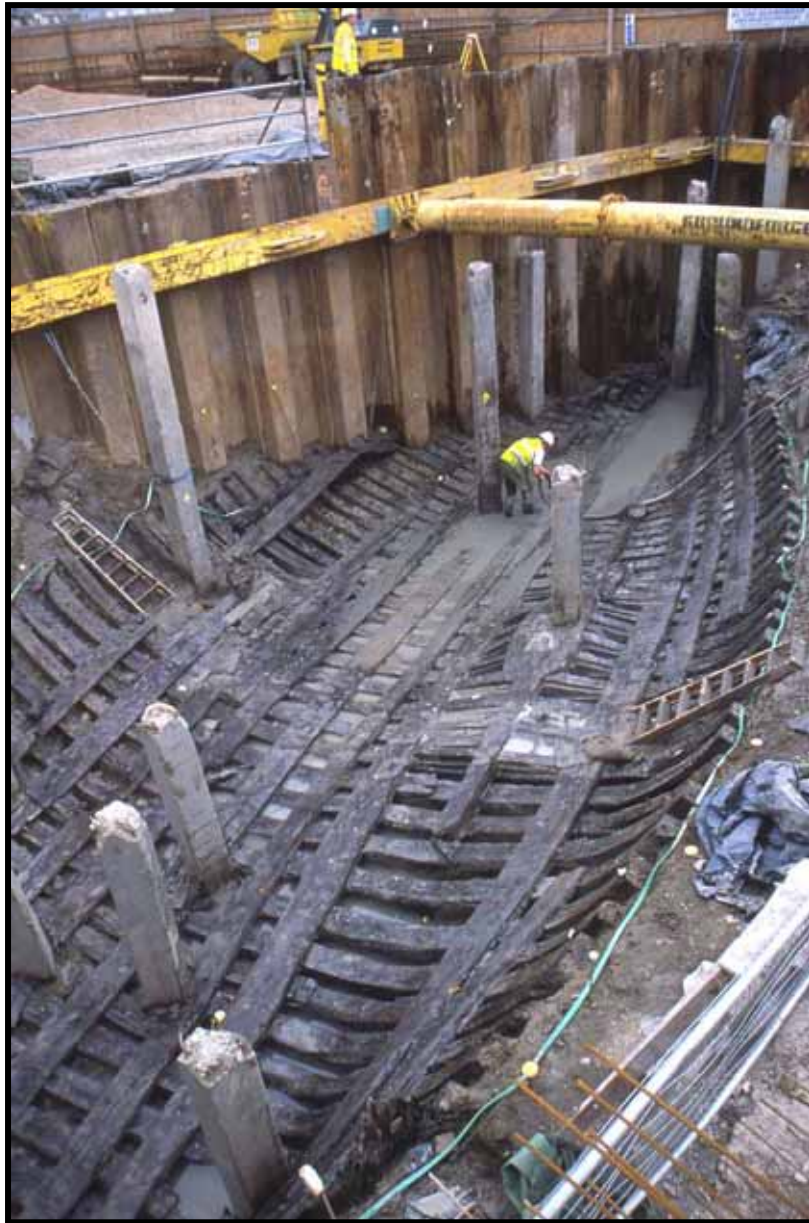


# Newport Medieval Ship Project

## Specialist Report:

### CASKS III



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# **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 cask components recovered during the Newport Medieval Ship excavation.



**Context:** Unstratified

**Component:** Stave

**Cask Type:** Closed

**Species:** Oak

**Dimensions:** 713mm long x 85mm wide x 10mm thick.

**Description:** Widest at midpoint of stave. Shallow howels, croze present, some damage to one chime and damage midway on stave. No merchant marks or plugs. Both ends appear to have been chamfered.

Newport Medieval Ship Cask Component Catalogue		Cowtag: 1951
Context: Unstratified		Description: Widest at midpoint of stave. Shallow howels, croze present, some damage to one chime and damage midway on stave. No merchant marks or plugs. Both ends appear to have been chamfered.
Component: Stave		
Cask Type: Closed		
Species: Oak		
Dimensions: 713mm long x 85mm wide x 10mm thick.		



**Context:** Unknown

**Component:** Stave

**Cask Type:** Closed

**Species:** Oak

**Dimensions:** 675mm long x 115mm wide x 10mm thick.

**Description:** Intact chimes on both ends. Crack running through one chime. Iron staining throughout. Tool marks, possibly axe, on inner surface. Croze is 3mm at one end, other croze is slightly damaged, possibly through use or construction. One chime is chamfered, the second doesn't appear to be. No merchants marks. Outer surface is slightly eroded.

Newport Medieval Ship Cask Component Catalogue		Cowtag: 1954
Context: Unknown	Description: Intact chimes on both ends. Crack running through one chime. Iron staining throughout. Tool marks, possibly axe, on inner surface. Croze is 3mm at one end, other croze is slightly damaged, possibly through use or construction. One chime is chamfered, the second doesn't appear to be. No merchants marks. Outer surface is slightly eroded.	
Component: Stave		
Cask Type: Closed		
Species: Oak		
Dimensions: 675mm long x 115mm wide x 10mm thick.		





**Context:** F9 - F10

**Component:** Stave

**Cask Type:** Possibly open

**Species:** Oak

**Dimensions:** 840mm long x 115mm wide x 10mm thick.

**Description:** Croze & howel & chamfer & nail holes at one end. Opposite end is damaged. Croze is 4mm wide. Hole, possibly nail to keep base in place, measures 8mm diameter. Chamfer is 1.4mm wide. White residue is present in croze. Damaged end has no croze, howel visible. It has one iron stained nail hole, rectangular 4mm x 7mm. A crack runs up the piece.



Newport Medieval Ship Cask Component Catalogue		Cowtag: 1959
Context: F9 - F10	Description: Croze & howel & chamfer & nail holes at one end. Opposite end is damaged. Croze is 4mm wide. Hole, possibly nail to keep base in place, measures 8mm diameter. Chamfer is 1.4mm wide. White residue is present in croze. Damaged end has no croze, howel visible. It has one iron stained nail hole, rectangular 4mm x 7mm. A crack runs up the piece.	
Component: Stave		
Cask Type: Possibly open		
Species: Oak		
Dimensions: 840mm long x 115mm wide x 10mm thick.		



**Context:** F37-38

**Component:** Stave

**Cask Type:** Possibly open.

**Species:** Oak

**Dimensions:** 260mm long x 60cm wide x 15mm thick.

**Description:** Howel & croze groove present - 7mm wide. Stave is broken along one length, however end opposite chime appears to have been deliberately cut with stop mark visible. This may indicate the stave has been re-used. Although full width is unknown, it does not appear to be much wider (from looking at howel and chamfer).

Newport Medieval Ship Cask Component Catalogue		Cowtag: 1961
Context: F37-38	<b>Description:</b> Howel & croze groove present - 7mm wide. Stave is broken along one length, however end opposite chime appears to have been deliberately cut with stop mark visible. This may indicate the stave has been re-used. Although full width is unknown, it does not appear to be much wider (from looking at howel and chamfer).	
Component: Stave		
Cask Type: Possibly open.		
Species: Oak		
Dimensions: 260mm long x 60cm wide x 15mm thick.		



**Context:** cF58 centre line

**Component:** Head

**Cask Type:** Unknown

**Species:** Oak

**Dimensions:** 490mm longer side x 85mm wide x 15mm thick, 345mm length of shorter side.

**Description:** . Very good condition. No damage. Chime bevel on both ends on one surface only. No tool marks or merchants marks. 25 tree rings.

Newport Medieval Ship Cask Component Catalogue		Cowtag: 1985
Context: cF58 centre line	Description: . Very good condition. No damage. Chime bevel on both ends on one surface only. No tool marks or merchants marks. 25 tree rings.	
Component: Head		
Cask Type: Unknown		
Species: Oak		
Dimensions: 490mm longer side x 85mm wide x 15mm thick, 345mm length of shorter side.		



**Context:** F1.0.

**Component:** Stave

**Cask Type:** Unknown

**Species:** Oak

**Dimensions:** 245mm long x 70mm wide x 10mm thick. , Holes measure 8mm in diam, and 4mm x 4mm.

**Description:** 3 nail holes, one with concretion staining. Two are square, holes have a diameter of 8mm, and 4mm x 4mm (for square holes). One knot. Bevelled end on outer surface, damaged end (opposite croze). Croze is 2mm wide. Chime tapers in thickness from the croze. Howel is barely visible. Outer surface appears chamfered at damaged end. 15 tree rings.



Newport Medieval Ship Cask Component Catalogue		Cowtag: 1994
Context: F1.0.	Description: 3 nail holes, one with concretion staining. Two are square, holes have a diameter of 8mm, and 4mm x 4mm (for square holes). One knot. Bevelled end on outer surface, damaged end (opposite croze). Croze is 2mm wide. Chime tapers in thickness from the croze. Howel is barely visible. Outer surface appears chamfered at damaged end. 15 tree rings.	
Component: Stave		
Cask Type: Unknown		
Species: Oak		
Dimensions: 245mm long x 70mm wide x 10mm thick. , Holes measure 8mm in diam, and 4mm x 4mm.		





**Context:** F6-8 (130).

**Component:** Possible stave

**Cask Type:** Unknown

**Species:**

**Dimensions:** 180mm long x 59mm wide x 10mm thick.

**Description:** Barrel stave fragment - tapered, measuring 55mm at narrow end and 63mm at wider end. The wood features several parallel stop marks on both surfaces. Possible nail/ plug hole. There is some iron staining around the hole. Generally the fragment is in good condition. 17 tree rings.

Newport Medieval Ship Cask Component Catalogue		Cowtag: 2044
Context: F6-8 (130).		Description: Barrel stave fragment - tapered, measuring 55mm at narrow end and 63mm at wider end. The wood features several parallel stop marks on both surfaces. Possible nail/ plug hole. There is some iron staining around the hole. Generally the fragment is in good condition. 17 tree rings.
Component: Possible stave		
Cask Type: Unknown		
Species:		
Dimensions: 180mm long x 59mm wide x 10mm thick.		



**Context:** F9-10

**Component:** Stave

**Cask Type:** Unknown

**Species:** Oak

**Dimensions:** 710mm long x 100mm wide x 10mm thick.

**Description:** Chamfered at one end, the other end is damaged. No Chime or howel evident at damaged end. Appears to be arched, as if for the belly of the barrel. Some concretion on outer surface. No merchants marks. Some stop marks, possibly an axe, visible on inner surface. Black staining is present, possibly due to storage conditions. 50 tree rings.

Newport Medieval Ship Cask Component Catalogue		Cowtag: 2059
Context: F9-10		Description: Chamfered at one end, the other end is damaged. No Chime or howel evident at damaged end. Appears to be arched, as if for the belly of the barrel. Some concretion on outer surface. No merchants marks. Some stop marks, possibly an axe, visible on inner surface. Black staining is present, possibly due to storage conditions. 50 tree rings.
Component: Stave		
Cask Type: Unknown		
Species: Oak		
Dimensions: 710mm long x 100mm wide x 10mm thick.		



**Context:** Unknown

**Component:** Possible head

**Cask Type:** Unknown

**Species:**

**Dimensions:** 565mm long x 90mm wide (at widest point) x 20mm thick.

**Description:** Good condition. Chamfered at both ends. Some split damage on outer surface. One possible hole through one chamfer (incomplete). Three possible tool scratches or deliberate lines midway down piece on outer surface. 50 tree rings.

Newport Medieval Ship Cask Component Catalogue		Cowtag: 2112
Context: Unknown	Description: Good condition. Chamfered at both ends. Some split damage on outer surface. One possible hole through one chamfer (incomplete). Three possible tool scratches or deliberate lines midway down piece on outer surface. 50 tree rings.	
Component: Possible head		
Cask Type: Unknown		
Species:		
Dimensions: 565mm long x 90mm wide (at widest point) x 20mm thick.		





**Context:** Unknown

**Component:** Stave

**Cask Type:** Closed

**Species:** Oak

**Dimensions:** 710mm long x 105mm wide x 15mm thick.

**Description:** Complete barrel stave. Good condition. Croze is 4mm wide. Howel and groove on both ends. Chime bevel present. Possible axe marks visible plus tool striations on inner surface. Some split damage on outer surface. No makers marks. 70 tree rings.



Newport Medieval Ship Cask Component Catalogue		Cowtag: 2113
Context: Unknown		Description: Complete barrel stave. Good condition. Croze is 4mm wide. Howel and groove on both ends. Chime bevel present. Possible axe marks visible plus tool striations on inner surface. Some split damage on outer surface. No makers marks. 70 tree rings.
Component: Stave		
Cask Type: Closed		
Species: Oak		
Dimensions: 710mm long x 105mm wide x 15mm thick.		



**Context:** F25-26p

**Component:** Cant

**Cask Type:** Unknown

**Species:**

**Dimensions:** 245mm long x 63mm wide x 21mm thick.

**Description:** Although this is roughly cant shaped, it is not chamfered around the curved edge. There is damage to one end and it is slightly soft. There are two small dimples on one surface. No merchants marks or tool marks. Narrow chamfer along straight edge. 20 tree rings.

Newport Medieval Ship Cask Component Catalogue		Cowtag: 2122
Context: F25-26p		Description: Although this is roughly cant shaped, it is not chamfered around the curved edge. There is damage to one end and it is slightly soft. There are two small dimples on one surface . No merchants marks or tool marks. Narrow chamfer along straight edge. 20 tree rings.
Component: Cant		
Cask Type: Unknown		
Species:		
Dimensions: 245mm long x 63mm wide x 21mm thick.		



**Context:** Unknown

**Component:** Head

**Cask Type:** Unknown

**Species:** Oak

**Dimensions:** 635mm long x 130mm wide x 15mm thick.

**Description:** Good condition. Some black staining, possibly due to storage conditions. Bevel on two ends on inner surface. Four holes - all have iron staining. One wooden plug 12mm diameter. Some tool marks on inner surface around nail holes - modern? Possible axe and wear patterns on outer surface. 75 rings.

Newport Medieval Ship Cask Component Catalogue		Cowtag: 2126
Context: Unknown		Description: Good condition. Some black staining, possibly due to storage conditions. Bevel on two ends on inner surface. Four holes - all have iron staining. One wooden plug 12mm diameter. Some tool marks on inner surface around nail holes - modern? Possible axe and wear patterns on outer surface. 75 rings.
Component: Head		
Cask Type: Unknown		
Species: Oak		
Dimensions: 635mm long x 130mm wide x 15mm thick.		



**Context:** Unknown

**Component:** Cant

**Cask Type:** Unknown

**Species:** Oak

**Dimensions:** 435mm long x 110mm wide x 19mm thick. 30mm wide chamfer.

**Description:** Excellent condition. 30mm wide chamfer around curved edge, inner surface. Tool marks visible on chamfer and inner surface. Small amount of damage on curved edge. No merchants or makers marks. 40 tree rings.

Newport Medieval Ship Cask Component Catalogue		Cowtag: 2127
Context: Unknown	Description: Excellent condition. 30mm wide chamfer around curved edge, inner surface. Tool marks visible on chamfer and inner surface. Small amount of damage on curved edge. No merchants or makers marks. 40 tree rings.	
Component: Cant		
Cask Type: Unknown		
Species: Oak		
Dimensions: 435mm long x 110mm wide x 19mm thick. 30mm wide chamfer.		





**Context:** Unknown

**Component:** Stave

**Cask Type:** Open

**Species:** Oak

**Dimensions:** 640mm long x 88mm wide x 10mm thick.

**Description:** Good condition. Bottom end is chamfered. Croze is approx 2mm deep. Howel present. Chime is damaged. 2 small holes. One wood plug 9mm diameter. May be associated with 2372. One hole has iron staining and may be modern. Stave is 90mm wide at top, tapering to 67mm wide at the bottom. Possible inscribed lines on outer surface. 40 tree rings.

Newport Medieval Ship Cask Component Catalogue		Cowtag: 2135
Context: Unknown	Description: Good condtion. Bottom end is chamfered. Croze is approx 2mm deep. Howel present. Chime is damaged. 2 small holes. One wood plug 9mm diameter. May be associated with 2372. One hole has iron staining and may be modern. Stave is 90mm wide at top, tapering to 67mm wide at the bottom. Possible inscribed lines on outer surface. 40 tree rings.	
Component: Stave		
Cask Type: Open		
Species: Oak		
Dimensions: 640mm long x 88mm wide x 10mm thick.		



**Context:** Unknown

**Component:** Stave

**Cask Type:** Open

**Species:** Oak

**Dimensions:** 1000mm long x 105mm wide x 14mm thick.

**Description:** Merchant's/ maker's mark on the inside. Very good condition. Croze at one end only. Other end chamfered. Beveled edges round rim. 4 holes - one possibly iron, two wooden dowels (in situ), one hole through croze with diameter of 8mm. 45 tree rings.

Newport Medieval Ship Cask Component Catalogue		Cowtag: 2136
Context: Unknown	Description: Merchant's/ maker's mark on the inside. Very good condition. Croze at one end only. Other end chamfered. Bevelled edges round rim. 4 holes - one possibly iron, two wooden dowels (in situ), one hole through croze with diameter of 8mm. 45 tree rings.	
Component: Stave		
Cask Type: Open		
Species: Oak		
Dimensions: 1000mm long x 105mm wide x 14mm thick.		



**Context:** Unknown

**Component:** Head

**Cask Type:** Unknown

**Species:** Oak

**Dimensions:** 677mm long x 144mm wide x 22mm / 15mm / 5mm thick.

**Description:** Good condition, chamfered at both ends. Two small wooden dowels. Merchants or makers mark made with compass (circular with impression in middle) 36 tree rings.

Newport Medieval Ship Cask Component Catalogue		Cowtag: 2137
Context: Unknown		Description: Good condition, chamfered at both ends. Two small wooden dowels. Merchants or makers mark made with compass (circular with impression in middle) 36 tree rings.
Component: Head		
Cask Type: Unknown		
Species: Oak		
Dimensions: 677mm long x 144mm wide x 22mm / 15mm / 5mm thick.		





**Context:** Unknown

**Component:** Cant

**Cask Type:** Unknown

**Species:** Oak

**Dimensions:** 240mm long x 97mm wide x 13mm thick.

**Description:** Semi circular in plan. Inner surface is chamfered around curved edges. Tool marks visible throughout. No plugs or inscribed lines. Sample #3018, taken from the outside surface appears to be wax - possibly used to seal cask. Sample 3019 - organic material. 40 tree rings.

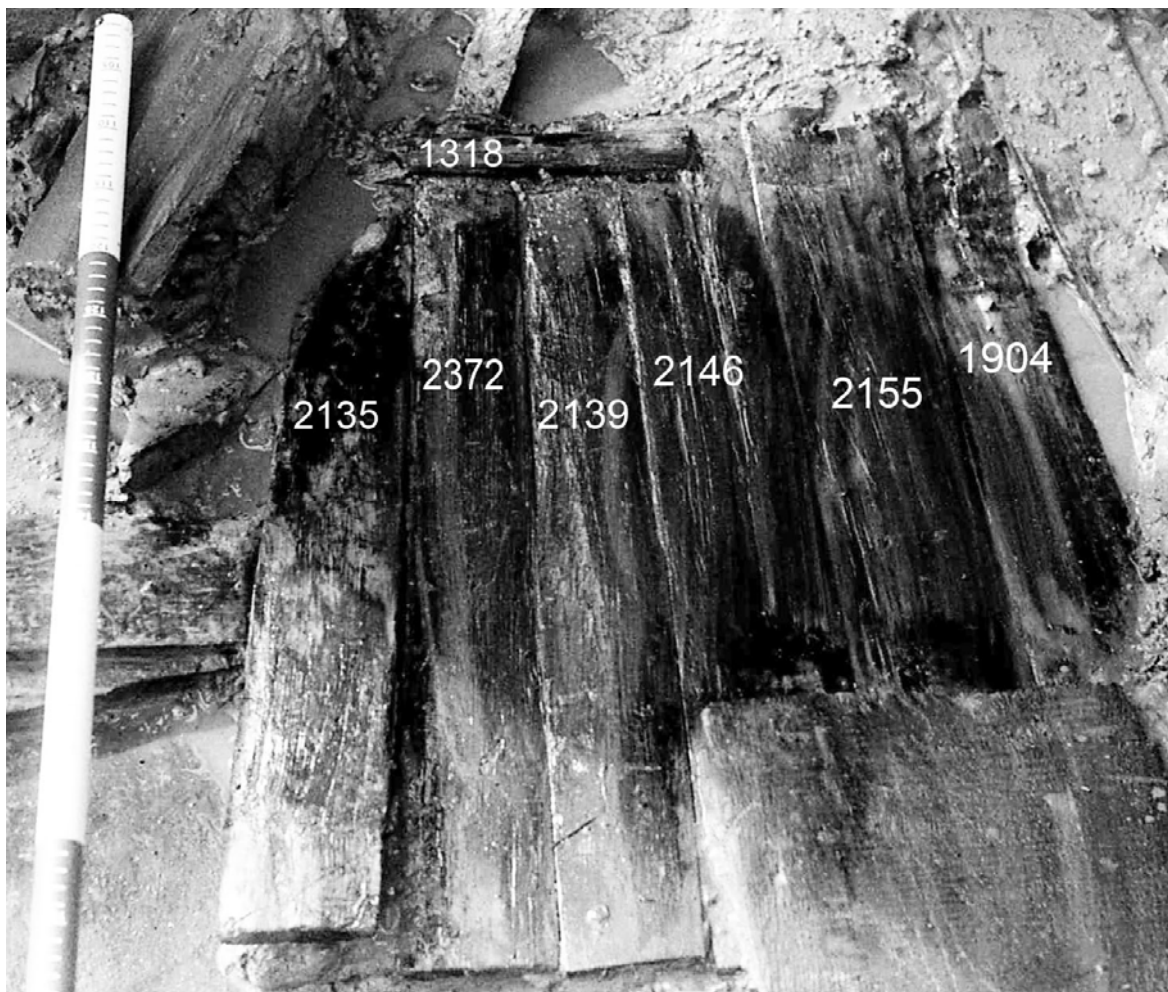


Newport Medieval Ship Cask Component Catalogue		Cowtag: 2138
Context: Unknown	Description: Semi circular in plan. Inner surface is chamfered around curved eds. Tool marks visible throughout. No plugs or inscribed lines. Sample #3018, taken from the outside surface apears to be wax - possibly used to seal cask. Sample 3019 - organic material. 40 tree rings.	
Component: Cant		
Cask Type: Unknown		
Species: Oak		
Dimensions: 240mm long x 97mm wide x 13mm thick.		

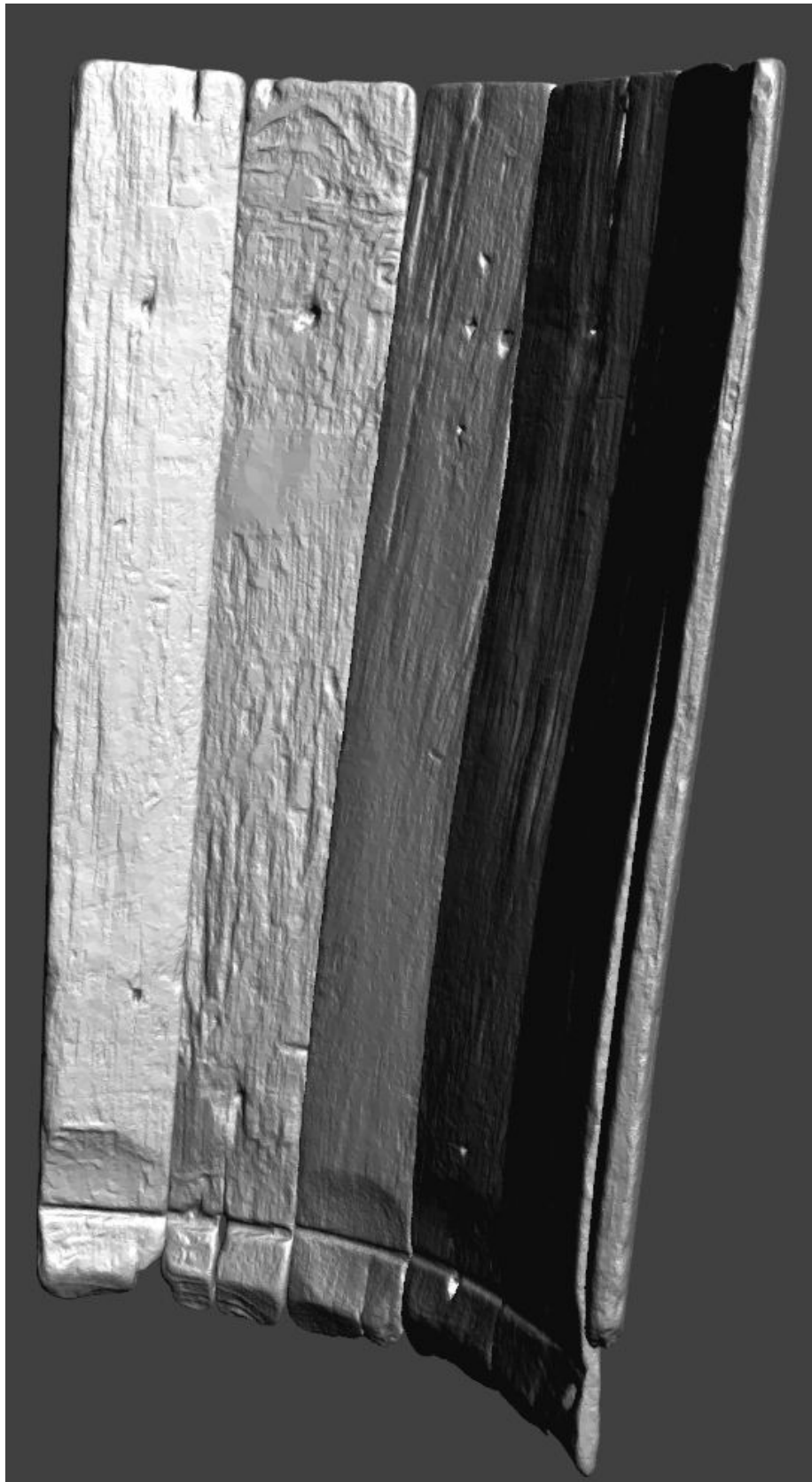
### Cask Component Notes

The remains of stave built casks were found on the Newport Ship. These remains consisted of 87 components which can be broken into three categories- head pieces, staves and hoop fragments. 55 staves were found on board, 26 head pieces and 6 hoop fragments.

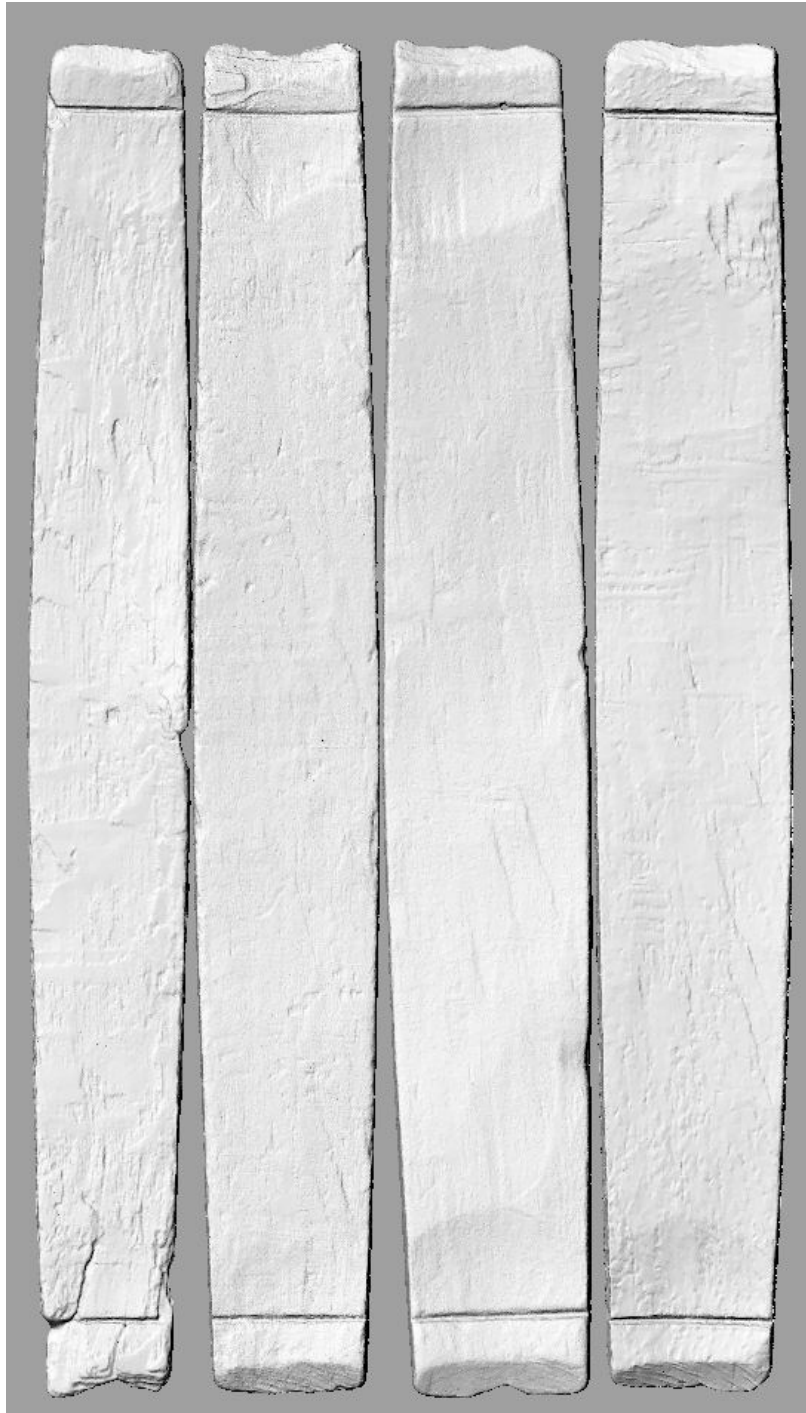
One group of six staves (context 151) were found together in situ and are undoubtedly from the same cask. No head pieces were associated with context 151. Staves numbered CT2139, CT2372, CT2135, CT1904, CT2155 and CT2146 and hoop fragment CT1318 are part of this group and are seen photographed together on site (below). This cask would have been open at one end and was 570mm from croze groove to top. An open cask like this may have been used on board the vessel to store dry goods or possibly was used as a bucket.



It was possible, after laser scanning each of context 151's staves individually, to digitally reconstruct the section of the barrel as was found in situ. Seen below is a screen capture of a 3d pdf of context 151.



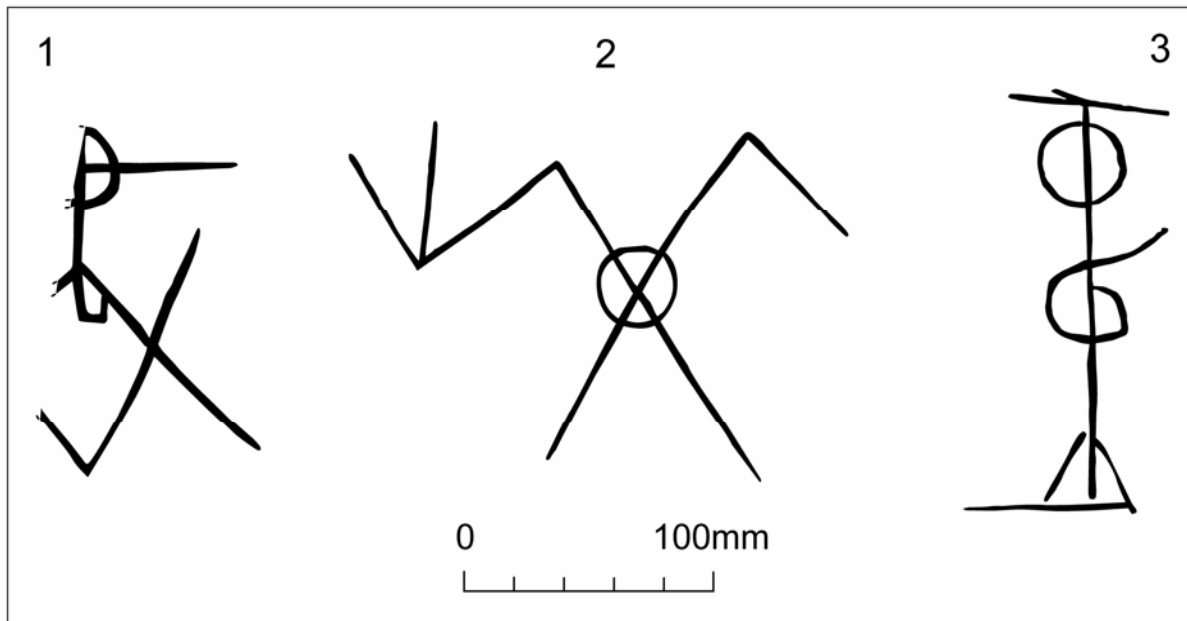
A second group of staves, CT2113, CT2143, CT2148 and 1951 are quite possibly associated with one another. Seen below are the staves side by side (not in their original order). The presence of a croze groove at either end, unlike context 151, indicates this cask was constructed to be sealed at both ends with a head.



Other than the two groups mentioned above, the staves do not appear to match in length. This indicates the staves may have been waste from disused casks of varying sizes.

## Merchant Marks found on Newport Ship Timbers

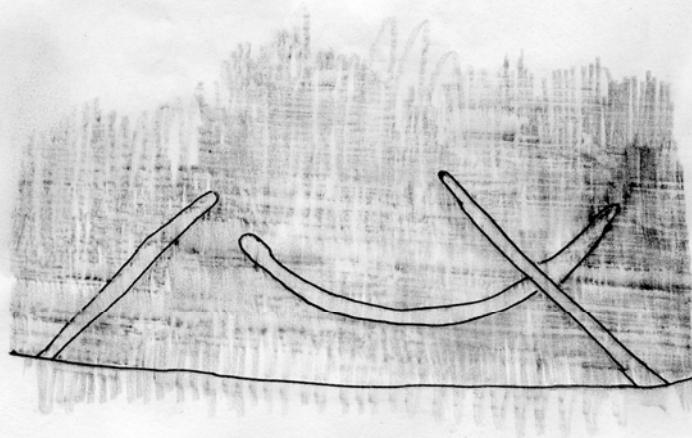
1. Cow 2369
2. Cow 1555 (Found on non-cask artefact (the 'door'))
3. Cow 2137 (Cask Head)





4. Cow 2136

TRACING OF MAKER'S MARKS ON INSIDE OF BARREL STAVE 21.  
1:1



## **CASK NOTES from Meeting with Ken Kilby, 12 October 2011**

Cow 1689: Deliberate Grooves – possibly fixing a mistake/making cask volume smaller

Cow 1949: Latch/Lid

Cow 2145: Probably part of a dry cask

Cow 2137: Wet cask

Cow 2251: Holes to put wood/rope through to stiffen/strengthen/reinforce cask. A hole put outside or above the croze was to reinforce the head.

Cow 2238 and 1839: same vessel?

Cow 1693: Odd stave, wider at one end, possibly broken off at croze.

Cow 1813: Numerous holes could have been caused by wood worm and then drilled out and plugged by carpenter/cooper.

Cow 1786: Bevelled on edge, probably to reduce the size of the cask. Head will sink further in, reducing the capacity.

Cow 1951, 2148, 2113, 2143 may be part of an 18 gallon cask

### **General Observations:**

Crozes seem to be made with a one handed draw knife (jigger)

A chine generally indicates a wet cask

> wet cask        | dry cask

Thin staved vessels generally hold dry goods

In water casks, holes were sometimes drilled to get above the sediment.

In London certain casks sizes were standardised (not sure when)

Memel Oak preferred for cask construction (from Russian port of Memel)

English oak tended to be knotty and short grained.

Probably hazel hoops, nailed on dry casks

Flags/River Rushes were placed between cants in heads....swelled immediately when wet

For Newport Ship, also need to look at possibility of local cooperage waste.

To Note

## Staves

- CT1951, CT2113, CT2143 and CT2148 appear to match in size and may be part of the same barrel.
- CT2135, CT2139, CT2146, CT2155, CT2372 and CT1904 were found together in situ have been successfully digitally reconstructed. (Context 151) Photo of staves together in ground is available. Digital reconstruction has been created. Open at one end, 640mm in height.
- CT1426, CT2136 and CT2210 have maker's marks.

## Heads

- 12 cants, 10 middle pieces.
- CT1400 & CT1440 appear to fit side by side.
- CT1846 & CT1949 may be from the same head.
- CT2157 & CT2203 may be from the same head.
- CT2137 has a maker's mark.