



**Artefacts Removed From Wreck Site 343/26 5046
Northwest of Sea Reach 1
Thames Estuary**

An archaeological assessment report
Site code: SRE 10
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SUMMARY (non technical)

The Thames Discovery Programme (TDP) was commissioned by the Port of London Authority (PLA) to analyse a number of artefacts removed from wreck site 343/26 5046 located northwest of Sea Reach 1 in the Thames Estuary. It had previously been considered that the wreck site was not of archaeological interest as it was believed to date to after the 2nd world war. During the removal operation, however, a muzzle loading cannon was retrieved; as a result the TDP investigated all recovered remains. This analysis took place on the 6th April 2010.

The cannon probably dates to 1787-1822, while the associated wrecked vessel was built in the late 19th century at the earliest. It has been concluded that the cannon was not originally associated with the removed vessel and has either migrated to the wreck site or was put overboard by a vessel in distress attempting to lighten ship.

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1 Introduction

1.1 Site background

The removal operation took place in the Thames Estuary northwest of Sea Reach 1, hereafter called ‘the site’ (Fig 1). The Ordnance Survey national grid reference to the approximate centre of the site was 599095 181002. The site was allocated the code, by which the records are indexed and archived, SRE 10.

A series of previous investigations have been made on the site using both divers and sonar (detailed below in chapter 2.4).

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1.2 Planning background

A new channel for shipping is being dredged in the Thames Estuary. The site lies inside the course of the channel and had been previously identified as having no archaeological potential. As a result a mitigation strategy had not been prepared to provide for an archaeological watching brief during the clearance of the site. On the unexpected recovery of a muzzle-loading cannon, however, it was decided to have archaeological analysis of both the cannon and the associated vessel timbers.

1.3 Origin and scope of this report

The archaeological work of analysis and recording, and the production of this report, were commissioned from the Thames Discovery Programme (TDP) by the Port of London Authority (PLA). All archaeological analysis and recording during the investigation on site was done in accordance with the Museum of London *Archaeological Site Manual* (1994) and MoLAS *Health and safety policy* (2005).

The report has been prepared within the terms of the relevant standards specified by the Institute of Field Archaeologists (IFA 2001).

The report presents the results of a one day survey carried out on vessel timbers and a cannon recovered from the Thames Estuary. The work was carried out on the 6th April 2010.

1.4 Original research aims and methodology

The original research aims suggested by the TDP were:

- Establish the date of the cannon
- Establish the date of the vessel timbers
- Establish whether the cannon is compatible with the wrecked vessel.

A selection of recovered vessel timbers were stored in a barge and observed and photographed. Two timbers, part of a balustrade, and a rudder were separated and stored on land along with a cannon. These artefacts were photographed while the cannon and rudder were planned at a scale of 1:10.

1.5 Organisation of this report and conventions used

The geological, archaeological and historical background to the estuary along with previous site investigations is briefly discussed, before a description of the cannon and rudder is made. The potential of the archaeology is discussed, as is outline publication and archiving.

All dimensions are given in metres or millimetres. In the text context numbers are in square brackets, thus: [10].

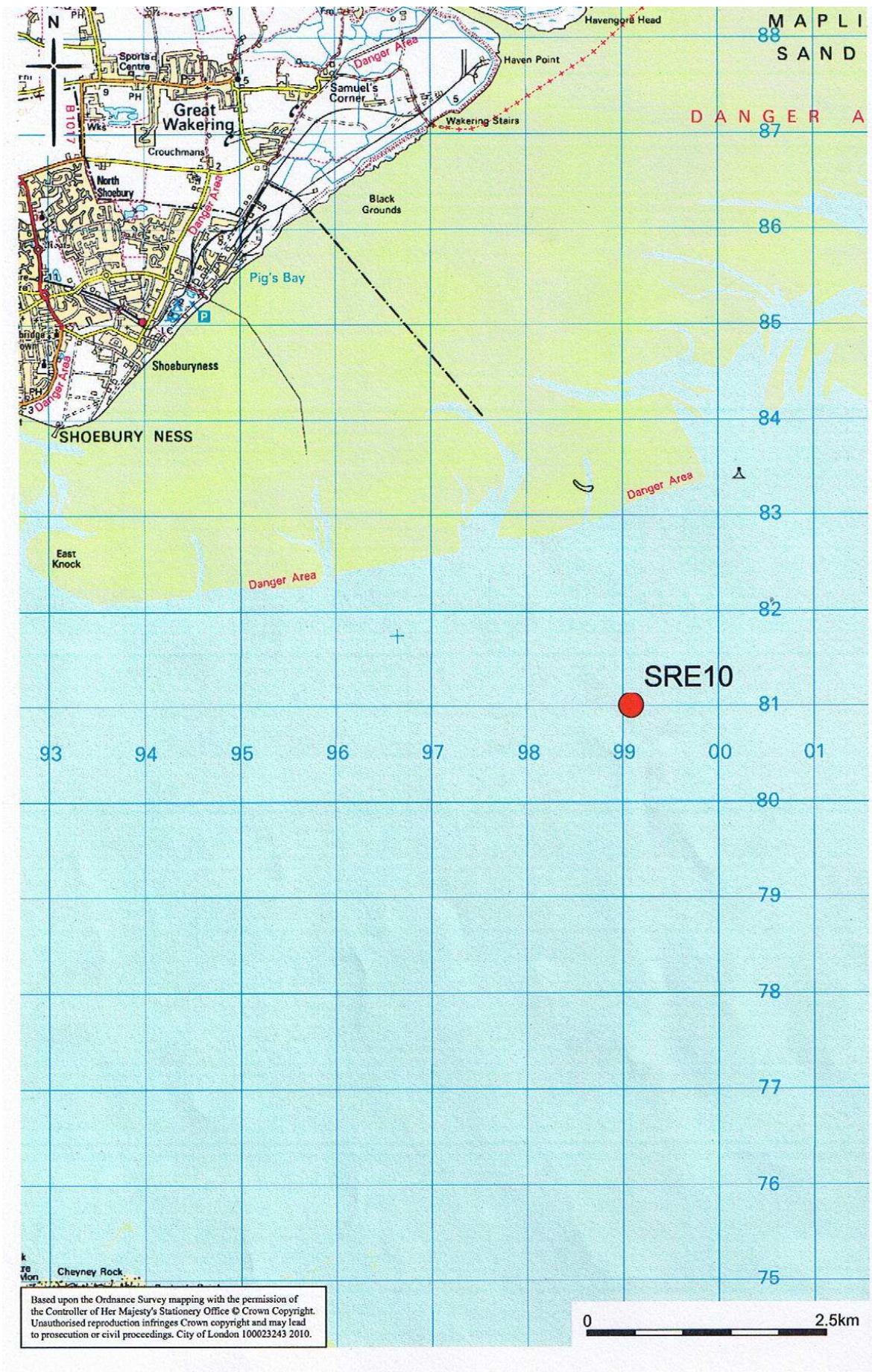


Figure 1: Site Location

2 Geological, archaeological and historical background

2.1 Introduction

The time-scales used in this report are as follows.

Palaeolithic	c 450,000–12,000 BC
Mesolithic	c 12,000–4000 BC
Neolithic	c 4000–2000 BC
Bronze Age	c 2000–600 BC
Iron Age	c 600 BC–AD 43
Roman	AD 43–410
Early medieval	AD 410–c 1000
Later medieval	c AD 1000–1500
Post-medieval–modern (including industrial)	c 1500–present

2.2 Geology

Previous investigations by divers suggested that the estuary bed at the site comprised sand chalk and flint¹.

2.3 Archaeological and historical summary²

2.3.1 *Pleistocene and Palaeolithic*

Prior to the Anglian glaciation (c. 480,000 BP) the course of the Thames was north of its present location, flowing through the Vale of St Albans, while the Medway also flowed north through eastern Essex. The Thames met with the Rhine in the southern area of the present-day North Sea before flowing through the present-day English Channel. As the Thames was blocked by the approaching ice, it was progressively diverted south to its current course.

A large amount of evidence of the Palaeolithic period has been recovered from the Greater Thames Estuary including fossils and artefacts, particularly from Purfleet, Grays, Crayford, Swanscombe and Ebbsfleet. Equally, the deposits laid down in this period have revealed a great deal of palaeo- environmental data.

2.3.2 *Mesolithic*

At the beginning of this period, Britain was still connected to Europe across the southern North Sea. By the end of it, rising sea levels caused by glacial retreat had isolated the

¹ Anonymous 2008: 3

² This chapter is broadly based on Williams, J. & Brown, N. eds. 1999: 9-16. Other references are footnoted individually.

island in its current state³. The area of the present- day estuary appears to have progressed from tundra to forest, with ash, holly, alder, yew, elm, hazel, willow, oak and poplar being present. Evidence of these species exist largely within peat deposits at Purfleet and Crossness although root systems of oak have been recorded in the estuary of the Blackwater, and oak and alder root systems in the Crouch estuary.

2.3.3 Neolithic

Further evidence of forest systems have been recorded at the foreshore at Erith as part of the Thames Archaeology Survey (TAS), suggesting that river levels were still rising through this period, while a wooden beater of this date was recovered from the Thames at Chelsea, also as part of the TAS. Recently a number of pot sherds of Neolithic date have been recovered from the foreshore at Vauxhall by the TDP. These last two finds suggest a human presence exploiting the river in London; it would be surprising if such exploitation was not occurring further downstream in the estuary.

2.3.4 Bronze Age and Iron Age

Finds of imported artefacts in the region suggest that by this period the estuary was certainly being used for trade. Bronze Age vessels have been recorded at Dover, North Ferriby, and two at Salcombe which further demonstrate that the technology existed for trade with Europe⁴

2.3.5 Roman

Numerous excavations have revealed a series of revetments, quays, warehouses in *Londinium*, while the towns of Canterbury, Rochester and Colchester would also have required imports and exports. It seems, therefore, likely that use of the estuary would have increased in this period, while a Roman ship was excavated at Blackfriars in the 1960s⁵.

2.3.6 Early medieval

While there may have been a temporary decline in the use of the estuary following the collapse of Roman Britain, it is clear that by the middle- Saxon period ‘a mart of many nations’⁶ had been established in the Strand area of London, with evidence of trading with Ipswich and further afield. Evidence also exists for activity at Faversham, Woolwich and Greenwich. Shortly after this, the estuary became a strategic resource in the struggles between the English and the Vikings; the latter establishing, at varying times, temporary bases at Sheppey, Benfleet, Shoebury, Mersea and, on one occasion, London itself. A number of vessel remains of this period, including the Graveney boat found near Faversham, further reinforce the evidence for the use of estuary in this period.

³ Shennan *et al*, 404-6

⁴ Daily Telegraph webpage.

⁵ Milne, G. pers. comm.

⁶ Bede, quoted in Williams, J. & Brown, N. eds. 1999: 13.

2.3.7 *Later medieval*

Trade continued to increase in the estuary following the Norman conquest; most obviously evidenced by the import of stone from Kent and Caen for use in buildings in London and Essex. Remains of medieval vessels have been recovered in the area, while the wool trade with Flanders has been well documented as contributing to the prosperity of the region during this period⁷.

2.3.8 *Post medieval – modern*

Throughout this period trade and shipbuilding increased on the Thames; the former until the advent of containerisation in the late 20th century, the latter until the early 20th century when the depth of water and competing pressure on waterfrontage precluded the building of the largest vessels. Equally other maritime occupations, such as shipbreaking and fishing appear to have increased to cope with demand. By the 18th century it has been suggested that London handled around 80% of the foreign trade of the country; the subsequent population explosion would only increase traffic within the estuary.

A number of wrecks have been recorded dating to this period, notably the ‘Gresham Ship’, the remains of a late 16th century Tudor vessel recovered from the Prince’s Channel in 2003/4⁸.

2.4 *Previous investigation of the site*⁹.

2.4.1 *Summary of work previously carried out on the site*

1990 PLA located three small obstructions and a scour pit by echosounder search with a general depth 13.3 metres, least depth 12.8 metres and a maximum depth of scour of 13.8 metres (24/05/1990);

2001 Emu sidescan sonar survey (29/03/2001);

2002 Emu sidescan sonar and magnetometer survey on behalf of Wessex Archaeology (14/11/2002);

2005 Site dived by the PLA – no objects were recovered (18/08/2005);

2005 PLA site investigation using Reson 8125 multibeam system, with WA in attendance (06/12/2005);

2007 WA diving investigation (27/11/2007).

2008 WA diving investigation (April 2008).

⁷ McKisack 1959: 120-1, 143, 225.

⁸ G. Milne pers comm.

⁹ This chapter is broadly based upon Anonymous 2008: 1-4.

2.4.2 Précis of previous work

A sidescan sonar survey conducted in 2001 revealed a feature measuring some 20m by 15m with a sediment plume and possibly associated features to the south west.

Another, conducted in 2002 by Wessex archaeology (WA), revealed a wreck shaped feature measuring some 39m by 12m, along with other, possibly associated, anomalies in the area.

In 2005 the site was surveyed by PLA divers who recorded a number of wooden, metal and concrete features; one of the wooden features being suggestive of a vessel timber.

In the same year a multibeam survey was carried out by the PLA which revealed an oval feature measuring some 43m by 16m. Possible vessel sides were identified at both the northern and southern edges of the site which stood out up to 1.3m from the seabed.

The site was surveyed in 2007 by divers from WA who recorded the presence of large masses of concretion, some of which may have been struts or frames, along with a concreted chain, pieces of concreted wood and a flat ferrous metal plate measuring 0.5m x 0.1m x 0.05m with two c. 20-25mm rivet holes.

The site was again surveyed by WA divers in 2008. It was suggested that the site comprised the remains of a timber- hulled vessel with some iron structural features. Two bottles were retrieved from the wreck and are probably associated; one dated from the late 19th century at the earliest, while the other probably dated to the latter half of the 20th century.

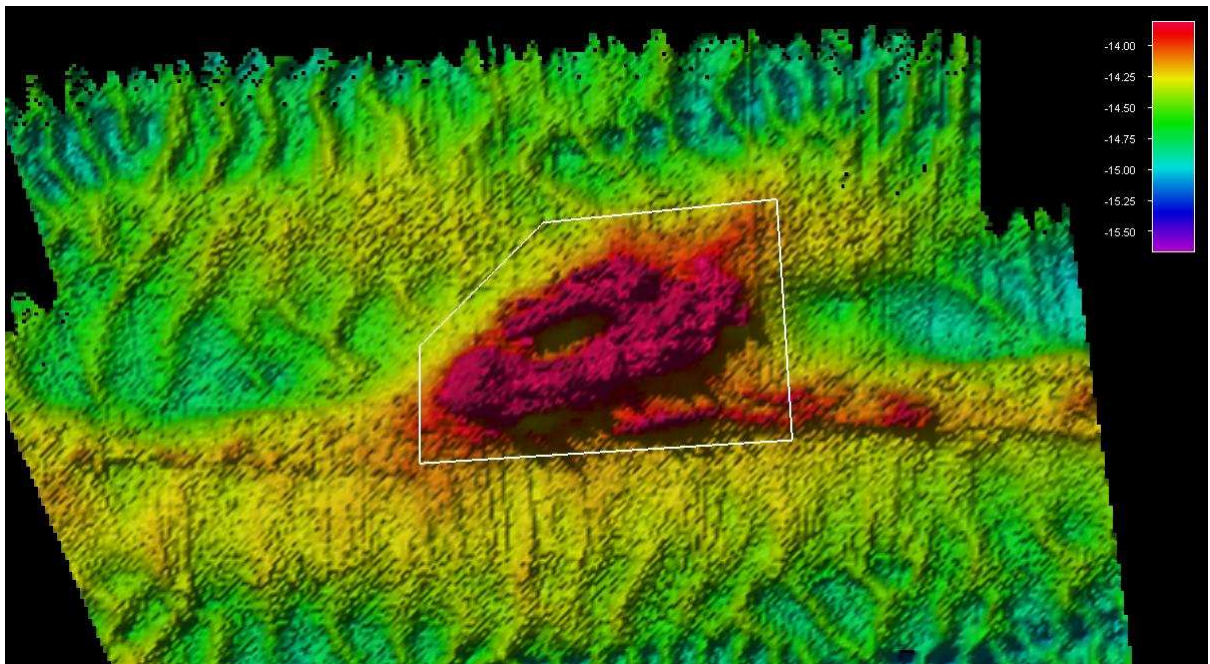


Figure 2: The site before dredging, ©. PLA.

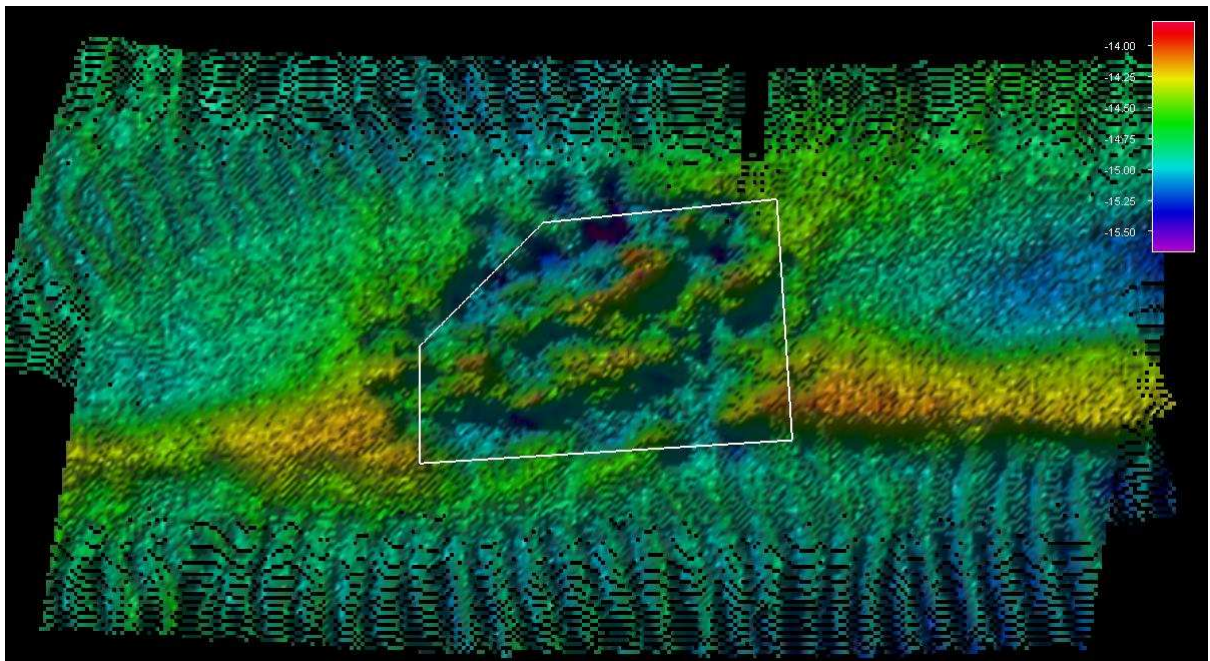


Figure 3: The site after dredging, ©. PLA.

3 The artefacts.

3.1 The vessel timbers

A selection of the timbers had been stored in a barge after recovery for inspection (Plate 1). They were observed to come from a ship sized vessel rather than a barge and comprised floor timbers, frames and hull planking. A number of concreted ferrous strips with rivet holes suggested that the hull was reinforced with iron. A number of copper alloy fixings were observed in the timbers, these were identified as being late 19th century at the earliest due to their shape and condition (Plate 2).



Plate 1: Vessel timbers stored in barge.



Plate 2: Copper alloy fixing.

3.2 The Rudder (Fig. 4, Plates 3 & 4)

The rudder [1] of the vessel had been stored separately and was recorded for future diagnostic purposes. It was 5.64m high, 0.98m long and 305mm thick, and comprised four wooden elements held together by five copper alloy straps and copper alloy rivets. Two of the straps ended in copper alloy pintles at the forward end of the rudder. Two areas of iron concretion were noted on the upper part of the rudder associated with rebates for further missing straps. It is suggested that these were for later iron repairs to the rudder.

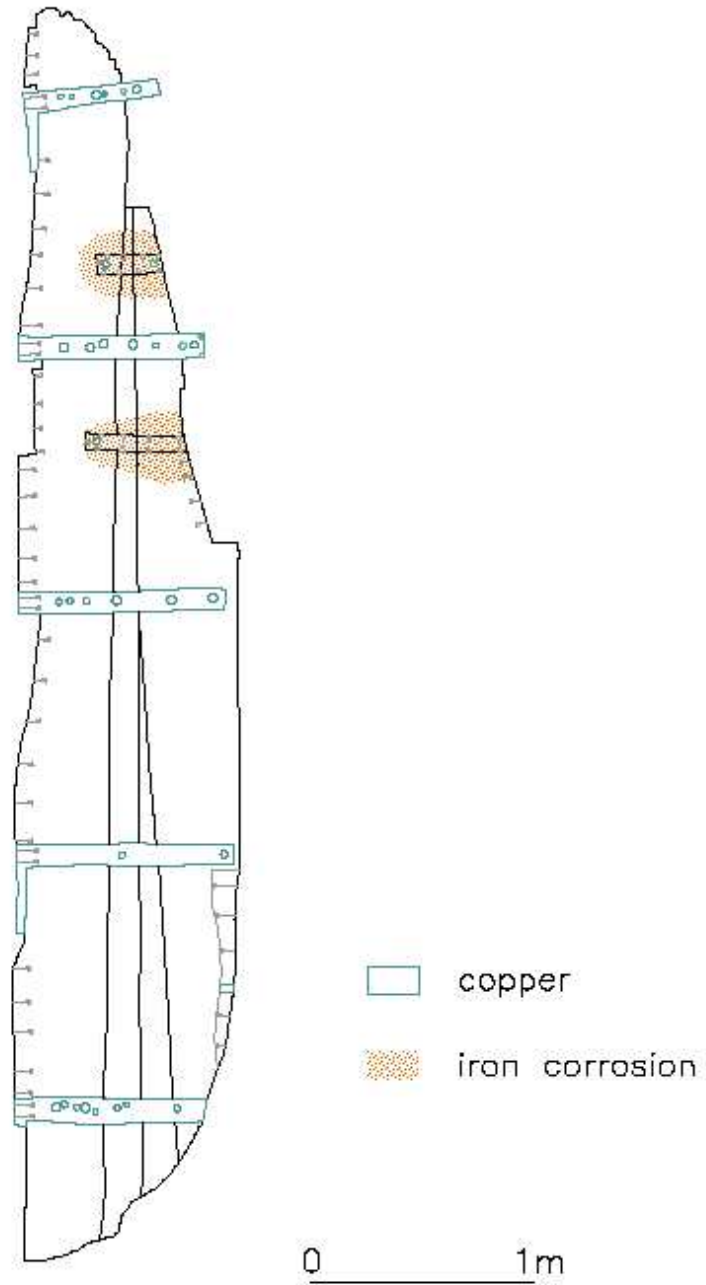


Figure 4. Rudder [1].



Plate 3: Rudder [1].



Plate 4: Rudder [1].

3.3 The balustrade timber.

As the vessel itself was not deemed to be of archaeological interest, this timber [2] was recorded by photograph only. It is presumed to come from a balustrade either at the break of the poop deck of the vessel or around a hatchway.



Plates 5 & 6: Balustrade timber [2].

3.4 The cannon (Fig. 5, Plates 7-11).

The cannon [3] was of iron construction and while rusted overall, more concretion was observed around the breech, the trunnions and the muzzle. The tompion was observed to be in place. The external dimensions were 1.22m long (including corroded tompion), 0.19m maximum diameter at the breech, 0.14m maximum diameter at the muzzle, and 0.11m minimum diameter towards the muzzle.

It is believed to be a sea- service gun, probably a short 3-pounder of the Blomefield Pattern with a date range of 1787-1822¹⁰

¹⁰ Philip Magrath pers. comm.,

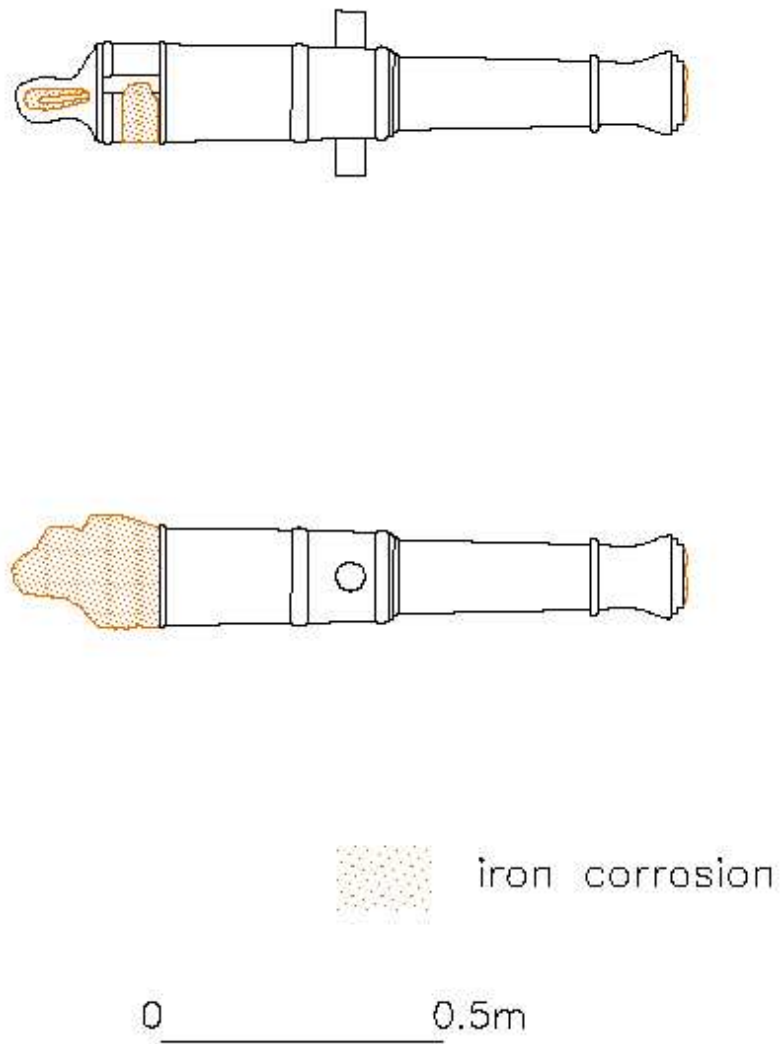


Figure 5: Cannon [3].



Plates 7 & 8: Cannon [3].



Plate 9: Cannon [3].



Plates 10 & 11: Cannon [3]. Detail of breech and muzzle.

4 Potential of the archaeology

4.1 Original research questions

Establish the date of the cannon

The cannon has been identified initially as of the Blomefield Pattern with a date range of 1787-1822.

Establish the date of the vessel timbers

The copper alloy fittings in the vessel timbers and the copper alloy straps and pintles recorded on the rudder belong to the later part of the 19th century at the earliest. It seems likely that these timbers are from a vessel built in the late 19th/early 20th century.

Establish whether the cannon is compatible with the wrecked vessel

As a result of the above two date ranges it is extremely unlikely that the cannon was originally associated with the vessel timbers.

4.2 Revised research questions

Why has the cannon been removed from a late 19th/early 20th century wrecksite?

The cannon must have either migrated along the seabed as a result of previous dredging disturbing the surrounding seabed, or may have been thrown overboard from a vessel in distress attempting to lighten ship and the 20th century wreck came to lie on top of it.

4.3 Significance of the data

The vessel timbers have been previously declared to be of no archaeological significance, although the rudder has been recorded as being useful for future diagnoses. The cannon is being stored pending a decision on ownership by the Receiver of Wreck and input from the Royal Armouries as to its significance. The academic requirement to publish the results of the investigation will be met by incorporating the data from this report and any further research in a monograph which will detail all the maritime archaeological work performed as part of the London Gateway project.

4.4 Salvaged fixtures, fittings and materials

There was no archaeological requirement to permanently retain or conserve the bulk of the timbers recovered from the site and these have now been disposed of under the Port of London Act. Following assessment, it is recommended that the rudder and balustrade timber are also disposed of in a similar way as they are of no archaeological significance and their condition will quickly deteriorate. The cannon, however, is in storage pending a decision on ownership by the Receiver of Wreck.

5 Publication and archiving

Information on the results of this work will be made publicly available to permit inclusion of the site data in any future academic researches into the development and use of the Thames estuary. This will be achieved by incorporating the results of this work into the London Gateway Maritime Archaeological monograph.

The site archive containing original records will be stored with a suitable local museum and a suitable location will be found for the cannon.

6 Acknowledgements

The Thames Discovery Programme would like to thank John Pinder and Alex Mortley of the Port of London Authority (PLA) for commissioning this report. The author would like also to thank them, along with Jim Denby, also of the PLA, for their assistance and hospitality.

The author would further like to thank Mark Burch of Museum of London Archaeology (MoLA) for providing the illustrations and Philip Magrath of the Royal Armouries for identifying and dating the cannon.

7 Bibliography and references

Anonymous, 2008. *London Gateway Wreck Clearance: Archaeology Clearance Mitigation Statement Third Draft WA Ref: 61209.5046.04*. Unpublished Document.

Daily Telegraph webpage:

<http://www.telegraph.co.uk/earth/environment/archeology/7228108/Bronze-Age-shipwreck-found-off-Devon-coast.html>

McKisack, M., 1959. *The Fourteenth Century, 1307-1399*. Clarendon Press: Oxford.

Milne, G., McKewan, C. and Goodburn, D., 1998. *Nautical Archaeology on the Foreshore*. Swindon: RCHME.

Shennan, I., Tooley, M.J., Davies, M.J. & Haggart, B.A., 1983. 'Analysis and Interpretation of Holocene Sea- Level Data', *Nature* 302.

Williams, J. & Brown, N., 1999. *An Archaeological Research Framework for the Greater Thames Estuary*. Essex County Council, Kent County Council, English Heritage.

8 Appendix 1: Context register

Context Number	Type	Description
1	Timbers/copper alloy	Rudder
2	Timber	Balustrade upright
3	Iron	Cannon