

Recent maritime archaeological discoveries on the Thames waterfront at Bellamy's Wharf, Rotherhithe, London SE16

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Introduction

THE MUSEUM of London Archaeology Service was funded by Barratt London Ltd to undertake an archaeological evaluation on the waterfront at Bellamy's Wharf, Rotherhithe Street, SE16, prior to development (Fig. 1). Subsequent archaeological excavation of a single trench measuring 25m by 16m and 3m deep in January 1995 revealed the eastern side of a 17th-century dock and river wall lying some 40m to the south of the present-day River Thames. The dock and river wall were constructed from the broken-up remains of at least three large ocean-going ships.

History of the site

Rotherhithe in the 17th century, often referred to as 'Redriff', was notable for the shipbuilders,

timber and hemp merchants, mast makers, caulkers, potters and other manufacturers and dealers who occupied the shore of the Thames. Well-known shipbuilders, including William Castle, Jonas Shish and Sir Anthony Deane, operated there; Sir William Warren's timber yard was also located there.

The dock at Bellamy's Wharf is likely to have been established around 1660-63 by a shipbreaker and timber merchant called Thomas Gould¹, member of a family of London merchants and mariners from as early as 1610. The Goulds lived in the City parish of St. Olave Hart Street near the Tower of London², an area associated with merchants and mariners, as well as occupying land at Redriff Wall south of the river³. From 1663 Thomas Gould bought a number of ships from the Navy for breaking up, including the *Wolf* (6th rate)⁴ and the *Loyal George* (a hired merchantman) in 1665. A year later he leased his ship the *Coronation* (56 gun) to the king⁵.

It was at the end of the Second Dutch War and afterwards that Gould was at his busiest, not only buying old ships from the Navy, but receiving commissions to remove some of the wrecks and blockships from the Thames at Woolwich and the Medway after the Dutch raid of 12-13 June 1667. Later he supplied the Navy with timbers for the shipbuilding programme of 1670.

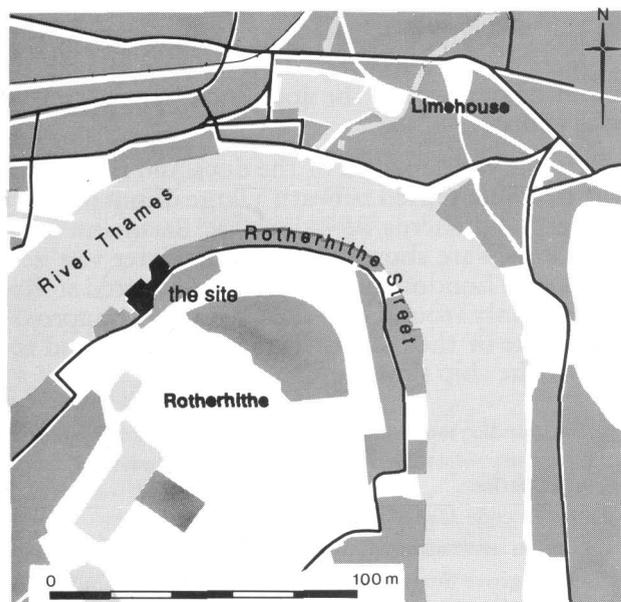


Fig. 1: site location plan

1. Captain Greenville Collins *Survey of the Buildings and Encroachments on the River Thames* (1684).
2. Parish records of St Olave Hart Street, Guildhall Library.
3. *Calendar of State Papers (Domestic)* 1657, p. 243.
4. The rate of a ship relates to the number of guns it carried; a typical 1st rate carrying 90 guns, a 2nd rate 70, a 3rd rate 60, a 4th rate 40, a 5th rate 28 and a 6th rate 12.
5. *Calendar of State Papers (Domestic)* 1663, p. 326, 1660-1685 (*Addenda*), p. 131; 1666, p. 395.

In 1667 a number of naval vessels were sold off to private shipbuilders and merchants, including Thomas Gould, William Castle, Sir William Warren, Richard Boys, William Wood and Henry Johnson. Gould bought from the Navy the *Vanguard* (2nd rate), *Amity* (4th rate), *Merchant Adventurer* (merchantman) and the burnt remains of the *Charles V* (4th rate)⁶. Four of the ships bought by Sir William Warren were bought by William Wood, a timber merchant from Wapping, who sold them to Gould in January 1668. Gould's vessels included the *Guinea* and *Amity* (both 4th rate), the *Daniel* (fireship), the *Blackmoor* (pink), the *Elias* (5th rate), the *Vantrump* (flyboat) and the *Zealand* and *West Friezland* (both 4th rate). The *Amity* may initially have been sold to William Wood by Gould and subsequently bought back⁷.

In 1670 Gould sent some of his workmen to Deptford and Chatham to break up ships in the Royal Dockyards, including the *Stadthaus van Haarlem* at Deptford and the *Marmaduke* (both 4th rates) at Chatham. He also started to break up the *Defiance* (3rd rate), but the work was stopped after a visit to Chatham by William and Robert Castle, who reported that it would be cheaper to refit her than break her up. In 1670 he also supplied the Navy with ten loads of knee timbers, which were used for the *Newcastle* (4th rate) built at Chatham⁸.

Thomas Gould was knighted in 1675, elected sheriff of London a year later⁹, and was a candidate for the mayoralty in 1682¹⁰. It is likely that from 1675 onwards his City commitments received more attention than his business, and he probably leased the dock to Thomas Gressingham and Collins at about this time¹¹. Gressingham occupied the site until 1689, and afterwards moved to Limehouse¹². By 1746 a timber wharf and other buildings occupied the site; the King and Queen Stairs were in existence by this time and other slipways may also have existed¹³. During the latter half of the 18th century a dry dock was constructed on the eastern side of the site and became known as Princes Dock. It may have been built by Peter Mestaers, shipbuilder, who occupied the site from 1779 until 1819. Three ships are known to have been built by

Mestaers including the *Mercury* (6th rate) in 1779, the *Pylades* (16 guns) in 1794 and *HEIC Astell* in 1810¹⁴.

During the 19th century the site was in the hands of shipbuilders and breakers including William Evans, shipbreaker (later shipbuilder), Hackwood & Trevarthen (shipbuilders) and Henry Castle (shipbreaker). The commercial aspect of the site continued with wet and dry docks, wharves and yards until the site and the Princes Dock fell out of use by 1991.

The archaeological excavation (Fig. 2)

The dock and river wall was constructed with 200mm (8 inch) square posts at about 500mm intervals, tenoned into a series of horizontal baseplates. The posts were nailed to, and held in place by, large timbers which functioned as land ties, their far ends anchored by a set of stakes forming a 'lock bar'. Some of the larger ties were anchored with a double set of lock bars. Thirteen ties, each representing a major ship timber, are discussed below. Contrary to the usual practice, the sheathing planking was spiked to the front rather than the back or landfill side of the posts, and the weight of the fill tended to force it off. These planks were reused oak and softwood ship planks measuring around 50mm thick. Along the outer face of the dock was a series of four oak 'rubbing posts' measuring from 150 to 300mm square. These posts were placed about 800mm apart and stood to a maximum height of 1m. The dock had a minimum depth of 2m – the full depth is not known, as the top had been truncated by later 18th- and 19th-century activity. Alterations to the ends of some of the ties suggest that there were at least two phases of building or repair of the dock and river wall in the 17th century.

After the construction of the dock and river wall, the ties were buried beneath a large dump of delft pottery and sherds of stoneware Bartmann jugs. The stoneware shows the arms of Pieter van den Ancker, a London merchant who imported stoneware mainly around 1660–61¹⁵. This gives an approximate date of the construction of the dock and reuse of the ship timbers.

6. D. J. Hepper *British Warship Losses in the Age of Sail, 1650-1859* (1994) Jean Boudriot Publications.
7. *Calendar of State Papers (Domestic) 1668*, p. 164.
8. *Ibid.*, 1670, p. 352.
9. A. B. Beaven *The Aldermen of the City of London* (1913) The Corporation of the City of London.
10. *Calendar of State Papers (Domestic) 1681*, p. 476.
11. Manor of Redriff or Rotherhithe: Court Book and Court

Baron Index, 1668-1732-3, London Metropolitan Archive.
12. P. Banbury *Shipbuilders of the Thames and Medway* (1971) David and Charles.
13. John Rocque *Map of London* (1746).
14. London street directories: 1779-1819.
15. D. Haselgrove 'Steps towards English stoneware manufacture in the 17th century Part 2 – 1650-1700' *London Archaeol* 6 no 6 (1990) 152-9, especially fig. 6.

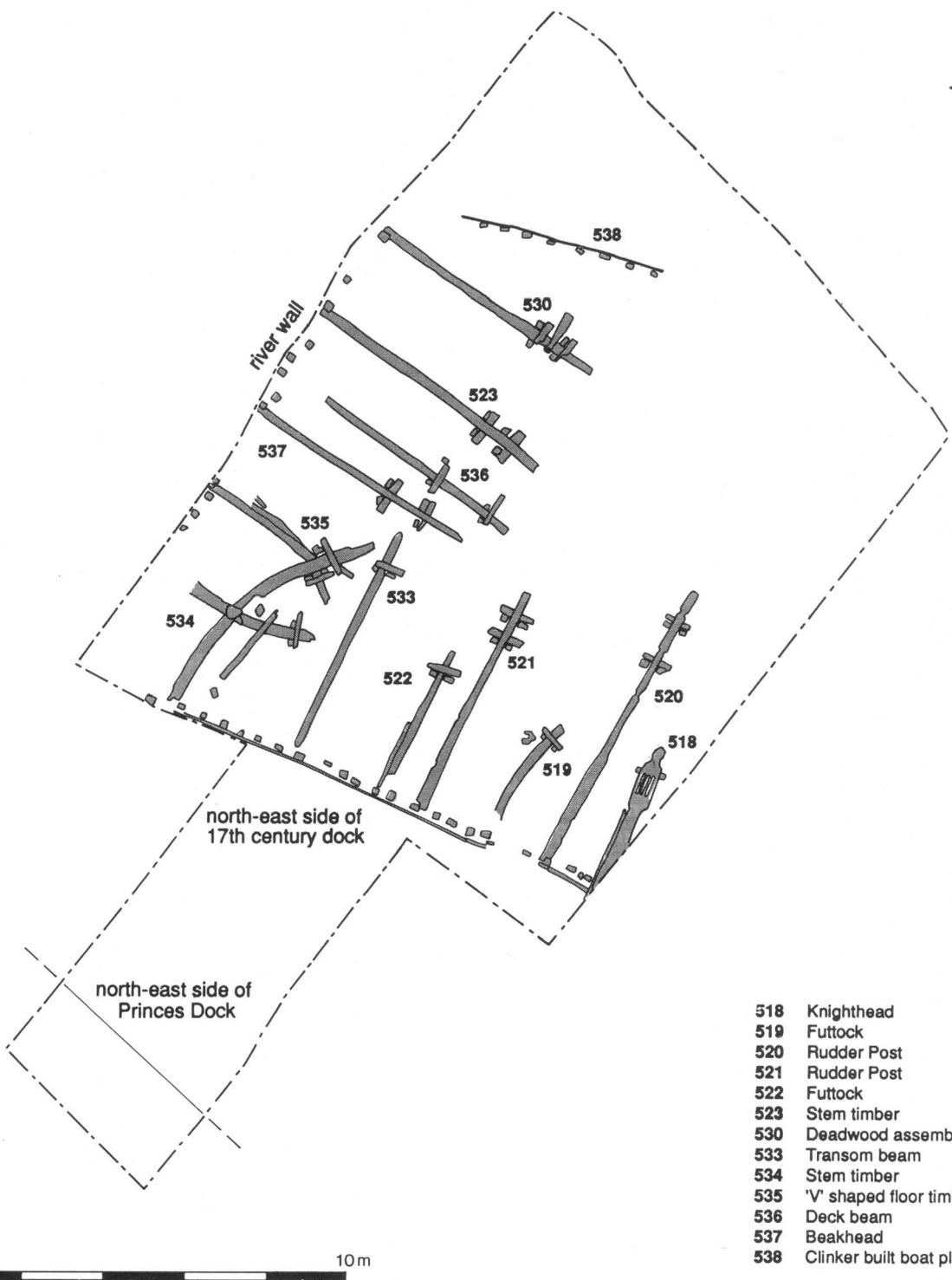


Fig. 2: detail of the archaeological trench showing the 17th-century dock and the reused ship timbers used as land ties



Fig. 3: recording the large two-part stem. In the foreground is the beakhead timber, and behind is a deckbeam; beyond the stem is the deadwood assembly.

A summary of the key features of the assemblage of reused 17th-century ship timbers

Many 17th-century ship timbers have been recorded from another London waterfront excavation¹⁶, but the timbers from Bellamy's Wharf mainly consist of elements not found on that site and only very rarely encountered on underwater wreck sites. Thus the large stems described here are the only known examples from Britain at this period.

The ship timbers found during the excavation are likely to derive from large naval ships from the first and second Dutch Wars. Ships of this period varied greatly in size; for example, the keel of an average 1st rate would have been around 130 ft in length with a beam of 45 ft, while a smaller 6th rate would have a keel of around 70 ft and a beam of 18 ft. The reused ship timbers from the present excavation derive from ships of 2nd to 4th rate

size, with an approximate keel length of around 100-120 ft and a beam of 30 to 40 ft¹⁷.

The timbers found include two stems, two rudders, a beakhead, a deadwood assembly, transom beams, frame timbers and a knighthead (Fig. 3). Other timbers were also discovered, although only a selective sample can be included here.

Two stem timbers from large ocean-going vessels

Perhaps the single most visually impressive reused ship timbers were two large, well-preserved curved oak timbers scarfed together and forming a stem timber (Fig. 4). This example parallels that of the *Vasa*, built in Sweden in 1624 under the direction of a Dutch shipwright, and the worn condition suggests that it came from an old ship, built in the middle or early part of the 17th century.

16. D. M. Goodburn 'New light on early ship and boat building in the London area' in G. Good (ed.) *Waterfront Archaeology: proceedings of the Third International Conference on Water-*

front Archaeology, Bristol, 1988 CBA Res Rep 74 (1991) 112-5.

17. F. Fox *Great Ships: the battleships of King Charles II* (1980) Conway Maritime Press.

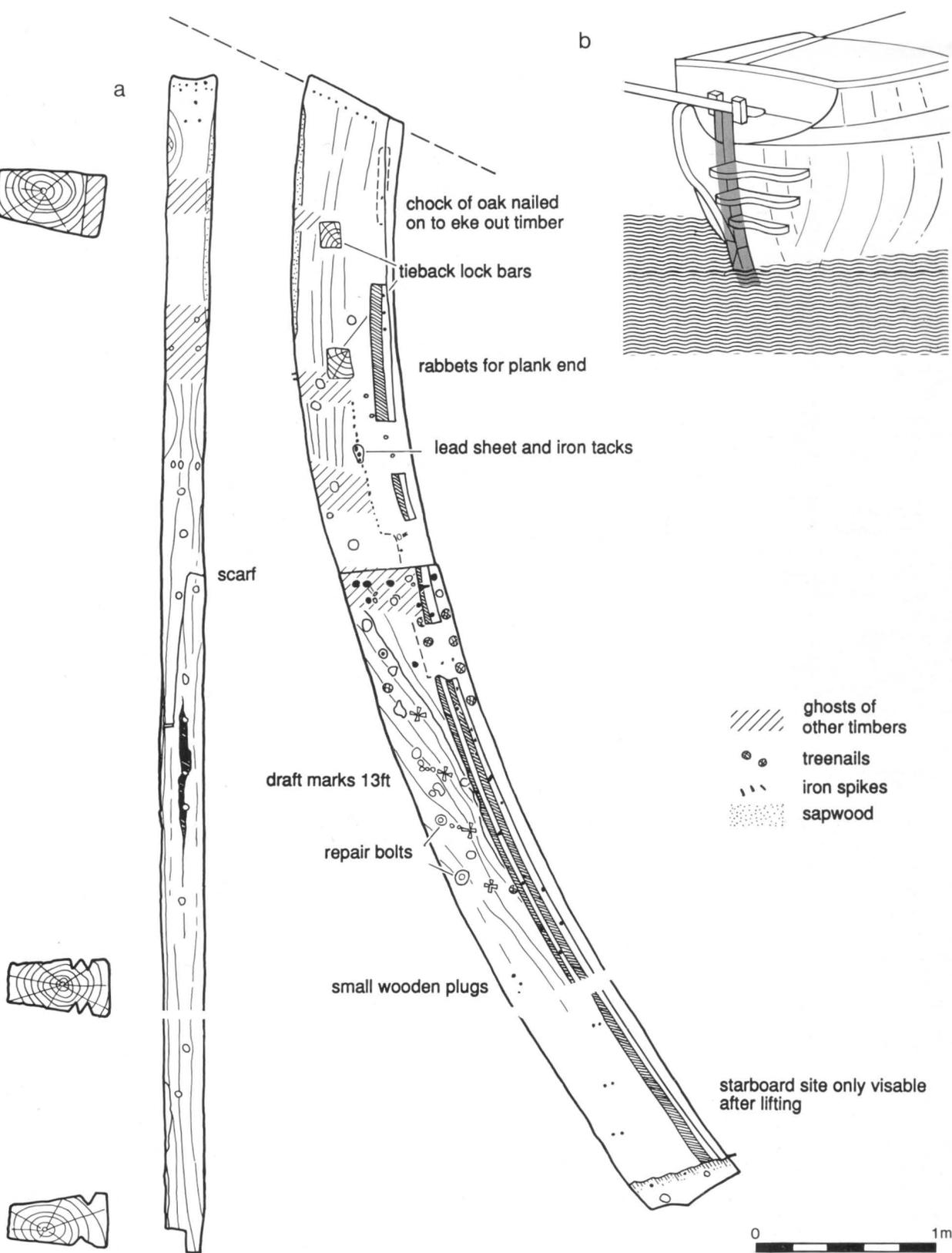


Fig. 4: detailed drawing of a large ship's stem reused as a land tie in the 17th-century dock and riverwall, (inset) sketch to show location of the stem in a mid-17th-century ship.

The assemblage's combined length was 6.58m, and it had probably only been slightly shortened for reuse at the original lower end, the upper end still retaining the concave depression that accommodated a bowsprit. The moulded dimension was 550mm and the sided dimension 320mm. Carved draft marks had been cut with crosses and dots in the same style as those on the *Vasa*. The lowest surviving mark was 11ft and the highest 14ft. The stem also featured the ghosts and fastening holes for sloping knees used to support the beakhead of the front of a large ship of this period. Much of the original white lead paint still adhered to the surfaces of the timbers, and there was some evidence of the use of lead strips round the wale ends to stop leaks.

Second stem timber

A second, less well preserved, oak stem timber [534] came from a vessel built in a quite different way. This stem had a beam rather than a plank section, and was made in a single piece, grown to shape. Also nearly complete, it was about 6.20m long and was moulded 320mm and sided 260mm. Unfortunately, it was particularly decayed in its middle section where the timber was reduced to a peaty deposit. Its small scantling suggests that it derives from a slightly smaller ship than that described above. However, it is quite clear that both stems were taken from large ocean-going ships.

A timber from the beakhead of a large ocean-going vessel

The beakhead of a 17th-century ship was the up-curving, beak-like projection of timber attached to the forward face of the stem underneath the bowsprit. The lower end of this timber was truncated before reuse, leaving intact a 6m length with a moulding of 760mm, and a siding of 230mm. The large oak timber was cut to a complex curving shape, and bore other diagnostic features which clearly show that it was originally part of the beakhead structure of a very large ocean-going ship.

Two large rectangular slots were cut through the timber, apparently for passing through rope bindings (*gamonyng*) to hold the bowsprit in place. The remains of two draft marks cut in the form of Roman numerals were clearly visible, the more complete of which read 18ft. Holes in the timber indicate that it originally articulated with timbers aft of and below it. The timber was heavily charred in a number of places, clearly indicating that the ship from which it derived must have been very badly damaged by fire before being broken up.

Two rudder posts from large ocean-going ships
Two large slightly-tapered timbers could easily be identified as the nearly complete rudder posts of large ships. The more complete of the rudder posts [520] was 7.62m long with perhaps only a little timber removed from its top end. It seems to imply a rudder at least 8m tall, with a maximum of 460mm fore and aft and 330mm athwartships. The smaller rudder [521] was of similar scantling and form, but was only about 6m long. Both rudder posts were of oak, and each featured four stepped recesses to allow the gudgeons on the stern post to fit into the leading edge of the rudder so that the pintles on the rudder edge could be slid into them. There were also recesses to accommodate pintles above the waterline. Both posts were tapered so as to cause less drag below the waterline, while retaining their full thickness higher up to take the strain of the tiller. They were also pierced with fore and aft drift bolts designed to secure timbers to the after edge of the rudder and form the blade projection.

The sides of both rudders were covered with thick layers of a cream-coloured deposit and animal hair, together with patches of tar. This material was pierced by numerous small iron nails, indicating that the rudder had originally been sheathed as a protection against marine borers. Rudder post [521] showed substantial borer damage extending for some 300mm from its surviving lower end, which may have been cut short at some point as it was very close to the first pintle recess. The holes were large, about 6mm in diameter, and almost certainly belonged to the beetle *Terredo navalis*, which is not common in British waters. This ties in neatly with the evidence of the sheathing of the rudders, and strongly suggests that both the ships from which the rudders came sailed in much more southerly waters, possible in the tropics.

Rudder [520] was heavily charred in several places close to what was probably the waterline when the ship was afloat, and in a similar way to the charring on the beakhead timber.

A section of deadwood and articulated timbers

A complex assembly of three main timbers found reused as a land tie originally formed part of the deadwood of a ship, probably the rising bow end. It was composed of an elm [531] and an oak [530] section together with the damaged remains of an oak floor timber of a flattened V shape [532], still *in situ*. These three elements were held together with dome-headed, round-shanked, wrought iron drift bolts about 24mm (1 inch) in diameter. The com-

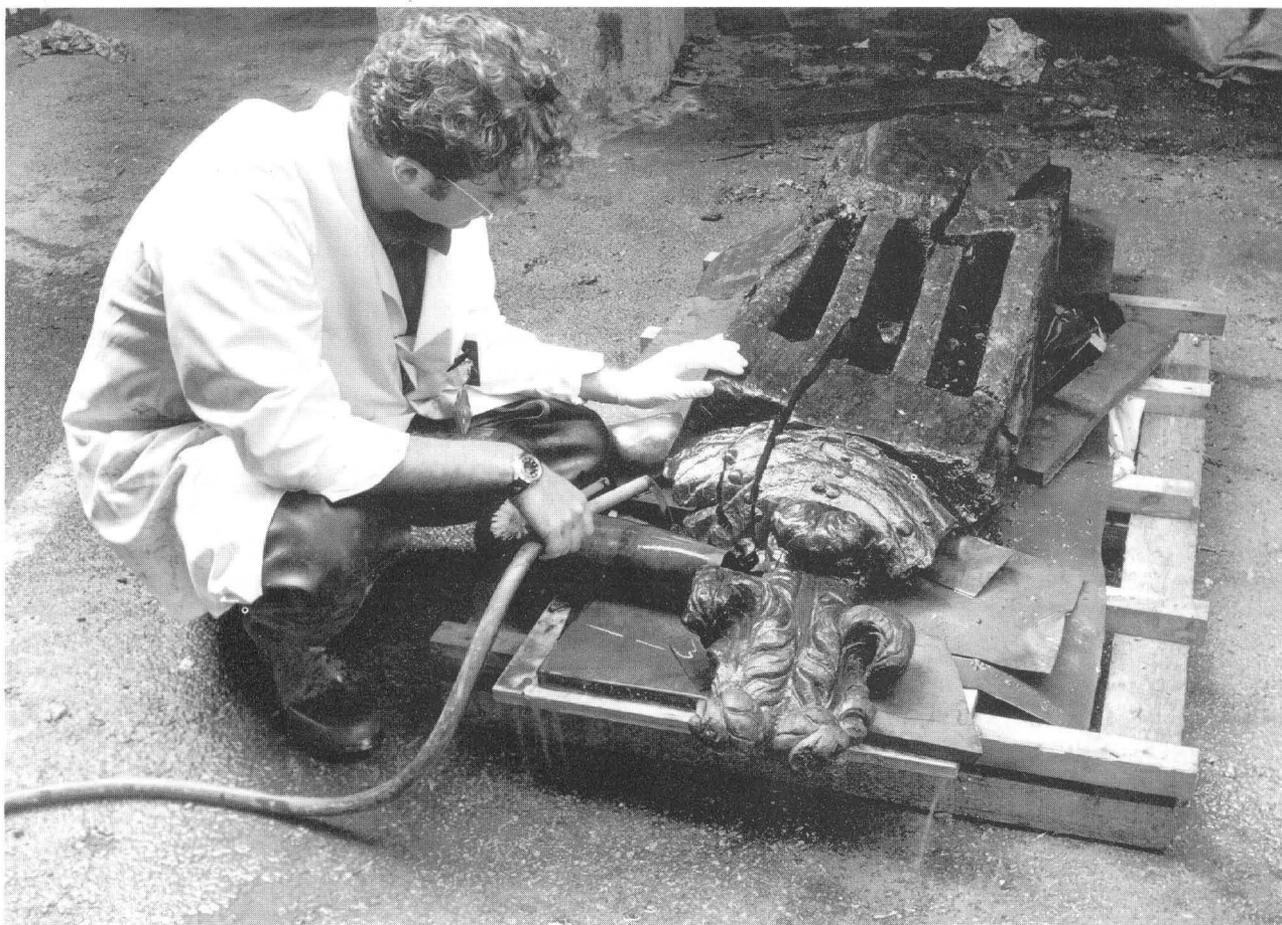


Fig. 5: a Museum of London conservator cleaning the elaborately carved knighthead. The floral motif can be seen in the foreground.

bined length of the fore and aft elements was about 6.30m, but both ends had been shortened a little in reuse.

Both the elm and oak timbers had been notched or ‘tabled’ to lock securely into each other and into adjacent timbers.

A transom beam from a large ocean-going ship

The upper parts of large ship of the 17th century such as the *Vasa* had wide, almost square, sterncastles that were framed with large crosswise ‘transoms’. These beams might contain recesses to accommodate windows or gunports and steering gear. The oak land tie [533] appears to have been such a transom; it had three recesses for hull ports, and fastening holes from deck planking that had once been spiked to its original upper surface, while a skewed half-dovetail terminal would have articulated with inward-tapering fashion timbers and hull sides.

The order of size of the parent ship is indicated by the fact that even though one end of the timber is missing, it would, if symmetrical, have been slightly larger than a comparable timber from the *Vasa*. As found, it was 5.88m long, but would originally have been about 7m long. It was moulded 350mm and sided 200mm.

A carved knighthead timber from a large ocean-going vessel

At the southern edge of the excavation were found the remains of a ‘knighthead’ of a large ship. Knightheads were posts which passed up through the decks of large sailing vessels and were grooved to accommodate rigging sheaves. The upper terminals of many of these timbers are known to have been carved, often in the form of a bust of an armed nobleman or knight. This timber extended beyond the safe limits of excavation, and had an exposed length of 2.8m, a width of 450mm, and a surviving thickness of 200mm where it would

originally have been nearer 400mm. Unfortunately, it was more decayed than the others, though the damaged upper face was recorded in detail *in situ* (Fig. 5). The eastern end was found to have been the original top, carved to resemble a breastplate. The surfaces of the carving were covered with a thin layer of dark grey paint.

Summary

Both documentary sources and archaeological evidence suggest that the dock was built by the shipbreaker and merchant Thomas Gould between 1660 and 1663, and rebuilt around 1667-1670. The names of the parent vessels from which the timbers derive is hard to ascertain, though it is possible that the timbers from the first phase of dock construction derive either from ships sold by the Navy around 1669 or from a ship previously owned by the Gould family, perhaps the *Morningstar*, *Crow* or the *Heartsease*.

The ship timbers used in the rebuilding of the dock are likely to have come from at least two ships broken up by Thomas Gould around 1667-70, possibly casualties of the Dutch raid on the Medway in June 1667. Such vessels would have offered a convenient source of timber for dock building. The ship from which the stem [523] derived is likely to have been a large Dutch vessel which had been painted and repaired many times, suggesting the ship was old and maybe dated from the early to mid 17th century. Possibly it was the large Dutch ship Thomas Gould bought in 1667 or 1668; the *Charles V*, *West Friezland*, *Zealand* or *Vantrump*.

The second ship was also of large proportions, and is likely to have provided the large rudder stock

[520] and the beak timber [537], both of which showed signs of massive charring. This burning occurred on and above the waterline on both timbers; on the beak timber it occurs at the draft mark at 17-18 ft, and on the rudder stock at around 17 ft from the base. This may suggest a ship with a depth of around 15-17 ft, a 2nd or 3rd rate. Also, the beak timbers showed little sign of wear, suggesting it was not very old when broken up. Could these be timbers from the *Royal Oak* or *Loyal London*, two of the ships burnt by the Dutch in the Medway raid, or (less likely) from the *Defiance*, a ship built in 1666 and accidentally burnt in 1668?

This evidence is tantalising, but further study of the ship timbers, comparing them with timbers from other 17th-century ships, may yield more information about their origins.

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Excavations and post-excavation work

City of London. Museum of London Archaeology Service, Walker House, 87 Queen Victoria Street, London EC4V 4AB (0171-410 2200).

Croydon & District, processing and cataloguing of excavated and museum collections every Tuesday throughout the year. Archaeological reference collection of fabric types, domestic animal bones, clay tobacco pipes and glass ware also available for comparative work. Enquiries to Jim Davison, 28 Blenheim Park Road, South Croydon, CR2 6BB.

Greater London (except north-east and south-east London), by Museum of London Archaeology Service. Excavations and processing in all areas. General enquiries to MOLAS, Walker House, 87 Queen Victoria Street, London EC4V 4AB (0171-410 2200).

Borough of Greenwich. Cataloguing of excavated and other archaeological material, the majority from sites in the borough. For further information contact Greenwich Borough Museum, 232 Plumstead High Street, London SE18 1JT (0181-855 3240).

Hammersmith & Fulham, by Fulham Archaeological Rescue Group. Processing of material from Fulham Palace. Tuesdays, 7.45 p.m.-10 p.m. at Fulham Palace, Bishop's Avenue, Fulham Palace Road, SW6. Contact Keith Whitehouse, 86 Clancarty Road, SW6 (0171-731 4498).

Kingston, by Kingston upon Thames Archaeological Society. Rescue sites in the town centre. Enquiries to Kingston Heritage Centre, Fairfield Road, Kingston (0181-546 5386).

Surrey, by Surrey County Archaeological Unit. Enquiries to Rob Poulton, Archaeological Unit Manager, Old Library Headquarters, 25 West Street, Dorking, RH4 1DE (01306-886 466).

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