointed toe of turnshoe sole for left foot with edge/flesh seam, stitch length 6mm and matching V-shaped rand for the pointed toe area with an edge/flesh seam and a row of grain/flesh stitching along the outer edge, max width 9mm. Also 2 small fragments of grain/flesh lasting margin of delaminated bovine leather broken from the upper

Context	MSG No	SF No	Material	Name	Type	Part	Description
130	MSG137	0	Leather	Shoe	Ankleboot	Quarters	right of two part quarters worn away along the lower edge so that the lasting margin is missing. Butted edge/flesh back seam, stitch length 3mm, and front seam. The upper part of the back seam has been cut away. The top edge is gently convex curving with a cropped front corner, this may be original
130	MSG139	0	Leather	Waste	Secondary	Trimming	narrow trimming with skived (bevelled) edge
130	MSG139	0	Leather	Waste	Secondary	Trimming	narrow trimming with skived (bevelled) edge
130	MSG142	0	Leather	Shoe	Sole	welted sole	waist and seat area of welted sole, probably worn on the right foot, adult size. Broken away at the lower tread and edge of the seat. Sole has a waist (50mm) and seat of medium width. Grain/flesh seam stitch length 5-7mm. Worn stitching at the lower tread from a repair
130	MSG146	0	Leather	Waste	Secondary		elongated triangular shaped piece
130	MSG148	0	Leather	Shoe	Repair	clump	complete clump seat repair for right foot, adult size
130	MSG148	0	Leather	Waste	Secondary	Trimming	trimming tapering from a straight end to a pointed tip, incised lines present on grain surface
130	MSG149	0	Leather	Shoe	Upper		small fragment of upper with 4 stitches from an edge/flesh butted seam, stitch length 4mm and a large grain/flesh stitch or a small slot at one end. Also small fragments broken from it
130	MSG150	0	Leather	Shoe	Upper		12 very small fragments of similar leather to MSG149 and probably broken from it, the largest is of triangular shape with two cut sides. Originally described as 2 fragments
130	MSG156	SF158	Leather	Shoe	High-throated, buckle and strap fastening shoe	Turnshoe sole, rand x8, vamp, two-part quarters, heel stiffener, bellows tongue	complete sole for right foot with short pointed toe and narrow waist 29mm wide. Vamp with tall side seams, small concave curving throat with whip stitching to attach the tongue and central vertical cut. Fastening with a narrow strap and small circular iron buckle and strap keeper below. Two part quarters with front opening with whip stitching for a lapped seam to attach to the bellows tongue
130	MSG555	SF151	Leather	Shoe	Boot?	heel stiffener, panel fragments	complete heel stiffener and panel fragments of fragile calfskin. 1 main piece and 8+ small fragments of fine, friable, folded calfskin including a fragment of lasting margin with butted edge/flesh seam at right angle to it. The main fragment is folded lengthwise and has a gently curved cut edge at one end but no other distinguishing features survive. Possibly the leg of a soft, wrinkled boot c. 270mm high when originally seen
130	MSG559	SF152	Leather	Shoe	Ankleboot	Turnshoe sole, rand, edge cut from a clump repair, vamp, upper fragmentsx3	narrow waist area of sole for right foot, adult size, cut obliquely away across the lower treas and upper seam. edge/flesh seam stitch length 5mm. Small piece of rand 11mm wide. Skived edge cut from a clump with tunnel stitching. Pointed toed vamp with toe extended more than 40mm, tip broken off, stuffed with organic material (appears to be moss). Upper (223+mm) appears to come from a principally one-piece upper with a butted single side seam at least 95mm high on the left side and a throat seam to attach a 'leg' extension on the right. 3 other fragments broken from the upper.
130	MSG573	SF109	Leather	Pump?	Burr valve?	valve panel fragments?	remains of sub-rectangular panel (258x135x`.53mm) with whip stitching, stitch length 6-7mm, along one edge and the suggestion of a second straight edge with small grain/flesh stitching opposite it. No other features, much folded when recovered. Fragment (80x23x1.07mm) with a length of similar whip stitching appears to be broken from it, and a delaminated fragment from it. Triangular panel (204x144x2.22mm) tapering to a point from the plain cut top edge, the converging sides have grain/flesh closed seams, stitch length 6-8mm, now folded along its length.
130	MSG817	from sample <153>	Leather	Waste	Secondary		triangular-shaped piece
130	MSG817	from sample<153>	Leather	Scrap	Upper?		delaminated fragment with two cut edges meeting at a right angle, other edges torn. Likely to be broken from a shoe upper

Context	MSG No	SF No	Material	Name	Type	Part	Description
130	MSG860		Leather	Pump?	Burr valve?	valve panel fragments	1 folded and distorted piece (45x40x1.85mm) with a butted edge/flesh seam, stitch length 5mm, with a large nail hole close by. 2 fragment (33x15x2.49mm) apparently broken from it with a butted edge/flesh seam and a cut edge at right angle to it. 3. Crescentic-shaped piece (58x16x3.46mm) cut from a closed grain/flesh seam, stitch length 5mm, thought to have joined to the edge/flesh seam of 1 and 2 above when originally seen. 4 washer-shaped piece (30x26x1.38mm) with central hole and roughly circular outer edge, all broken, appears to be the area protected below the surviving domed iron rivet head present (diam 25mm) which also has some leather adhering to the flat underside and wrapping up and over the side to extend onto the side of the head. 5 Also a complete iron nail very heavily encrusted with hair present in the corrosion products (length 23mm, width 23mm),
130	MSG879	SF116	Leather, wood, iron	Pump	burr	burr valve and spear	central wooden spear with a conical outer and inner leather sleeve, each with a single, virtical, beaded, butted grain/flesh seam, nailed to the end of the spear. Four straps (250-293mm long, 25mm wide) attached with a double line of grain/flesh stitching to the upper (wider) end of the outer sleeve and nailed to the wooden spear. The inner sleeve has a secondary virtical slash down most of its length. Also 2 small rectangular pieces cut from the stitched end of two other straps.
149	MSG129		Leather	Shoe/Panel?	Boot?	leg?	fragment of thick leather with a long butted edge/flesh seam, stitch length 4mm surviving for a length of 190mm with stitching medium preserved, and a plain cut edge at right angle to it, other edges torn away. Possibly the leg of a boot or broken panel from another item, no other distinguishing features survive.
149	MSG143		Leather	Washer			Broken washer: crescent-shaped piece with a hand cut, curved outer edge and a less clearly cut inner edge, other ends broken
152	MSG131		Leather	Washer			circular washer with central hole, diam 27mm, and dished outer profile. Centre of flesh side has circular impression around the hole and a stepped inner profile
152	MSG147		Leather	Shoe	Upper	heel stiffener	fragmentary remains (8+ pieces) of heel stiffener, lasting margin broken off. Adult size
172	MSG155	SF185	Leather	Shoe	High-throated slip on shoe	Turnshoe sole, rand, vamp, vamp throat extension forming wrap around one-piece quarters, heel stiffener	complete shoe for left foot, adult size with long pointed toe with c 80mm extension and narrow waist 36mm wide. High-throated vamp with extension at the instep wrapping around to form a one-piece quarters with a butted back seam. Secondary vertical slashes at the ankle on each side, that also cuts through one side of the heel stiffener
1000	MSG016	SF322	Bark				now broken in 2 pieces
1001	MSG140	SF300	Leather	Shoe	Repair	clump	forepart clump repair for left foot with long outward curving extended toe
1001	MSG789	SF309	Leather	Shoe	Upper fragments	heel stiffener	small fragment with grain/flesh seam, stitch legth 6-7mm with stitching medium present. One edge snapped off, the others are torn. Curving inward suggesting it is broken from a heel stiffener
1001	MSG553	SF311	Leather	Pump?	Burr valve?	panel fragments	17 fragments with broken edges and few features surviving including 3 fragments with grain/flesh seam, stitch length 4mm; 2 fragments with a single grain/flesh stitch present. When orginally seen in 2008 (supported by soil block as lifted) the object was entire, being a trapezoidal panel 270mm long, one end c. 185mm wide, the narrower end 90mm wide at that time no other features were observed.
1002	MSG055	SF321	Leather	Shoe	Ankleboot with buckle and strap fastening	two-part quarters, heel stiffener and side seams of vamp	8 principal and numerous small fragments of ankleboot with remains of two part quarters with butted edge/flesh back seam, sloping front seam with circular iron buckle and keeper strap, complete heel stiffener. Surviving height 80+mm Adult size
1002	MSG543	SF305	Leather	Shoe	Upper fragments	?vamp area	one larger and numerous small fragments, the larger with small area of grain/flesh lasting margin, stitch length 6mm. Surface much cracked and with much soil still adhering



Context	MSG No	SF No	Material	Name	Type	Part	Description
1007	MSG790	SF312	Leather	Shoe	Repair	clump seat	clump seat, left foot, adult size with some wear. In addition to the tunnel stitching around the edge on the flesh side is a line of 3 nail/peg holes across the lower edge and 2 running vertically up the centre
1021	MSG058	SF316	Leather	Shoe	Ankleboot	upper fragments	fragments, the largest with a small area of delaminated grain/flesh seam, stitch length 7mm and a butted edge/flesh whip stitched seam, stitch length 4.5mm that appears to be the top edge. Appears to be from a large ankleboot. The flesh side is in very poor condition but the grain side in well preserved.
2027	MSG124	SF204	Leather	Strap	Handle?		long, narrow, slightly tapering strap broken across one end with a small iron rivet, diameter 2mm, passing through it and the hole for another alongside, other end is pointed with an obliquely cut and a torn side.
2027	MSG787	SF201	Leather	Seam	cut down seam		trimming to remove a length of seam tapering from a torn end to a pointed tip. A line of grain/flesh stitching with an irregular stitch length of 3mm runs about half way along its length on one side the other side has been cut away
U/S	MSG132		Leather	Shoe	Upper	heel stiffener, cut down	heel stiffener of adult size cut away c. 13mm above the lasting margin when removing the shoe upper from the sole
U/S	MSG135		Leather	Unknown	panel		Piece torn calfskin with a grain/flesh closed seam, stitch length 4mm, meeting another with stitch length 5-6mm at a right angle, other edges torn away. Potentially from an item of clothing
U/S	MSG552		Leather, wood, iron	Shoe	clog	wooden sole (beech wood), iron tacks, leather upper fragments. Adult male size	complete wooden sole for left foot with toe with high cast and iron of 'square half round' shape, wide waist and seat with low integral D-shaped heel 15mm high carved from the base of the sole with iron. The sole is rebated around the edge with row of small round-headed iron tacks present, diameter 15mm, to secure the lasting margin of the upper. Leather preserved under and around the tacks may be from a welt or part of the upper: too little remains to be certain. On the inner side at the lower waist area there appears to be two layers present suggesting an upper with the heel stiffener within. No diagnostic features preserved on the leather . Thickness 2.11mm heel stiffener, 1.43mm upper leathre
U/S	MSG557	SF113	Leather	Shoe?	Boot?	leg?, upper fragments, boot strap	panel originally folded with few distinguishing features but 4 stitches from a whip stitched lapped seam on the grain side along a small area of edge. Piece (107x42x1.16mm) broken from it with small area of original edge surviving. Smaller fragment (84x51x1.34mm) with 3 stitches from a butted whip stiched edge/flesh seam, stitch length 4mm. 7+ small fragments broken from them. Tongue-shaped boot strap with a wide rounded terminal tapering to a narrow strap with a straight end with a seam of grain/flesh stitching, stitch length 5mm, around the edge. 3 pairs of irregular nail or stitch holes aligned 10mm apart running slightly off centre down the wider end. Length 130mm, width max 50mm, min 11mm.

MSG No	Length mm	width mm (max)	thickness mm	species ID	Condition	Cardiff No	Lab No.	Box No	Location
MSG1287				calfskin	conserved	0	0	1	Found with pump 1628 assoc with pump base COW 3114
MSG1292	77+	24	1.42 (delaminated)	delaminated no grain pattern survives	conserved	0	0	3	Base of pump CT1682
MSG1292	180+	103+ Diam	delaminated	cattle hide, delaminated	conserved	0	0	3	Base of pump CT1682
MSG154	117 (front panel)	113	3.94 (front panel), 2 (lining)	cattlehide, lining calfskin	conserved	0	0	6	from base of mast step
MSG119			1.67	bovine, worn	conserved	0	0	2	
MSG120	98	11	1.44	calfskin	conserved	8278	1231	3	
MSG126	52+	57			conserved	8279	0	3	F50-51
MSG113	220+ (nr complete sole)	74			conserved	0	0	2	F4-5 BOW
MSG114	109	80			conserved	8277.01	0	3	
MSG115	Ht 88+	94	1.37	sheep/goatskin	conserved	0	1196	5	BOW
MSG116	77	15	5.34	cattle hide	conserved	8277.02	0	6	F11-12 STBD
MSG116	58	22	2.09	bovine	conserved	8277.02	0	6	F11-12 STBD
MSG117	153+	114+	2.38	cattle hide, worn	conserved	0	1206	5	BOW
MSG118	180	64	6.65	cattle hide	conserved	0	1207	6	
MSG121	158	27	1.89	calfskin, worn	conserved	0	1194	6	BOW
MSG125	71	7	2.4	bovine, worn	conserved	8272	1205	6	BOW



MSG No	Length mm	width mm (max)	thickness mm	species ID	Condition	Cardiff No	Lab No.	Box No	Location
MSG128	Ht 63	73	1.85	bovine, worn	conserved	0	0	5	
MSG130	98	95	4.07	cattle hide	conserved	0	1199	1	
MSG133	37	71	3.52	cattle hide, worn	conserved	0	1212	6	
MSG136	72	97	1.65	bovine, worn	conserved	0	0	5	F34
MSG138	120	135	1.16	calfskin, worn	conserved	0	1208	5	BOW
MSG141	Ht 110	82	1.34	sheep/goatskin	conserved	0	1198	5	
MSG144	Diam 44		1.5	bovine, worn, grain surface cracked	conserved	0	1210	3	BOW
MSG145	64+	44+	1.47	bovine, worn	conserved	0	1211	3	BOW
MSG152	53+	36+	1.54	bovine, worn	conserved	0	1201	6	BOW
MSG152	92+ (largest piece)	53+ (largest piece)	1.55	bovine, worn	conserved	0	1201	6	BOW
MSG153	190+ (largest piece)	70+ (largest piece)	1.8	calfskin	conserved	0	1200	6	
MSG153	66	18	2.54	cattlehide	conserved	0	1200	6	
MSG545	260 (sole)	71	1.36	bovine, worn	conserved	0	1230	5	F22-23 PORT adjacent to F22
MSG554	258 (sole)	80	1.58	cattle hide, worn	conserved	8273 (no used twice)	0	6	F4-5 PORT BOW

MSG No	Length mm	width mm (max)	thickness mm	species ID	Condition	Cardiff No	Lab No.	Box No	Location
MSG556		63+			conserved (poor condition, some with wet surface)	0	1204	7	BOW
MSG558	213	63	2.1	cattle hide, worn	conserved	0	1189	1	BOW NE
MSG558	144+	136+	3.19	cattle hide	conserved	0	1189	1	BOW NE
MSG566	200		2.24	cattle hide, worn	conserved	0	1203	4	
MSG567	206	50			conserved	0	0	3	
MSG568	80	73	5.5 (max)	cattle hide	conserved	0	0	5	F24
MSG816	79+	40+	1.82	bovine, worn	conserved	0	0	5	from sample <033> from residue
MSG123				bovine, with degraded grain surface	cnserverd	0	1186	2	NE corner of boat
MSG123	85+	70+	1.54	sheep/goatskin	conserved	0	1186	2	NE corner of boat
MSG151				sheep/goatskin , probably bovine	conserved	0	1187	6	NE corner of boat
MSG012	Diam 114		5	cattle hide	wet, unconserved	0	0	not sent	F33-38 STBD
MSG122	Ht 50+	62+	1.2	bovine, worn	conserved	8275	0	5	F8-9 P
MSG127	Ht 13	45	3.25	bovine, heavily worn	conserved	8273 (no used twice)	1246	5	F21-22
MSG134	42+	45+		delaminated	conserved	0	1244	5	F13-14 STBD

MSG No	Length mm	width mm (max)	thickness mm	species ID	Condition	Cardiff No	Lab No.	Box No	Location
MSG137	Ht 123+	116	2.3	cattle hide, worn	conserved	8279	0	5	STERN area
MSG139	83	4	1.5	calfskin	conserved	8276.02	0	5	F6-7
MSG139	48	5	0.59	calfskin	conserved	8276.02	0	5	F6-7
MSG142	156+	62+			conserved	8275	0	5	F41-42 S
MSG146	172	79	2.78	cattle hide, worn	conserved	0	0	6	Beneath sample <077>
MSG148	75	60		delaminating in places	conserved	0	1251	3	F9-10 PORT
MSG148	85	15	4.94	cattle hide	conserved	0	1251	3	F9-10 PORT
MSG149	68+	36+	2.17	bovine, worn	conserved	8415.02	0	6	F5-6 P
MSG150	17 (largest piece)	11 (largest piece)	1.58	bovine	conserved	8415.01	0	6	F5-6
MSG156	250	78	2.45	cattle hide	conserved	0	0	7	
MSG555	265+ (largest piece)	236+ (largest piece)	1.39	calfskin, delaminating in places	conserved	0	0	4	
MSG559	80 (sole)	32 (waist)	1.36	calfskin	conserved	0	0	1	F50-51 STBD
MSG573	258+ (largest piece)	135	1.53	calfskin	conserved	0	0	1	SN
MSG817	40	16	3.66	cattle hide, heavily worn	conserved	0	0	5	F5-6
MSG817	56+	46+	0.92	calfskin, delaminated	conserved	0	0	5	F5-6

MSG No	Length mm	width mm (max)	thickness mm	species ID	Condition	Cardiff No	Lab No.	Box No	Location
MSG860	45+ (largest piece)	40+ (largest piece)	1.85	bovine leathers (calf and cattle hide)	conserved	0	1206	6	
MSG879	210 (outer sleeve)	140 (outer)	4.2	cattle hide	wet, unconserved	0	1233	not sent	
MSG129	215+	103+	2.69	bovine	conserved	0	0	1	F33 STBD midships
MSG143	55+	27	4.98	cattle hide, worn	conserved	0	0	3	F45 STBD
MSG131	Diam 54		5	cattle hide	conserved	0	1247	6	F30-31 STBD
MSG147	69+ (largest piece)	32+ (largest piece)	1.5	calfskin	conserved	0	0	6	F6-7
MSG155	310 (sole)	75	2.38	cattle hide	conserved	0	0	3	below ship, PORT along the keel
MSG016					conserved	0	0	1	
MSG140	178	95		delaminating	conserved	8276.01	0	6	
MSG789	45+	33+	2.16	cattle hide	conserved	0	0	6	
MSG553	170+ (largest piece)	157+ (largest piece)	1.9	bovine, poor condition, delaminating in places, grain surface cracked	conserved	0	0	3	
MSG055			1.24	calfskin, worn	conserved	0	0	4	
MSG543	102+ (largest piece)	98+	1.77	calfskin	conserved (re-wetted prior to conservation)		0	0	aft of S12, below S10

MSG No	Length mm	width mm (max)	thickness mm	species ID	Condition	Cardiff No	Lab No.	Box No	Location
MSG790	68	68		cattle hide	conserved	0	0	6	
MSG058	300+ (largest piece)	145+	3.03	cattle hide, delaminated over much of the area	conserved (re-wetted prior to conservation)	0	0	4	
MSG124	595	9-11	2.56	cattle hide	conserved	8273	0	6	
MSG787	186+	10	1.55	bovine, worn, delaminating	conserved	0	0	6	
MSG132	165	13 (Ht)	1.34	bovine	conserved	0	1245	3	
MSG135	69+	27+	1.84	calfskin	conserved	8274.02	0	6	Possibly from SF 107, 152 or 185
MSG552	305 lower face of sole, 109mm upper face	110mm lower face, 109mm upper		bovine	wet, unconserved	0	0	not sent	found early in excavation, mid July 2002, could be significantly later in date than the ship itself
MSG557	251+ (largest piece)	157+ (largest piece)	1.44	calfskin, grain surface deteriorated	conserved	0	0	1	BOW NE



Material: Leather

Context: 128

Function: Shoe sole and rand.

Dimensions: 255mm x 75mm x 38mm in total (approx)

Description: 11 fragments of turnshoe sole and rand. The sole, in two parts, has stitching around the edge but they do not perforate through. Four pieces of rand with stitch holes are present.

**MSG 114**

Material: Leather

Context: 128

Function: Shoe heel repair - clump.

Dimensions: 105mm x 82mm x 5.2mm

Description: Adult size right foot, large seat repair. Stitch or nail holes around outer edge, unevenly spaced. One end, is rounded, the opposite end is straight. One large rip from the heel end is 65mm in length. 4 of the 5 sides are stitched. One eyelet is present, tear drop in shape. The stitching along the longest edge perforates through the leather. The rest of the stitching is only visible on the flesh side.



**MSG 115**

Material: Leather - sheep/goatskin

Context: 128

Function: Shoe upper quarters.

Dimensions: 89.4mmx81mmx2.2mm.

Description: 4 of the 5 edges are stitched. One eyelet is present, tear drop in shape. The stitching along the longest edge perforates through the leather. The rest of the stitching is only visible on the flesh side. Tear-drop shaped fastening hole at the junction of the front seam and leg opening.





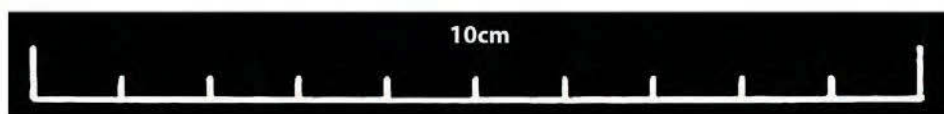
Material: Leather - bovine

Context: 128

Function: Waste

Dimensions: Largest is 75mmx15mmx5mm

Description: The smaller is 54mmx14mmx2.1mm. No stitching on either piece. Both are triangular in plan with a skived edge.



MSG 117

Material: Leather - cattle hide	Description: Offcut from shoe upper. No stitching. Original edges exist (except for small area of damage)
Context: 128	
Function: Offcut	
Dimensions: 149mmx106x2.5mm	



MSG 118

Material: Leather - cattle hide

Context: 128

Function: Offcut.

Dimensions: 180mmx64mmx5.2mm.

Description: Cattle hide waste. Quite thick. No stitching. Hide edge.

Part 1



MSG 119

Part 2



MSG 119

Material: Leather- bovine

Context: 121

Function: Fragments of a buckled ankleboot.

Dimensions: largest measures 135mmx100mmx2.1mm

Description: 20 pieces . The largest consists of 2 pieces with stitch holes at the seam as well as 6 lace holes, the leather lace is in situ. Piece 2 has stitching along one edge.

Description: For right foot, short pointed toe, narrow waist. Repairs present. Piece 3 has stitching around 3 of its 6 sides as well as diagonal stitching across the piece on the flesh side. Piece 4 has 2 types of stitching. Piece 5 has stitching along two edges. Piece 6 may be part of a sole with stitched edges and puncture holes. Piece 7 (largest of group 7) has folded edges and stitching along two edges. Group 8 appear to be rands.





Material: Leather - calfskin

Context: 121

Function: Waste

Dimensions: 90mm x 10mm x 1.67mm

Description: Leather strip, wide at the centre, tapers towards each end. Curling in at both ends towards the grain side. Single stitch hole.

**MSG 121**

Material: Leather - calfskin

Context: 128

Function: Cut down seam.

Dimensions: 155mmx16.6mmx1.7mm

Description: Curling in towards grain side. Stitching along one edge-may have been binding stitch. Stitch holes are fairly evenly spaced approx 2.5mm apart.

**MSG 122**

Material: Leather - bovine

Context: 130

Function: Tongue or heel stiffener

Dimensions: 60mm x 50mm x .8mm

Description: Triangular in plan with two original edges, one of which has eleven bind stitch holes and a scalloped edge. The grain side has some rust coloured staining. Delaminated. Worn.

Part 1



Part 2



MSG 123

Material: Leather - bovine.

Context: 129

Function: Panel lining.

Dimensions: Largest is 200 x 170mm x 1mm

Description: 6 fragments. The largest piece is fragmented around the edges with possible puncture holes dispersed. Two of the four remaining fragments have no stitching and damaged edges. The trird fragment has stitch hole around two of its edges, the last piece has an eyelet at one corner.





Material: Cattle hide

Context: 2027 test trench 6

Function: Possibly part of a harness.

Dimensions: 640mm x 8mm x 2.25mm

Description: Not associated with the ship. 1 strip. One end has a small metal pin in it. The pin head is circular with a through from the grain side toward the flesh side, 7mm from the end. Adjacent to the pin is a hole, with some iron staining, with a diameter of 2.2mm. The opposite end is cut to a point. There is some damage to the flesh side.



**MSG 125**

Material: Bovine

Context: 128

Function: Offcut / waste

Dimensions: 68mmx74mmx2.4mm

Description: No stitching. All edges appear to be original. Worn.

**MSG 126**

Material: Leather

Context: 121

Function: Repair clump.

Dimensions: 55mm x 57mm x 1.59mm

Description: Three original edges and two stitch holes present. Curling at edges toward grain side. Two tiny fragments are associated and packaged with it. For right foot. Possibly associated with MSG119.



MSG 127

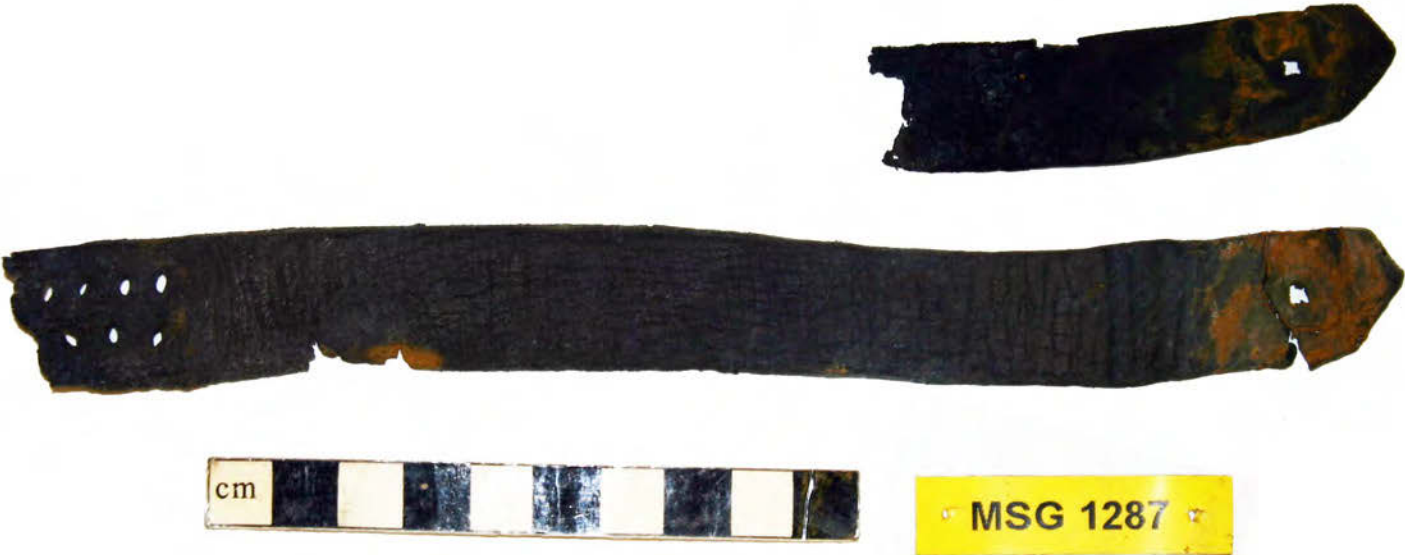
Material: Leather - bovine

Context: 130

Function: Heel stiffener

Dimensions: 44mm x 13.2mm x 2.8mm

Description: Appears to be one piece, folded over. Grain/flesh lasting margin and 2 whip stitches from the side edge, cut away 13mm above the lasting margin. Heavily worn.



Description: 1. broken valve panel (150x115x0.91mm) with 3 nail holes spaced 25-3-mm apart with impression of round nail heads diam 12mm and square shanks, torn away along a vertical seam. 2 fragment of valve panel ( 92x70x19mm) with nail hole and small area of butted seam stitch length 4mm. Fragment with curved cut edge (95x40x1.32mm). 3. Panel fragment (86x80x1.52mm) with torn remains of grain/flesh seam 6mm from the edge and saddle stitched grain/flesh stitch length 7-8mm. Fragment broken from a U-shaped moulded grain/flesh closed seam stitch length 5-6mm from the bottom of a tapering panel, with a short area of butted edge/flesh seam surviving to either side for a max height of 12mm. Grain facing inward bovine 1.75mm thick. Opening 16mm in diameter. 5.fragments of plain strap width 23mm with two rows of elliptical stitching. Narrower strap with horizontal, parallel ridged impressions at one end, and a line of 4 widely spaced grain/flesh stitching. Length of bead/rand of flat section 8mm wide, stitch length 8-9mm. Other small fragments. 5 Strap almost complete with straight ends 242mm long 23mm wide with two rows of elliptical stitching running for 58mm along.

Material: Leather - calfskin.

Context: 120

Function: valve panel straps from burr pump valve.

Dimensions:

**MSG 129**

Material: Leather - bovine.

Context: 149

Function: Possible shoe/boot fragment.

Dimensions: 215mmx99mmx2.4mm.

Description: Two original edges with stitching. Thread appears to be in situ in places. Stitches, along the longest edge don't perforate the leather through to the grain side.





mm 10

**MSG 130**

Material: Leather - cattle hide.

Context: 128

Function: Shoe fragment.

Dimensions: 101mmx95mmx3.4mm

Description: 1 irregular thick piece of Leather. Three possible original edges. Some rust coloured staining visible on the grain side. Two whip stitches from a lapped seam present on the flesh side along the torn edge indicating it was cut from a shoe upper.



**MSG 131**

Material: Leather - cattle hide.

Context: 152

Function: Washer - possible pump component.

Dimensions: Outer diam is 53mm, inner diam is 24mm.  
3.1mm thick.

Description: Octagonal in plan with roughly circular hole through the centre with a circular compression mark which has a diameter of 26mm. Small amount of damage around inner hole-possibly original.



**MSG 132**

Material: Leather - bovine.

Context: U/S

Function: Heel stiffener cut down.

Dimensions: 160mm x 11.4mm x 1.8mm.

Description: Large stitch holes along one edge, evenly spaced 5.2mm apart. Heel stiffener of adult size cut away c. 13mm above the lasting margin when removing the shoe upper from the sole.

**MSG 133**

Material: Leather - cattle hide.

Context: 128

Function: Shoe repair - clump cut down.

Dimensions: 70.7mm x 37.3mm x 2.2mm

Description: Rectangular in plan with stitch holes along both parallel short edges. Larger puncture holes in the centre. Worn.

**MSG 134**

Material: Leather - bovine.

Context: 130

Function: Shoe fragment (toe).

Dimensions: 45mm x 44mm x 1.5mm

Description: 4 fragments . Two of the edges are doubled over and stitched. The other three are strips with stitch holes. One is 'V' shaped in plan with double rows of stitching and 2mm thick. Turn-welted sole, rand, upper lasting margin fragments. Left foot.

**MSG 135**

Material: Leather - calfskin.

Context: U/S

Function: Unknown

Dimensions: 65mmx27mmx6.4mm.

Description: Two original edges, both with stitch holes. A grain/flesh closed seam. Some cracking on grain surface. Potentially from clothing.

**MSG 136**

Material: Leather - bovine.

Context: 128

Function: Tongue.

Dimensions: 95mm x 69mm x 2mm.

Description: Worn tongue from shoe upper. Bell shaped in plan with whip stitching around the curved edge.



**MSG 137**

Material: Leather - cattle hide.

Context: 130

Function: Quarters from ankleboot.

Dimensions: 110mm x 109mm x 1.8mm.

Description: Worn. Roughly rectangular in plan. Evidence of stitching along both long edges. Bind stitching was used only in one corner - suggested by the small area of scalloped edge. Right of two part quarters worn away along the lower edge so that the lasting margin is missing.



mm 10

**MSG 138**

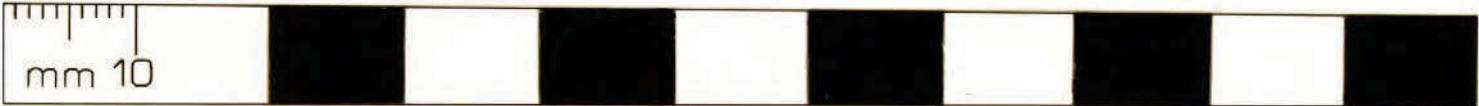
Material: Leather - calfskin.

Context: 128

Function: Waste / offcut.

Dimensions: 116mm x 125mm

Description: Sub rectangular. Torn in one area all other edges are cut. One hole sewn with whip stitching. Possibly cut from shoe upper or clothing. Worn.



MSG 139

Material: Leather - calfskin.

Context: 130

Function: Waste.

Dimensions: Longest is 75mm x 4mm x .4.  
Smaller piece measures 44mm x 5mm x 1.1mm.

Description: Two strips of leather twith some possible concretion on the flesh side. It appears to be pointed at one end. No stitching. Bevelled edge.



**MSG 140**

Material: Leather

Context: 1001

Function: Clump repair.

Dimensions: 177mm x 75mm x 6.2mm.

Description: Curling in towards the grain side. Appears to be cut at the arch of the foot. The toe is pointed. Holes (possibly stitched or nails?) visible along one side only. Appears to either have been doubled over or is now splitting. Left foot with long outward curving extended toe. Delaminating.

**MSG 141**

Material: Leather - sheep / goatskin.

Context: 128

Function: Shoe upper.

Dimensions: 97mm x 69 x 1.2mm.

Description: Stitching along one side. Stitch holes are 1mm in diameter and uniformly 2.4mm apart. Second set of stitching, visible only on the flesh side, are of varying distance apart. Possibly part of MSG115.

**MSG 142**

Material: Leather.

Context: 130

Function: Part of shoe sole.

Dimensions: 155mm x 61mm x 42mm.

Description: Waist and seat area of welted sole. Varies in thickness. Stitch holes visible along the long edges. Probably right foot. Adult size. Worn stitching at the lower tread from a repair.



Material: Leather - cattle hide.

Context: 149

Function: Washer.

Dimensions: 57mm x 32mm x 5mm.

Description: Broken washer: crescent-shaped piece with a hand cut, curved outer edge and a less clearly cut inner edge, other ends broken.



**MSG 144**

Material: Leather - bovine.

Context: 128

Function: Washer - Possible pump component

Dimensions: Outer diameter is 42mm, inner diam is 23mm.  
1.3mm thick.

Description: Roughly octagonal in plan. Central hole has cracking around the edges as does grain side surface. Outer edge is uneven in shape.

**MSG 145**

Material: Leather - bovine.

Context: 128

Function: Scrap.

Dimensions: 4mm x 4mm x 4mm.

Description: Triangular in plan, the points of which are damaged. Comprised of one piece of leather folded in two. The outer surface of the folded piece appears to be suede like. Some dried sediment is present on outer surface. Possibly from a shoe upper.



MSG 146

Material: Leather - cattle hide.

Context: 130

Function: Waste.

Dimensions: 185mmx80mmx1.82mm (unfolded)

Description: Piece is folded in half. Wide at one end, tapering dramatically toward the opposite end. No stitching.





**MSG 147**

Material: Leather - calfskin.

Context: 152

Function: Fragments of heel stiffener.

Dimensions: largest is 70mm x 30mm x 1.45mm.

Description: 11 Leather fragments. The largest has possible binding stitch. Three other fragments also have stitching, one of which is binding. Adult size.



**MSG 148**

Material: Leather - cattle hide.

Context: 130

Function: Part of shoe - repair clump.

Dimensions: largest is 57mm x 60mm x 1.7mm.

Description: Two pieces. Complete clump seat repair. Some damage to the edges. Tack or stitch holes present. Right foot, adult size. The second piece is triangular in plan and is comprised of two pieces of the same size overlaying each other (flesh side facing each other). Trimming or waste.



Material: Leather - bovine.

Context: 130

Function: Fragments of shoe upper.

Dimensions: Largest is 19mm x 15mm x 1mm.

Description: 2 fragments of Leather. Nothing noteworthy.



Material: Leather sheep/goatskin.

Context: 129

Function: Unknown

Dimensions: Largest is approx 125mm x 65mm x 1.2mm.

Description: 16 pieces of fragmented leather plus several tiny test pieces (in bags). Very delicate condition. No stitching



**MSG 152**

Material: Leather - bovine.

Context: 128

Function: Scrap.

Dimensions: Largest is 90mm x 51mm x 1.54mm.

Description: Four pieces plus several tiny leather fragments. Largest appears to have one original edge and all others are fragments and damaged. No stitching.



Material: Leather - calfskin and cattle hide.

Context: 128

Function: Ankleboot cut down.

Dimensions: largest is 192mmx72.9mmx2.1mm  
 second largest piece is 140mmx67mmx1.6mm  
 third largest piece is 150mmx35mmx1.6mm  
 fourth largest piece is 64.4mmx16.3mmx2.6mm

Description: Four pieces of leather, three of which have stitching. The largest is quite fragile, has one original edge, with stitching. The second largest piece has two original edges with stitching along both edges. The third largest piece has stitching along two edges. The fourth largest piece is wide at one end and tapers towards the opposite end. No stitching.



Part 1



Part 2



MSG 154

Material: Leather - cattle hide & calfskin lining.

Context: 120 or 130

Function: Archer’s wrist guard.

Dimensions: Piece 1 is 113mm x 117mm x 4mm.  
Piece 2 is 110mm x 106mm x 1.5mm.

Description: 1st piece is intricately designed with 6 flower stamps. A tapering band, bounded by a beaded motif

Description cont’d- presumably narrowing toward the wrist. Inscription is thought to read 'Amilla'. This piece is much thicker than the second and has some damage in the centre between two heart shaped holes. Roughly octagonal in shape, it has two holes one side and two on the opposite which would have been used to tie the piece to the arm. The 2nd piece has no decoration but has matching holes at the edges which perforate through.

Part 1



Part 2



Part 3



Material: Leather - cattle hide.

Context: 130

Function: High throated buckle & strap shoe fragments.

Dimensions: 250mm x 78mm x 2.45mm.

Description: Turnshoe sole, rand x, vamp, two-part quarters, heel stiffener, bellows tongue.



**MSG 016**

Material: Bark

Context: 1000

Function: N/A

Dimensions: The smaller piece is 43mmx18mmx2.2mm.

Description: 2 pieces. Not Leather.



## Part 1



## Part 2



MSG 545

Material: Leather - bovine.

Context: 128

Function: Shoe fragments.

Dimensions: Sole is 245mm x 74mm x 2.7mm.  
Longest rand is 72mm.

Description: 12 parts & several fragments. Sole has stitch holes around the edges, except at the heel. 28 teardrop shaped holes are punctured through the sole in the arch area of the foot, the function of these are unclear. Toe is slightly poulaine in style & is 45mm in length. 4 fragments of rand - all with stitching. One triangular piece, folded in half, has binding stitch along one edge. Two other pieces, or possibly three have tear drop holes.



Material: Leather

Context: 1002

Function: Ankle boot fragments.

Dimensions: Largest piece measures 190mmx90mmx2mm

Description: Ankle boot fragments. 8 pieces. Largest piece consists of 2 pieces connected by a leather stitch 12mm in length and 5mm wide. On the reverse side the stitch is knotted twice with two single loops. Adjacent to the is a stitch is a piece of concretion, in a brittle state. Small stitch holes exist along at least one edge. 2 of the other 7 pieces also have stitch holes. Adult size.





MSG 554

Material: Leather - cattle hide.	Sole with long pointed toe with 45mm extension and narrow waist 25mm wide and matching forepart clump repair. Toe area of vamp, fragment broken from the left side of vamp, right vamp wing. Left of two part quarters and matching heel stiffener. Sole heavily stitched across waist from repair, upper lasting margin also has repair stitching and a strip with similar stitching appears to be from an internal upper repair.
Context: 128	
Function: Shoe fragments.	
Dimensions: (Sole) 260mm x 71mm x 1.36mm.	
Description: Turnshoe of uncertain style for right foot, adult size.	



MSG 556

Material: Leather.

Context: 128

Function: Shoe fragments.

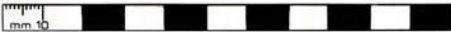
Dimensions: The largest is 90mm x 55mm x 3.8mm.  
The longest piece of possible rand is 90mm x 10mm.

Description: sole with narrow waist 23mm wide, broken away across lower tread and upper seat. 6 fragments of rand 11mm wide including 3 with stitching to attach a repair. 8 small fragments of upper including 1 with fine whip stitching that may be from a tongue and 1 apparently from a heel stiffener.

Part 1



Part 2



MSG 557

Material: Leather - calfskin.	Piece (107x42x1.16mm) broken from it with small area of original edge surviving. Smaller fragment (84x51x1.34mm) with 3 stitches from a butted whip stitched edge/flesh seam, stitch length 4mm. 7+ small fragments broken from them. Tongue-shaped boot strap with a wide rounded terminal tapering to a narrow strap with a straight end with a seam of grain/flesh stitching, stitch length 5mm, around the edge. 3 pairs of irregular nail or stitch holes aligned 10mm apart running slightly off centre down the wider end. Length 130mm, width max 50mm, min 11mm.
Context: Bow NE	
Function: Shoe fragments.	
Dimensions: largest piece,225mm x 200mm x 1.9mm.	
Description: leathrepanel originally folded with few distinguishing features but 4 stitches from a whip stitched lapped seam on the grain side along a small area of edge.	





MSG 558

Material: Leather - cattle hide.

Context: 128

Function: Unknown /scrap.

Dimensions: The largest is 142mmx132mmx.99mm

Description: Leather fragments. The largest is fragmented around the edges and in a delicate state, no stitching. The remaining fragments have no stitching however one piece does have a slit cut horizontally along the length. It is 87mmx39mmx1.69mm.

**MSG 559**

Material: Leather - calfskin.

Context: 130

Function: Ankleboot fragments.

Dimensions: Largest is 200mm x 115mm x 1mm.

Description: Turnshoe sole, rand, edge cut from a clump repair, vamp, upper fragments. Right foot, adult size.

Description continued: 8 fragments. The largest is recognisable as a shoe upper. The toe, which is not hugely poulaine in style, is however, pointed and is stuffed with pland fibres - (visible though the hole in the toe) Opposite end is fragmented and has some evidence of stitching. 7 of the remaining fragments have stitching. There are several more tiny fragments with no evidence of stitching.





Material: Leather - cattle hide.

Context: 128

Function: Shoe upper - vamp for left foot.

Dimensions: 5.6mm x 1mm

Description: Vamp with part of a pointed toe surviving on the right side, lasting margin broken off in all other areas. Vertical central opening running down toward the toe has a delaminated edge/flesh seam along both sides. Left side seam has been cut away and only 3 stitches remain. A large oval thong slot present at the junction of the central opening and the right side seam.





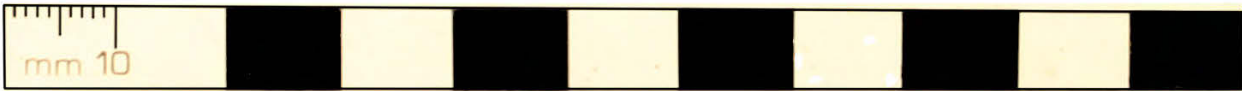
Material: Leather.

Context: 128

Function: Sole cut down.

Dimensions: 205mm x 49.1mm x 3.8mm.

Description: Turnshoe sole with edge/flesh seam removed to produce a tongue-like piece, wear suggests was for a left foot, narrow waist preserved 27mm wide, worn stitching from repair.



**MSG 568**

Material: Leather - cattle hide.

Context: 128

Function: Washer - Possible pump component.

Dimensions: Outer diam is 79mm. Inner diam is 27mm.

Description: Large, sub-circular washer with faceted cut outer edge and irregularly cut circular inner edge. Random worn slits and paired stitch holes indicate it has been cut from another item. Leather varies in thicknes. No impression present on either face, so may not have been used.



Material: Leather

Context: 1021

Function: Ankle boot fragments.

Dimensions: 300mm x 145mm x 3mm

Description: Upper fragments. Quite brittle. Some possible stitching. One end has some hair like fibre attached- yellowish in colour. Much of the leather is redish in colour.



MSG 787

Material: Leather - bovine, delaminating.

Context: 2027

Function: Cut down seam.

Dimensions: 45.2mm x 33mm x 1.6mm.

Description: trimming to remove a length of seam tapering from a torn end to a pointed tip. A line of grain/flesh stitching with an irregular stitch length of 3mm runs about half way along its length on one side the other side has been cut away.

**MSG 789**

Material: Lether - cattle hide.

Context: 1001

Function: Shoe upper fragments - heel stiffener.

Dimensions: 45.2mm x 33mm x 1.6mm.

Description: Small fragment with grain/flesh seam, stitch legth 6-7mm with stitching medium present. One edge snapped off, the others are torn. Curving inward suggesting it is broken from a heel stiffener.





**MSG 790**

Material: Leather - cattle hide.

Context: 1007

Function: Clump seat repair.

Dimensions: 70mm x 69mm x 2.48mm.

Description: Descriptionclump seat, left foot, adult size with some wear. In addition to the tunnel stitching around the edge on the flesh side is a line of 3 nail/peg holes across the lower edge and 2 running vertically up the centre.



10cm

**MSG 816**

Material: Leather - bovine.

Context: 128

Function: Scrap from shoe upper.

Dimensions: 40mm x 36mm x 1.1mm.

Description: Piece with a small cut area, rest of the edges torn. A single stitch hole remains, apparently broken from part of a shoe upper.





10cm

**MSG 817**

Material: Leather - calfskin, delaminated.

Context: 130

Function: Waste.

Dimensions: 48mm x 43mm x .8mm & 40mm x 11mm x 3.8mm.

Description: Larger piece is thin and has no stitching. One original corner exists. Second piece is triangular in shape, quite thick with no stitching.



MSG 860

Material: Leather - calf and cattle hide.

Context: 130

Function: Possible valve panel fragments.

Dimensions: Largest is 45mm x 40mm x 1.85mm.

Description: Description1 folded and distorted piece (45x40x1.85mm) with a butted edge/flesh seam, stitch length 5mm, with a large nail hole close by. 2 fragment (33x15x2.49mm) apparently broken from it with a butted edge/flesh seam

and a cut edge at right angle to it. 3. Crescentic-shaped piece (58x16x3.46mm) cut from a closed grain/flesh seam, stitch length 5mm, thought to have joined to the edge/flesh seam of 1 and 2 above when originally seen. 4 washer-shaped piece (30x26x1.38mm) with central hole and roughly circular outer edge, all broken, appears to be the area protected below the surviving domed iron rivet head present (diam 25mm) which also has some leather adhering to the flat underside and wrapping up and over the side to extend onto the side of the head. 5 Also a complete iron nail very heavily encrusted with hair present in the corrosion products (length 23mm, width 23mm)