

British Marine Aggregate Producers Association, English Heritage and The Crown Estate

Protocol for Reporting Finds of Archaeological Interest

Annual Report to BMAPA 2012-2013

November 2013

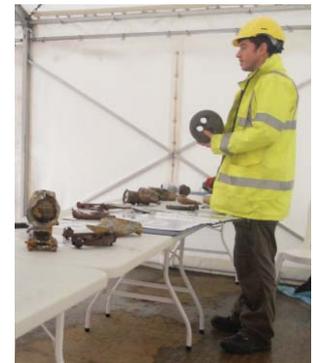
Prepared by
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Project background

Every marine aggregate production area is studied intensively prior to the granting of a marine licence to dredge, in order to protect our submerged heritage. Despite this level of scrutiny and assessment, artefacts are still likely to be present in dredged loads. The Protocol provides a clear framework through which these finds and the sites of archaeological significance that they may indicate can be reported and investigated.

Under the Protocol, finds recognised within dredged loads, at wharves or on the seabed are reported to a Site Champion and then to a designated Nominated Contact who reports it to the curator. Wessex Archaeology run the Protocol Implementation Service which investigates all finds reported through the scheme.

The Protocol was drafted in 2005 on behalf of English Heritage and BMAPA by Wessex Archaeology, and in 2009 The Crown Estate joined BMAPA to fund the Implementation Service. BMAPA member companies have committed voluntarily to implement the Protocol across all existing operations, encompassing wharves, vessels and production licence areas since 2006. As the regulatory consents for existing dredging areas are expiring and have to be re-licensed and new application areas become licensed, the requirement to adhere to the Protocol is increasingly becoming a formal condition of any new marine licence granted.



The Implementation Service has now completed its eighth year of operation and this annual report covers the period from 1st October 2012 to 30th September 2013.

Addendums to the Protocol

The Protocol is a blanket safety net for artefacts of all types and from all periods, but it is also a flexible and adaptive programme which respects existing industry guidelines and to which amendments have been and will continue to be made in response to need.

For example, the reporting of munitions is subordinate to the appropriate health and safety procedures detailed in the BMAPA and The Crown Estate Guidance Note 'Dealing with Munitions in Marine Sediments'. Some munitions may be of archaeological interest, for instance cannonballs, and are reported when confirmed safe and free from explosive.

Artefacts relating to military aircraft are considered with regard to an Annex to the Protocol published in February 2008 in response to the discovery of significant aircraft remains.

Both documents are available online:

Dealing with Munitions in Marine Sediments -

http://www.thecrownestate.co.uk/media/101148/dealing_with_munitions_in_marine_sediments.pdf

Aircraft Crash Sites at Sea -

<http://www.wessexarch.co.uk/projects/marine/bmapa/docs.html>

Access

Planning conditions relating to archaeology are placed on developments for the public benefit, which encompasses a duty to publicise results.

Details of all dredged finds are reported to: English Heritage (EH); BMAPA; The Crown Estate (TCE); the National Record for the Historic Environment (NRHE – previously the National Monuments Record); and the appropriate local Sites and Monuments Record (SMR) or Historic Environment Record (HER), the Finds Liaison Officer for the Portable Antiquities Scheme (PAS), and the relevant Local Government Archaeology Officer (LGAO). All finds are also published on WA's website and in the annual report, and the good work done by BMAPA companies with regard to the Protocol is made accessible through various dissemination programmes conducted both by WA and by other organisations, and including the Protocol awareness programme which produces Dredged Up.

EH remain the curator for heritage in England though WA is currently conducting some aspects of EH's role through the Protocol Implementation Service, although only where a find is deemed to be non-contentious and is unlikely to result in the creation of an exclusion zone. Finds that require a higher level of curatorial involvement are referred to EH in the first instance.



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To aid the smooth running of the Protocol, communication between WA and BMAPA member companies is facilitated by a Nominated Contact for each company, as detailed below.

BMAPA Company	Nominated Contacts	Position
Brett Aggregates Ltd	Richard Fifield	Marine Resources Manager
Britannia Aggregates Ltd	Richard Fifield	Marine Resources Manager
CEMEX UK Marine Ltd	Graham Singleton Joseph Holcroft	Resource and Systems Manager Licence Manager
DEME Building Materials Ltd	Christophe Matton Tom Janssens	Marine Resources Manager General Manager
Hanson Aggregates Marine Ltd	Nigel Griffiths Chris Popplestone	Principal Resources Manager GIS and Resources Co-ordinator
Kendall Bros (Portsmouth) Ltd	Richard Kendall	Managing Director
Northwood (Fareham) Ltd	Tom Hills	Operations Manager
Norwest Sand & Ballast Ltd	Nick Brown	Site Supervisor
Lafarge Tarmac Ltd	Andrew Bellamy Edward Skinner	Resources Manager Marine Resources Coordinator
Volker Dredging Ltd	Will Drake	General Manager



Eight years of the Protocol

During the eight years that the Protocol has been in place, over 1000 individual finds have been reported and protected – finds which might otherwise have been lost from the archaeological record. Whilst staff working for BMAPA member companies are hard-working, keen eyed and demonstrably interested in archaeology, without the reporting framework which the Protocol provides these finds may otherwise have been poorly understood, recorded and publicised. The reporting of artefacts also has to be considered against a background of reduced demand for construction aggregates thanks to several years of poor economic growth, coupled with decreased staffing levels as companies responded to these challenges. Nevertheless, the Protocol remains an effective mechanism.

The material that has been discovered is varied, including peat, flint and prehistoric animal bones, maritime artefacts, material derived from aircraft and domestic debris. Some of these artefacts represent chance finds whilst other finds may be indicative of significant sites of archaeological interest worthy of further investigation.

Over the past eight years the range and variety of material discovered by staff of BMAPA member companies has developed an archive of information about the marine historic environment. This archive is informing archaeological research and the planning of commercial development in specific regions now, and will continue to do so in the future. It is becoming increasingly rare to find an offshore environmental impact statement that does not make recourse to finds reported through the marine aggregates Protocol where the study area is located close to an aggregate licence area. Details of all finds reported through the Protocol are uploaded to the NRHE and can be found online in the annual reports for previous years which are available on Wessex Archaeology's website.

The pioneering example established by the marine aggregates industry has been adopted by several other industries that are able to see the benefits for archaeology and the planning consent process provided by a Protocol thanks to the example set herein. In 2010 The Crown Estate launched a Protocol for offshore renewables and an additional Protocol for the fishing industry is currently being trialled for English Heritage in Sussex with the support of the Association of Inshore Fisheries and Conservation Authorities. The combined protocols will lead to a better overall understanding of the heritage in British coastal waters and will help to protect evidence of our past during commercial work at sea.

The success of the marine aggregates Protocol over the past eight years – evidenced by the number of finds reported and the take up of similar models in other areas – demonstrates the value of this form of mitigation. As the Protocol enters its ninth year we are confident that it will continue to add benefit to both public and professional audiences, and industry staff are highly commended for their dedication and enthusiasm, which is evident from the high level of reporting.

Further information about the Protocol and the Implementation Service can be found at:
<http://www.wessexarch.co.uk/projects/marine/bmapa/index.html>





Visits to wharves, vessels and survey companies utilise a combination of formal and informal techniques, including presentations, artefact handling sessions, group discussions and one-to-one discussion, as appropriate to the circumstances and facilities.

Raising awareness

Awareness is an ongoing process and despite the success seen so far, it is important to continually promote the Protocol.

The current phase of awareness work is funded by a tri-partite agreement between BMAPA, TCE and EH and implemented alongside the Protocol by Wessex Archaeology.

The 2013-14 programme will deliver:

- Enhanced awareness of the Protocol through visits to wharves receiving aggregate from BMAPA companies;
- Visits to geophysical and environmental survey companies that service the industry;
- Four new issues of the 'Dredged Up' Newsletter in continuation from the programme's previous eleven issues. The aim of this bi-annual publication is to publicise the service and highlight recent finds.



Visits to wharves and vessels

Visits to wharves and vessels are crucial to instil in staff the knowledge and confidence to recognise and report archaeological material found amongst dredged loads. Whilst the majority of staff at wharves are well informed about the Protocol and reporting procedures, visits are an effective way of maintaining contact, re-confirming interest, clarifying operational details and training new staff.

During a visit, specific information is provided regarding:

- the nature of the marine historic environment;
- identifying typical marine finds and why they are archaeologically significant, using examples of finds already reported through the Protocol;
- an outline of the Protocol and the responsibilities of staff under the Protocol;
- advice for recording finds, including filling in the initial reporting form and recommendations for photographing finds;
- handling, conserving and storing marine artefacts;
- contacts for receiving additional advice on particular finds from local authorities or organisations;
- legislation relating to archaeology on the seabed.

The awareness programme and Protocol are symbiotic and feedback gained through awareness visits into how the Protocol can be implemented more effectively is put into action accordingly.

Logistical barriers prevent regular visits to ships and to Continental wharves receiving material from licences in British waters. The Protocol is being promoted in these instances through publication of the Dredged Up newsletter, with the issuing of revised information in three languages and by communication through Wessex Archaeology and through the marine aggregate companies themselves who ensure all aspects of their operation conform to the conditions laid down in the Protocol.

If you would like to arrange an awareness visit, or would like to receive more advice on finds and finds reporting, please contact WA via protocol@wessexarch.co.uk

You can also view the awareness information pack, in English, Dutch and French, online at <http://www.wessexarch.co.uk/projects/marine/bmapa/docs.html>



Newsletter

The 'Dredged Up' newsletter is an effective method for reaching a wide audience to promote the operation of the Protocol and provides a positive showcase for the industry's activities. Designed to be accessible, interesting and highly readable, the newsletter reaffirms the operation of the Protocol and provides a gentle reminder of the obligations of everyone working within the remit of the scheme.

Two issues were produced during the 2012-2013 reporting year, following 11 issues printed during previous phases of awareness work.

The newsletter recognises the work of BMAPA staff in ensuring the success of the Protocol by publicising and promoting dredged finds and publishing the winners of the annual BMAPA finds awards.

The 2011–2012 Finds Awards were made to:

- Lafarge Tarmac's Greenwich Wharf - Best Attitude by a Wharf
- CEMEX's Sand Fulmar - Best Attitude by a Vessel
- Lafarge Tarmac for the discovery of a Schermuly naval rocket line thrower at Greenwich wharf, deemed to be 2011-2012's Best Find

The newsletter continues to be a useful tool for publicising the Protocol and the importance of the finds reported through the scheme to those working in the marine aggregates industry and beyond. Copies are distributed not only to wharves, vessels and BMAPA member companies but also through EH, WA and TCE to a variety of other organisations, individuals and the general public.

Previous and current issues of the newsletter are available online -
<http://www.wessexarch.co.uk/projects/marine/bmapa/dredged-up>

Reports: Protocol

During the eighth year of operation WA received 52 reports through the Implementation Service. These reports encompassed over 160 separate finds. Further details of each discovery are shown below and included in the wharf reports appended to this report.



Finds reported in 2012 – 2013

Report ID	Licence Area	Region	Wharf / Vessel	Description	No.
Tarmac_0428	127	Isle of Wight	Burnley Wharf	Knife	1
Kendalls_0429	351	Isle of Wight	Shoreham Wharf	Shot	1
Hanson_0430	240	East Coast	<i>Arco Arun</i>	Bone fragment	1
Tarmac_0431	395/1	Isle of Wight	Bedhampton	Hinged copper inkwell lid	1
Tarmac_0432	395/1	Isle of Wight	Bedhampton Wharf	Spoon	1
Tarmac_0433	395/1	Isle of Wight	Bedhampton Wharf	Fork	1
Tarmac_0434	127	Isle of Wight	Burnley Wharf	Animal bone	1
Tarmac_0436	127	Isle of Wight	Ridham Wharf	Cannonball	1
Tarmac_0437	458	East English Channel	Erith Wharf	Animal bone	1
Tarmac_0438	395/1	Isle of Wight	Greenwich Wharf	Cooling fan	1
Lafarge_0440	228	East Coast	Thurrock Wharf	Spoon	1
Tarmac_0442	395/1	Isle of Wight	Burnley Wharf	Pickaxe head	1
Tarmac_0443	395/1	Isle of Wight	Burnley Wharf	Blocks and iron nails	1
Tarmac_0444	395/1	Isle of Wight	Burnley Wharf	Finial	1
Tarmac_0445	127	Isle of Wight	Burnley Wharf	Knife	1
Tarmac_0446	127	Isle of Wight	Burnley Wharf	Iron shot	1
Hanson_0447	460	East English Channel	<i>Arco Arun</i>	Shell	1
Tarmac_0448	395/1	Isle of Wight	Bedhampton Wharf	Wooden block	1
Tarmac_0449	447	Thames	Greenwich Wharf	Brass gauge	1
Tarmac_0450	447	Thames	Erith Wharf	Mammoth tooth	1
Tarmac_0451	Unknown	Unknown	Greenwich Wharf	Stone fishing weight	1
Tarmac_0452	Unknown	Unknown	Greenwich Wharf	Mammoth tooth	1
Tarmac_0454	395/1	Isle of Wight	Burnley Wharf	Ammunition clips	5
Tarmac_0455	395/1	Isle of Wight	Burnley Wharf	Cannonball	1
Hanson_0456	Unknown	Unknown	Burnley Wharf	Cannonball	1
Tarmac_0457	Unknown	Unknown	Greenwich Wharf	Stone weight	1
Tarmac_0458	127 or 372	Isle of Wight	Bedhampton Wharf	Ammonite fossils	4
Tarmac_0460	Unknown	Unknown	Greenwich Wharf	Prehistoric animal bone	1
Tarmac_0461	Unknown	Unknown	Greenwich Wharf	Saxon bead	1
Hanson_0462	240	East Coast	<i>Arco Arun</i>	Anchor stock	1
Tarmac_0463	395/1	Isle of Wight	Burnley Wharf	Aircraft parts	36
Tarmac_0466	127	Isle of Wight	Burnley Wharf	Cannonball fragments and a knife	16
Tarmac_0467	395/1	Isle of Wight	Burnley Wharf	Fossilised wood (?)	1
Tarmac_0468	127	Isle of Wight	Bedhampton Wharf	Paving Slab	1
CEMEX_0470	460	East English Channel	Northfleet Wharf	Machine components	8
CEMEX_0472	460	East English Channel	Northfleet Wharf	Cannonballs	2
Lafatarm_0474	395/1	Isle of Wight	Bedhampton Wharf	Aircraft parts	3
Lafatarm_0475	395/1	Isle of Wight	Burnley Wharf	Fork	1
Lafatarm_0477	254	East Coast	Ridham Wharf	Anchor fluke	1
Lafatarm_0478	254	East Coast	Ridham Wharf	Animal bone	1
Lafatarm_0479	254	East Coast	Ridham Wharf	Metal pin	1
Lafatarm_0480	254	East Coast	Ridham Wharf	Spoon	1
CEMEX_0483	319	East Coast	<i>Sand Fulmar</i>	Mixed assemblage of finds	13
Lafatarm_0486	395/1	Isle of Wight	Bedhampton Wharf	Aircraft parts	c. 5
Hanson_0487	395/1	Isle of Wight	<i>Arco Dee</i>	Aircraft parts	1
Hanson_0488	240	East Coast	<i>Arco Arun</i>	Lead weight	1
Hanson_0489	473	East English Channel	<i>Arco Arun</i>	Sounding lead	1
LTM_0491	395/1	Isle of Wight	Bedhampton Wharf	Aircraft parts	2
LTM_0492	395/1	Isle of Wight	Burnley Wharf	Aircraft parts	1
Hanson_0493	240	East Coast	Vlissingen Wharf	Prehistoric animal remains	c. 31
LTM_0495	430	East Coast	<i>City of Westminster</i>	Cannonball	1
LTM_0496	395/1	Isle of Wight	Bedhampton Wharf	Rectal or urethral syringe	1



Specialists

WA consults with heritage experts, both in-house and from external companies and organisations, to ensure that discoveries are identified accurately and the historical value of each object found is recognised. The table below provides a list of all of the specialists that gave advice during the 2012-2013 reporting year. Specialists that we have contacted in the past but not during this operational year are still included in WA's internal lists, but have been omitted from the table below.

Expert	Advice given concerning	Institution/Organisation
Sarah Bond	Medical artefacts	Webmaster, London's Museums of Health and Medicine
Pip Brewer	Mammoth remains	Curator of Fossil Mammals, Natural History Museum
Ewen Cameron	Military aircraft	Curator, Royal Air Force Museum (Stafford)
Bob Davis	Archaeological artefacts	Project Officer, Wessex Archaeology
Jonathan Ferguson	Ordnance and firearms	Curator of Firearms, Royal Armouries Museum
Toby Gane	Maritime artefacts and ordnance	Coastal & Marine Project Manager, Wessex Archaeology
Nicholas Hall	Ordnance	Keeper of Artillery, Royal Armouries Museum
Alan Harrison	Stainless Steel artefacts	Representative of the Stainless Steel Advisory Service operated on behalf of the British Stainless Steel Association
Lorrain Higbee	Animal bones	Zooarchaeologist, Wessex Archaeology
Alan Humphries	Medical artefacts	Librarian, Thackray Medical Museum
Professor Adrian Lister	Mammoth remains	Natural History Museum
Anthony Mansfield	Maritime artefacts	Marine Engineer
Al McLean	Aircraft and twentieth century machinery	Curator, Royal Air Force Museum (Cosford)
Euan McNeill	Maritime artefacts	Director of Coastal & Marine, Wessex Archaeology
Lorraine Mephram	Archaeological artefacts	Senior Project Manager (Finds and Archives), Wessex Archaeology
Sue Nelson	Archaeological artefacts	Finds Supervisor, Wessex Archaeology
Graham Scott	Maritime artefacts	Archaeologist, Wessex Archaeology
Andy Simpson	Military aircraft	Curator, Aircraft and Exhibits Department, RAF Museum





Above: Saxon beads excavated by archaeologists in Kent
Below: Bullets and shot recovered by Hanson staff



Case study

Small finds

Small finds have the potential to be compromised within marine and coastal archaeology – tiny indications of life in the past that could be found on a terrestrial site by excavators or during the processing of environmental samples may be overlooked offshore where visibility is dependent on so many uncontrollable factors. WA's dive team is contracted to conduct dives on protected wrecks for English Heritage – an enviable job in the summer months - and despite years of training and high cost equipment, discovering the minutiae of artefacts that may be associated with an archaeological site on the seafloor can be incredibly difficult. Plant growth, low light, weather conditions, seabed geology and algal life in the water column all inhibit visibility underwater – as does the bulky gear our divers wear on the seabed. Given the inherent difficulties of finding small artefacts even by archaeologists working up close to a known site of interest, no one predicted how many tiny finds would be reported through the Protocol.

Aggregate retrieved from the seabed is dredged through a drag head, stowed on board and deposited on land with minimal safe opportunity for vessel staff to inspect the load on board – even if finds were recognised, whether the staff would be able to retrieve them in the hopper is questionable as health and safety concerns always take precedence over archaeological reporting. At wharves the situation is not much improved for small finds – cargoes are mechanically offloaded, moved by machine and loaded into processing equipment. At a number of plants a crusher is employed to reduce the size of some discharged aggregate and even where staff have the inclination and opportunity to get close to the material safely (WA have met industry staff who voluntarily spend their lunch breaks assessing the heaps for finds – a highly commendable effort) there is seemingly little hope of retrieving very small finds from amongst the huge heaps of material. The analogy of the needle in the haystack has rarely been more apt.

Yet despite this bleak outlook for small archaeological finds amongst dredged loads, a surprising number of them have been reported through the Protocol. Most recently, Greenwich wharf reported the discovery of a bead, believed to be Saxon, which was found during maintenance at the plant. Because of the circumstances of its discovery it is not known which licence area it originated from but the discovery of a find this small is something to be celebrated, as is the discovery of the first potentially Saxon find to be reported through the Protocol.



0351

The Saxon period is sometimes, though rarely now the term has been discredited, referred to as the Dark Ages. This was a phrase coined in response to the change seen between this period and the Roman period which preceded it. The Romans, with their strong and enduring houses (made of stone and plaster and decorated with tiles), hard wearing pottery, heating, straight roads, written language and mass organisation of people including troops make a stark contrast with the Saxon period which followed. After the demise of the Roman Empire (the Romano-British period is generally marked as ending in 410AD when the British were reportedly told to look to their own defences against warring invaders) European tribes known as the Angles, Saxons and Jutes settled with the native population in Britain. Houses in the Saxon period were commonly made of wood and wattle and daub, and roofed with thatch, as opposed to the tiles used by the Romans. They were heated by central fires rather than under floor hypocaust systems. These differences, amongst many others, led to the Saxon period being viewed by some academics as a step backwards in development, hence the derogatory term 'Dark Ages'. This has widely been ruled as fallacy though – far from being 'dark' the Saxon period was alive with myth, magic, folklore, art and tradition. Clothes would have been adorned with jewellery, men, women and children with weaponry and despite a lack of written material, there would have been a strong story-telling tradition providing entertainment, education, history and knowledge to citizens of Saxon England. Against this background, the glass bead found at Greenwich was made and lost to the sea.

This is not the first small find to be reported through the Protocol. Two very small stone beads have also been reported. CEMEX_0396 was found in 2011 by EMU Limited conducting surveys on behalf of BMAPA member companies dredging the East English Channel region and a crinoid fossil (CEMEX_0351) was found by the *Sand Fulmar*. Both of these are thought to have formed naturally (one as a stone with a perforation and the other as part of a crinoid – a marine creature from the same phylum as starfish and sea-urchins) but may have been threaded onto string to be used as jewellery or adornment though this cannot be confirmed at present. Several small iron shot measuring just 1cm diameter have also been reported.

Recognising finds of this size amongst loads of dredged aggregate is incredible. Some of the materials that the small finds evidenced here are made from would not have been collected by wharf magnets and they have only been recognised by careful and vigilant work undertaken by staff of BMAPA member companies.



Tiny discoveries:

- 0461 - Tarmac bead
- 0258 - Hanson bead
- 0396 - CEMEX bead
- 0351 - CEMEX crinoid



In the eighth year of the Protocol, several discoveries were made relating to military wrecks or aircraft. The following reports were therefore forwarded to the Ministry of Defence (MoD):

- Tarmac_0438
- Tarmac_0463
- Lafatarm_0474
- Lafatarm_0486
- Hanson_0487
- LTM_0491
- LTM_0492

Liaison and accessibility

Details of each discovery have been sent to:

- Marion Page - National Record for the Historic Environment and English Heritage
- Ed Salter - English Heritage Marine
- Mark Russell - British Marine Aggregate Producers Association
- Mike Cowling - The Crown Estate
- Ian Selby - The Crown Estate
- Fiona Wynne - The Crown Estate
- Mark Wrigley - The Crown Estate

Details of discoveries regarded as wreck under the Merchant Shipping Act 1995 have been forwarded to the Receiver of Wreck. In 2012–2013 the following reports were deemed to represent items of wreck:

- | | | |
|-----------------|---------------|-----------------|
| • Tarmac_0428 | • Tarmac_0448 | • Lafatarm_0474 |
| • Kendalls_0429 | • Tarmac_0449 | • Lafatarm_0475 |
| • Tarmac_0431 | • Tarmac_0451 | • Lafatarm_0477 |
| • Tarmac_0432 | • Tarmac_0454 | • Lafatarm_0479 |
| • Tarmac_0433 | • Tarmac_0455 | • Lafatarm_0480 |
| • Tarmac_0436 | • Tarmac_0456 | • CEMEX_0483 |
| • Tarmac_0438 | • Tarmac_0457 | • Lafatarm_0486 |
| • Lafarge_0440 | • Tarmac_0461 | • Hanson_0487 |
| • Tarmac_0442 | • Hanson_0462 | • Hanson_0488 |
| • Tarmac_0443 | • Tarmac_0463 | • Hanson_0489 |
| • Tarmac_0444 | • Tarmac_0466 | • LTM_0491 |
| • Tarmac_0445 | • Tarmac_0468 | • LTM_0492 |
| • Tarmac_0446 | • CEMEX_0470 | • LTM_0495 |
| • Hanson_0447 | • CEMEX_0472 | • LTM_0496 |

Although we have received a number of reports of artefacts relating to vessels, none of them relate conclusively to unknown and uncharted wreck sites. Consequently, no reports were forwarded to the United Kingdom Hydrographic Office (UKHO) in the 2012-2013 reporting year.

Finds information has been sent to the appropriate Portable Antiquities Scheme Finds Liaison Officers (PAS FLO), Local Government Archaeological Officers (LGAO) and Sites and Monuments Record/Historic Environment Record (SMR/HER) in the county which is most appropriate for the discovery. In the case of a discovery where the original location is known, this will be the PAS, LGAO and SMR/HER closest to the dredging area. In the case of discoveries made at wharves where the dredging area is unknown they are reported to the PAS, LGAO and SMR/HER nearest to the wharf.

Further details of liaison and the dissemination of data to interested parties are included in the wharf reports appended to this report.

Discussion

Importance

Following several years of economic uncertainty a mood of recovery and revival is being felt in many industries. This is reflected in the statistics for this reporting year which has seen a rise in reports from 36 last year, to 52 over the same period this year. Without the framework provided by the Protocol, reporting of these finds would fall to industry staff who, whilst being dedicated and keen, may find this hard to achieve in line with the rest of their duties. Reporting discoveries through the Protocol ensures that they are investigated, reported and disseminated to heritage records, professionals and the general public, which enhances all of our understanding of submerged heritage.

The marine aggregates Protocol continues to be recognised nationally and internationally as an effective method of protecting our seabed heritage, typically without the need for more costly or invasive archaeological mitigation.

Key issues

The Protocol has not been rewritten since its inception and has only had minor addendums with relation to the handling of specific finds appended to it, demonstrating how robust and effective the scheme put in place eight years ago was. Despite this, during each year of Protocol implementation minor operational situations are recognised and the service adapts to meet these needs. This year the following issues have been highlighted and work begun to resolve them.

Market conditions

Archaeological material is not uniformly distributed on the seabed and some variation in the number of reports is expected every year, regardless of tonnage dredged. Even allowing for this variation a reduction in the number of reports raised during recent years of Protocol operation is believed to be linked to market conditions, with the global economic climate resulting in a downturn in construction activity which in turn resulted in reduced demand for marine aggregates.

Of note is the level of reporting given that some staff may have had less access to archaeological material and hence limited involvement with the Protocol during the years in which dredging activities have been reduced. The evidence that the Protocol is still operating well even amongst staff who may have seen a reduction in dredged material and a subsequent reduction in archaeological material demonstrates the effective implementation of the scheme and the excellent take up seen at wharves and on vessels.

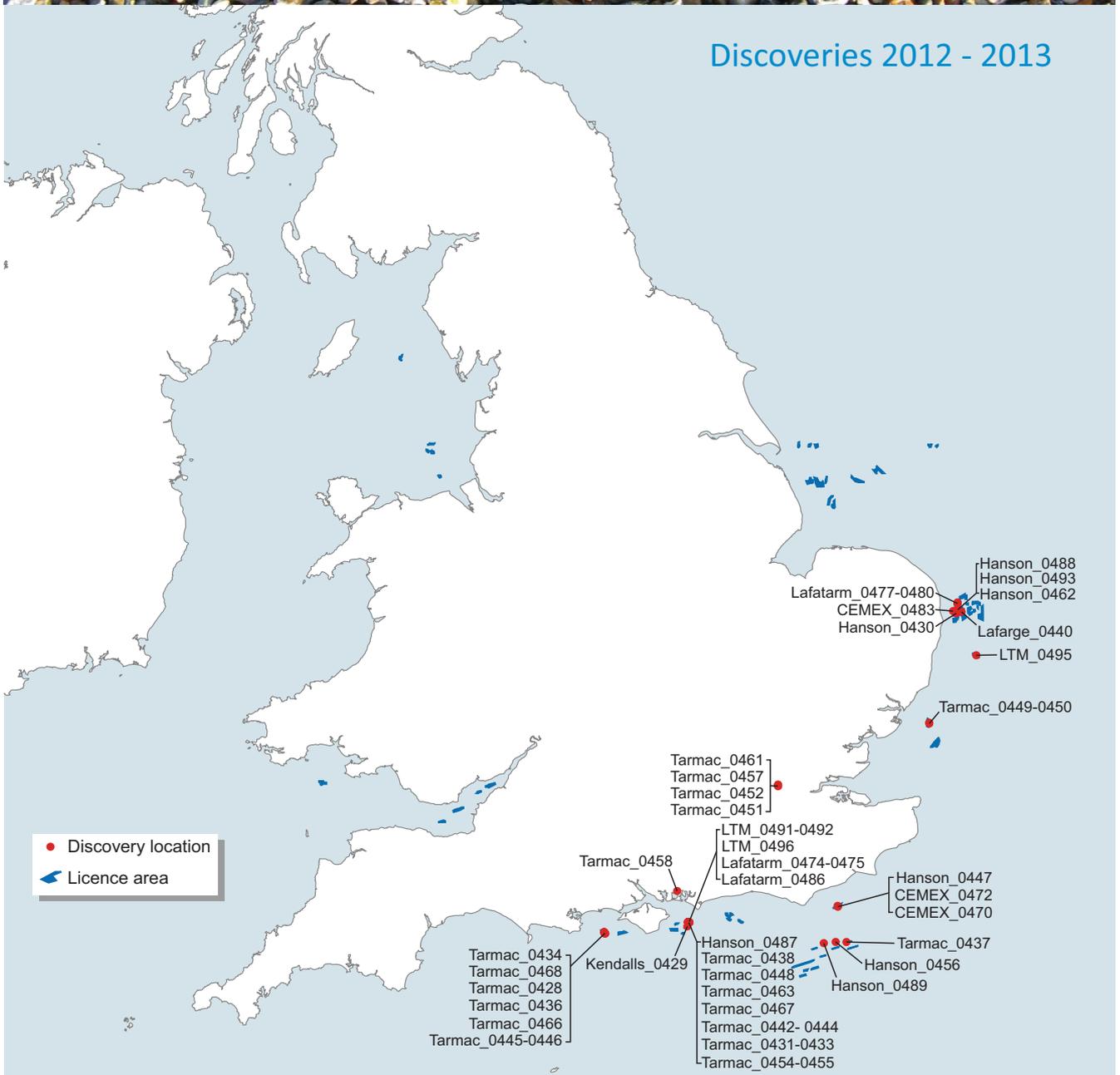
Looking to the future, we anticipate that the number of reports will remain broadly constant at around the 50-per-year mark evidenced in this reporting year. Clearly archaeological material is not evenly distributed and many licences are being dredged only within historic footprints which may mean that archaeological material has already been removed from the seabed and reported so absolute predictions are impossible, but encouragingly 5 reports were raised within the first two weeks of the 2013-2014 reporting year.

Staffing at WA

As at any company, staff at WA changes occasionally meaning that new faces may be implementing the Protocol. To ensure that advice can be given correctly, accurately and effectively we have established a general email address which will reach everyone within our offices who is able to assist with Protocol related queries. This address is protocol@wessexarch.co.uk. No matter who is taking the lead for implementing the Protocol someone will be able to advise you using the email address given above. At present, the project is being managed by Euan McNeill and implemented by Gemma Ingason.



Discoveries 2012 - 2013



Locational information

It is now standard practice for Wessex Archaeology to request the trackplot for dredging vessels, where this information is available, or co-ordinates for the approximate centrepiece of lanes dredged for the day on which a find was dredged. This is a change from previous reporting years when, unless the find was of exceptional archaeological value, the centrepiece of the licence area would suffice as locational information. Whilst assigning finds the centrepiece of the licence is not wholly unsatisfying (it positions the find within a modest sized area and allows comparison with other finds found potentially nearby), using trackplots which are produced by the industry as part of standard operational practice reflects a move towards more accurate reporting. As always, where the licence area is unknown or where the find is potentially from two or more cargoes, Wessex Archaeology will apply common sense to ensure each find is given a satisfactory location for further reporting.

Continental wharves

In 2012 approximately a quarter of aggregate dredged in British waters was delivered to Continental Europe. Despite awareness visits (conducted most recently in 2010) there remains some reluctance from Continental wharves to be involved in the Protocol, even whilst being encouraged to do so by BMAPA members. The Implementation Service has continued to keep communication channels open with Continental wharves to encourage future finds reporting. This requirement has also been strengthened by The Crown Estate modifying their commercial Production Agreements during 2012 to make it clear that any non-aggregate material recovered during the dredging process remain the possession of The Crown, in their capacity as the owner of the seabed.

It is encouraging in the 2012-2013 year to have received a report from collectors working with staff at Vlissingen wharf in Holland. These collectors, in agreement with wharf managers and staff at a Natural History Museum in Rotterdam, have collected Palaeolithic remains from discharge piles at the wharf and ensured that information about them has reached WA to be processed through the Protocol by sending correspondence through the relevant dredging company.

Receiver of Wreck reports

Finds deemed to be wreck need to be reported to the Receiver within 28 days of removal from the seabed. We are realistic about the restrictions which may prevent this – time between dredging and discovery at a wharf, time for the finds to be transferred to the Nominated Contact, time for the find to be uploaded, investigated by WA and for the reports to be issued all regularly push the reporting time beyond this legally defined limit. In collaboration with the Receiver, WA has changed policy for the new reporting year and from now on will be issuing reports as soon as possible after the reporting of the finds to WA. In this way we eliminate the potential lag occurring whilst WA seek specialist advice to identify finds dredged from the seabed. This potentially means that finds are being reported to the Receiver based on a description or an initial ID, rather than a firm identification. The Receiver agrees with WA that this is a better use of the Protocol process as it ensures that finds are reported in a more timely fashion. Additional information can be appended to RoW reports at a later date as necessary. To this end, finds deemed to be wreck will be issued with a Receiver of Wreck report as soon as possible after uploading, meaning that nominated contacts will be receiving RoW reports separately to final reports, a change to the current programme.

Out of date contacts

Sadly some operations have ceased during the economic downturn and WA are aware that some of our records for wharves in the UK will be out of date and that staff will have changed at those which are still in operation. Whilst most of our communication goes through a Nominated Contact - a single point of contact at each dredging company – it is occasionally necessary to approach site contacts at wharves or on vessels directly (for example, to arrange awareness visits or request further information about finds held at wharves). In order that this can be done effectively WA propose to liaise with Nominated Contacts early in the new reporting year to revise our lists of details for site contacts in place at company wharves and on company vessels.

Focus on the south

67% of finds reported this year have come from the Thames, South Coast and East English Channel regions. Accordingly we are aware that Protocol publications often have a 'southern-focus'. This is not intended to exclude the wharves and vessels working in other regions, but simply reflects the quantity of finds that are recovered from regions in the South-East. Special mention goes to those working at wharves in the Bristol Channel and the Irish Sea who rarely get a mention through the Protocol, as screens fitted to the dredgers (which are targeting sands) return material to the seabed before staff would be able to assess its archaeological value, if any. Regardless of operational circumstances, the Protocol continues to be applicable to all operations conducted by BMAPA member companies countrywide.



Continental wharf - Ostend.



Alison Kentuck (RoW) overseeing the unloading of a cargo of copper ingots. Photograph courtesy of the MCA.

Discoveries from 2012-13

- 0462 - Anchor stock
- 0454 - Ammunition clips
- 0468 - Paving slab
- 0438 - Part of a cooling fan
- 0452 - Mammoth tooth
- 0460 - Animal bone
- 0450 - Mammoth tooth
- 0496 - Rectal or urethral syringe
- 0480 - Spoon
- 0470 - Machine component
- 0431 - Inkwell lid
- 0489 - Sounding lead
- 0446 - Iron shot
- 0488 - Lead weight
- 0479 - Metal pin



Artefact patterns and distribution

Finds are commonly considered in relation to the licence area from which they are dredged as this allows them to be placed within context (to some extent). Given that archaeological distribution is not linear, analysis based on this approach in the context of marine dredging provides an educated overview, rather than a certainty. However some patterns do emerge which can be useful in identifying potential sites of archaeological interest and possibly predict which licences are likely to yield archaeological material in the future. This may aid future licence assessments within existing dredging regions.

Distribution of artefacts by dredging region

There are eight dredging regions around the UK:

- The Humber;
- The East Coast;
- The Thames;
- The East English Channel;
- The Isle of Wight (sometimes combined with Owers to be termed South Coast);
- The Owers;
- The South West;
- The North West.

Following a trend witnessed in previous years, the majority of this year's dredged finds originated in the Isle of Wight region on the south coast. Of 52 reports raised, 53% related to material from Isle of Wight licences with two licence areas (395/1 and 127) accounting for 26 out of 28 reports linked to this region.

The next most prolific region was the East Coast region with 11 reports, followed by the East English Channel with five and the Thames region with two. Six reports relate to finds discovered at wharves for which the dredging region is not known.

The South West and North West regions reported no finds due to the operational circumstances under which their vessels work, as screens are used to grade dredged material before it enters the dredger's hold.

The abundance of finds from the Isle of Wight region may be attributed to two factors – the magnitude of dredging or a heightened level of archaeology on the seabed within this region. Whilst tonnage dredged figures published in October 2013 would superficially support a correlation between quantity of finds reported and tonnage dredged (see table below), this is contradicted by the information that whilst the total number of reported finds has increased this year, the tonnage dredged has in fact decreased across all regions. (source: The Area Involved – 15th Annual Report, produced by BMAPA).

Region	Quantity of construction aggregate dredged in 2012 (million tonnes)	Number of finds reported 2012-2013 reporting year (2011-2012 reporting year)
South Coast	3.63	28 (20)
East Coast	3.56	11 (6)
East English Channel	3.55	5 (4)
Thames	1.09	2 (6)

Britain has a long maritime history with strong trade links from the south coast to the continent so it is likely that there are abundant maritime finds in the Isle of Wight region. This region was also on the flight path from continental Europe during WWII and there is a known spread of post-war debris to the east of the Isle of Wight. All of these factors combine to give credence to the theory that there are increased archaeological deposits in this region though this understanding clearly does not negate or diminish the presence of similar deposits in other areas.

Distribution of artefacts by archaeological typology

Palaeolithic finds

There are many finds reported through the Protocol which relate to a time period referred to by archaeologists as the Palaeolithic or Old Stone Age, during which, areas that are today being dredged were at times dry land offering home to animals and people. During the eighth year of the Protocol two mammoth teeth were dredged and reported – one discovered at Greenwich wharf from an unknown dredging region and the other from area 447 in the Thames region, found at Erith wharf. There was also a report detailing finds made at Vlissingen wharf, Holland, which receives material from area 240 on the east coast. Collectors scoured material on the oversized discharge pile at Vlissingen which had been delivered between October 2012 and May 2013 to report the discovery of over 30 artefacts relating to prehistoric fauna.

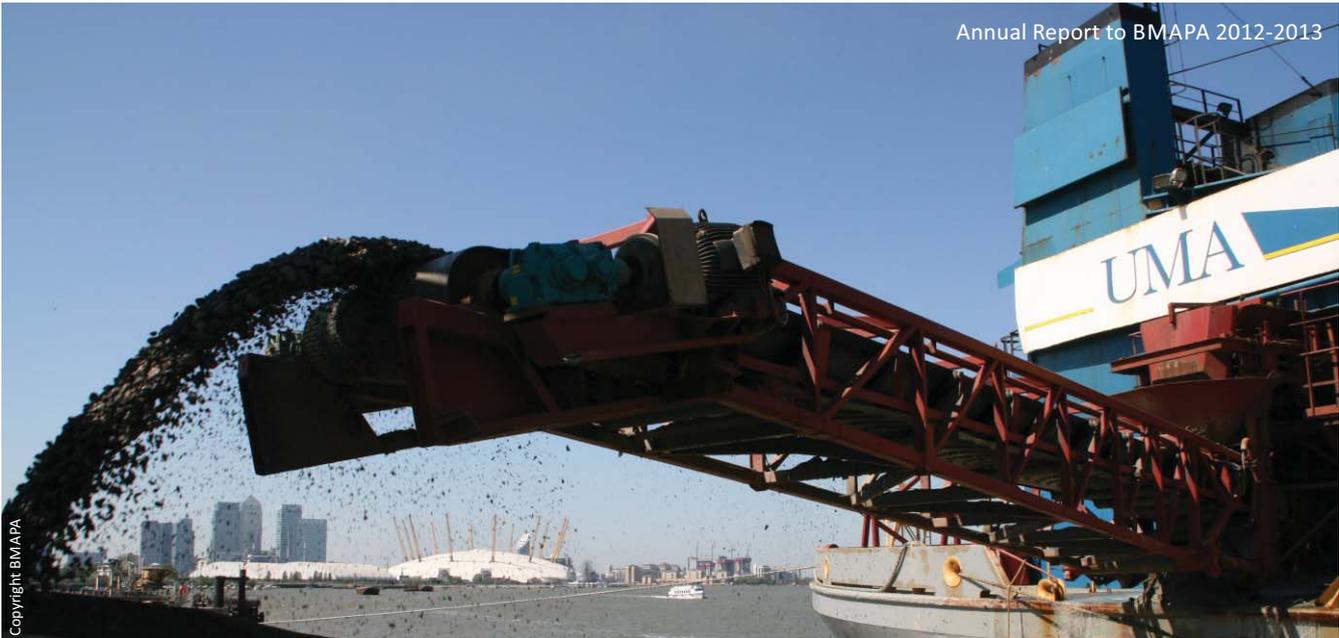
Several fossils were also reported. The formation of fossils predates the scope of archaeological study but they are still reported as some fossils have been adapted and utilised for adornment or decoration in the past. There is however no evidence to suggest that the fossils reported in the 2012-2013 year have been used in this way.

Maritime artefacts

Britain has a long maritime history stretching back thousands of years and the discovery of material from ships and vessels is common in UK waters. In the 2012-2013 reporting year the fluke of one anchor and the stock of another were reported from the East Coast and a wooden dead-eye block used in rigging was reported from the Isle of Wight region. Several finds which have been interpreted as coming from machinery and a gauge thought to have come from a thermometer are also likely to relate to shipping activity in the East English Channel and Thames areas where they were found.

There have also been many finds that may have been lost overboard from a vessel – notably a Cunard Whitestar Line spoon. In addition four weights – two of stone and two made from lead – have been reported and these are thought to have played a role in fishing, as has a cork float reported from the East Coast region.

None of the finds reported in this Protocol year are thought to indicate the presence of a wrecked vessel and the finds reported that have been interpreted as having a maritime background are thought to have been lost from, rather than with, a vessel. This interpretation may change if further ship material is reported from the dredging location of any of these finds in future years of Protocol reporting.



Cannonballs

Seven cannonballs were dredged from area 127 to the west of the Isle of Wight in the last reporting year and a further two were dredged from area 127 this year, as well as a one inch diameter iron shot. In addition two cannonballs were retrieved from the East English Channel, one from area 395/1 to the east of the Isle of Wight, a further one from the East Coast and one from an unknown area reported by Greenwich wharf. Cannonballs are important – they can chart the location of wrecks, cargo sunk for later recovery (termed 'lagan') or battles in British naval history. Many of the cannonballs reported through the Protocol are thought to relate to the Anglo-Dutch wars of the 17th century or to the Spanish Armada – both key events in British maritime history which relate geographically to the areas being dredged. Whilst it is difficult to identify cannonballs conclusively (as they are essentially solid lumps of metal with few distinguishing or typological features) they can sometimes be identified by weight and by diameter. BMAPA member companies reporting cannonballs have responded to requests for weights and now regularly include them on initial reports.

Aircraft

During the 2012-2013 reporting year several reports relating to aircraft material have been received from area 395/1 in the Isle of Wight region. The remains, currently spread over seven reports, have been identified by Ewen Cameron at the Royal Air Force museum as relating to a Jumo engine and to a Stuka dive bomber. Whilst the finds in all seven reports are potentially connected, they are not yet deemed to represent a clear site of archaeological significance and may instead relate to a dispersed site. The finds have been fully explored both in wharf reports, appended to this report, and in issue 13 of Dredged Up which is available online: <http://www.wessexarch.co.uk/projects/marine/bmapa/dredged-up>

Post-war debris

Licence area 122/3, which has previously yielded material interpreted as representing a spread of post-war debris removed from a southern city like Portsmouth is not currently being dredged as the original dredging permission has expired, and a new marine licence is required before dredging can continue. However, nearby licence area 395/1 has had several reports of material thought to be domestic debris including part of a cooling fan, a pickaxe head and a rectal or urethral syringe. There has also been an increase in finds thought to have a domestic background from area 127 which lies to the west of the Isle of Wight (as opposed to 395/1 which lies to the east). It is unconfirmed what the material from area 127 may indicate - it may be that a similar event has occurred with post-war blitz rubble being dumped both sides of the Island or it may be that area 127 holds another potential site of interest. Finds from area 127 which have been interpreted as domestic material include a paving slab and cutlery.



Conclusion

Heritage aspects of planning consent, on land and at sea, are put in place to serve the public benefit – to protect finds and sites, and the information that they can provide for future generations. Reporting finds through the Protocol, researching them, and publicising them ensures that the information is not lost but instead is preserved.

Applying archaeological mitigation offshore is understandably difficult given that heritage on the seabed is separated from us by time, distance and practicable circumstance. The marine aggregates Protocol remains an excellent example of how these limitations can be overcome, preserving heritage for everyone.

The 2012–2013 reporting year has witnessed a marked improvement in the number of reports being raised with the Implementation Service. This is fantastic news after several years of economic hardship and a good sign that the industry, and the country, as a whole is reviving.

We would like to thank everyone who has reported finds and protected our heritage in the 2012–2013 reporting year, and throughout the last eight years of Protocol reporting.

The Future

The Protocol Implementation Service continues to be run by WA and finds are reported regularly. If you have any questions about finds reporting and the Protocol, please contact WA via protocol@wessexarch.co.uk



Tarmac_0428: Knife

In November 2012 N. Sait discovered this knife at Southampton Wharf. It was found in material dredged by the *City of London* from licence area 127, which lies in the South Coast dredging region, approximately 19km southeast of Bournemouth, Dorset.

Photographs of this find were shown to Lorraine Mephram, finds specialist at Wessex Archaeology, who confirmed that this is a stainless steel knife, possibly of military issue dating from World War II.

There are four things inscribed on the knife blade which tell us about where and when it was manufactured and what it was used for. The first of these, 'GLADWIN' is the name of the manufacturer of the knife. Gladwin was a cutlery manufacturer based in Sheffield who produced cutlery from 1921 onwards. The other inscription on the knife, '1939', gives us an accurate date for the object; and combined with the War Office Arrow tells us that it was manufactured for the military, probably for use during World War II. 'Stainless' refers to the material, stainless steel. This is a steel alloy containing a minimum of 10.5% chromium. The chromium in the steel reacts with oxygen to form a crust of chromium oxide on the surface of the metal. This is impervious to water and air and so protects the metal beneath from rust corrosion as can be seen by the excellent condition of the knife blade.

This item is of particular interest due to the handle, which appears to have had an iron core. This is apparent by the build up of rust along the handle edge. This is an uncommon feature among stainless steel knives with most handles being integral to the blade, though the purpose of this is unclear.



Close up of inscriptions
on knife blade

This knife is likely to be an isolated find, perhaps lost overboard from a vessel travelling in the English Channel or around the coast of Britain. The knife may also be associated with a shipwreck and vessels working in licence area 127 should remain vigilant for future finds, which may shed more light on maritime activities in this region.

Information about this discovery has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate
- The Receiver of Wreck
- Ministry of Defence
- The National Monuments Record
- The Historic Environment Record for Dorset
- The Local Government Archaeology Officer for Dorset
- The Finds Liaison Officer (Portable Antiquities Scheme) for Hampshire



Kendalls_0429: Bar Shot

In October 2012 Lee Moses found this cannonball/bar shot at New Wharf Shoreham. It was found amongst material dredged from Licence Area 351, which lies approximately 19km off the east coast of the Isle of Wight.

This find appears to be part of a bar or chain shot with the indentation on one surface of the cannonball indicating where it was attached to either a metal bar or chain.

The bar shot was an offensive weapon used to disable an enemy ship by causing damage to the sails, masts and rigging. When fired from the cannon, the bar shot would spin on its trajectory enabling it to cause maximum damage to an enemy vessel.



Complete bar shot cannonball © Wikimedia Commons

This cannonball might have been fired from a saker. The saker was a medium sized cannon which was developed during the early 16th century.

It was used both on land and on vessels, being heavily used during the English Civil War and by both British and Spanish forces during the Spanish Armada.

They existed in various sizes but usually had a bore diameter of between 3 ½ and 4 inches.

This particular cannonball was found in three pieces. This could be due to damage sustained on the firing of the cannonball, or alternatively due to extended time spent under the sea. It is also possible that the gap is due to a missing piece that has not yet been discovered, and that it was a normal cannonball as oppose to a bar shot.

Records show that British and Spanish forces clashed around the Isle of Wight during the attack in 1588 by the Spanish Armada, and this cannonball could be a result of that conflict.

As a result it is of the utmost importance that any future finds of archaeological interest discovered in this dredging area are reported immediately.

Further finds have the potential to pinpoint the location of a previously unknown shipwreck relating to a naval battle in the area, and wharf and vessel staff are encouraged to keep an eye out for any finds that may relate to the vessels deployed in this significant historical episode.

Information about this discovery has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate
- The Receiver of Wreck
- The National Monuments Record
- The Historic Environment Record for the Isle of Wight
- The Local Government Archaeology Officer for the Isle of Wight
- The Finds Liaison Officer (Portable Antiquities Scheme) for Sussex



Kendalls_0429 - showing the fragments discovered.



Hanson_0430: Animal Bone

In October 2012, Mark Morley at Hanson's SBV Flushing wharf discovered this animal bone from aggregate recovered by the *Arco Arun*. The material was dredged from within licence area 240, which is approximately 13km south-east of Great Yarmouth, Norfolk in the East Coast dredging region.

Lorain Higbee, Wessex Archaeology's Zooarchaeologist, examined this bone and identified it as a fragment of tibia, possibly from a mammoth or woolly rhinoceros.

The reason that this animal bone ended up in the water is unknown and there are no obvious butchery marks evident on the bone.

It may be part of a carcass that had washed out to sea. It is also possible that this bone is from an animal that lived and died at a time when areas of the North Sea were dry. This last occurred during the Palaeolithic, between approximately 70,000 and 12,000 years ago, when Ice Age conditions locked water into ice sheets. Several highly significant Palaeolithic or Old Stone Age finds have been dredged from the North Sea in recent times and every new find, such as this one, enhances our understanding of this enigmatic time period.

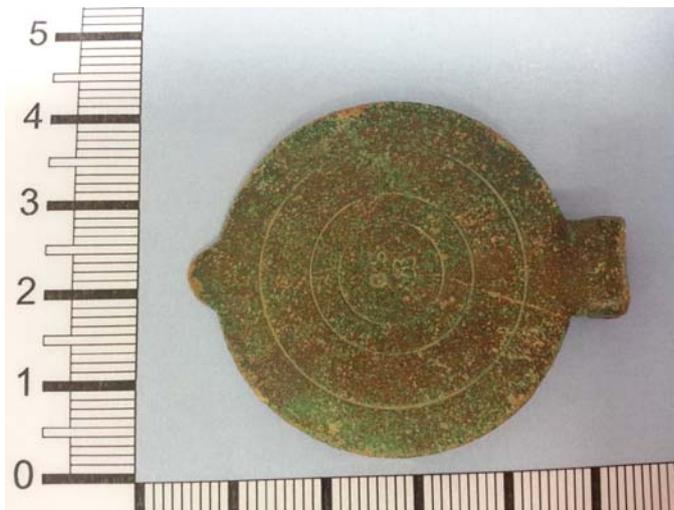
Area 240 specifically has already yielded a great deal of archaeological material, with a large number of flint hand axes recovered. This indicates human activity in the area. It is possible that this animal bone relates to the people who lived in this since buried land surface thousands of years ago.



Isolated finds like this discovery are useful as they are reminders to remain vigilant in these areas for further finds. The high number of important archaeological finds from this dredging area makes it particularly important to continue reporting anything of archaeological interest. Whilst it is possible that this find does not relate to the prehistoric land surface, it can still give us an insight into the activities of the past.

Information about this discovery has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate
- The National Record for the Historic Environment
- The Historic Environment Record for Norfolk
- The Local Government Archaeology Officer for Norfolk
- The Finds Liaison Officer (Portable Antiquities Scheme) for Norfolk



Tarmac_0431: Inkwell Lid

In November 2012 G. Cooper discovered this hinged copper lid of an inkwell at Bedhampton Wharf. It was found amongst material dredged from licence area 395/1, which lies approximately 12km east of the Isle of Wight in the South Coast dredging region.

This circular object measuring approximately 40mm in diameter has been identified by Victoria Lambert, Archaeologist at Wessex Archaeology as a lid for an inkwell. The lid has a circular pattern and in the centre is marked with 'SO' along with a crown. This represents Her/His Majesty's Stationery Office (HMSO), a department of the government that was established in 1786. From 1822 all government departments were required to purchase their stationery through HMSO, and following this, in 1882 HMSO took over as the official publisher for the houses of Parliament, and has been the official printer and publisher of all Acts of Parliament since 1889.

Today, HMSO does not produce stationery, as many aspects were privatised in 1996 with stationery now produced by The Stationery Office (TSO). Between 2003 and 2006 further changes occurred, with HMSO being one of four government bodies that came together to form The National Archives, which is the official government archive for England and Wales, and is in charge of managing and preserving government information from the past, present and future.

This inkwell lid is likely to be an isolated find, perhaps lost overboard from a vessel travelling around the coast of Britain. Alternatively it may represent debris from the Blitz. The inkwell lid may also be associated with a shipwreck and vessels working in licence area 395/1 should remain vigilant for future finds, which may shed more light on maritime activities in this region



Pewter Inkwell showing hinged circular lid, five holes are for quills (© Lito Apostolakou)

Information about this discovery has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate
- The Receiver of Wreck
- The National Record for the Historic Environment
- The Historic Environment Record for the Isle of Wight
- The Local Government Archaeology Officer for the Isle of Wight
- The Finds Liaison Officer (Portable Antiquities Scheme) for the Isle of Wight



Tarmac_0432: Spoon

In June 2012 G. Cooper discovered this spoon at Bedhampton Wharf. It was found amongst material dredged from licence area 395/1, which lies approximately 12km east of the Isle of Wight in the South Coast dredging region.

In order to extract as much information about this spoon as possible photographs were examined by Bob Davis, Archaeologist at Wessex Archaeology.

The markings on the spoon handle confirm that this spoon is made from nickel silver, indicated by the letters 'NS'. The other mark on the spoon 'G. LTD' is the Hallmark for 'Gieves Ltd'. This was a London based cutlery maker working on Old Bond Street from 1928-1941.

Nickel silver is a copper alloy that was developed in the early 19th century by German metalworkers. The alloy contains 10-25% nickel and 17-40% zinc, with the remainder being copper. There is no silver in nickel silver.

The main use of nickel silver is to produce a decorative appearance on an object, such as cutlery. It is also stronger and more corrosion resistant than other copper alloys, making it an effective alloy for manufacture.



Close up of spoon showing engravings

There are many ways in which this spoon may have ended up on the seafloor. It is possible that this spoon is domestic debris from the Blitz that has washed out to sea. Alternatively it is possible that it is from the remains of a shipwreck or refuse from a ship travelling around the Isle of Wight region. Vessels and staff working in licence area 395/1 should remain vigilant for future finds, which may shed light on maritime activities in this region.

Information about this discovery has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate
- The Receiver of Wreck
- The National Record for the Historic Environment
- The Historic Environment Record for the Isle of Wight
- The Local Government Archaeology Officer for the Isle of Wight
- The Finds Liaison Officer (Portable Antiquities Scheme) for the Isle of Wight



Tarmac_0433: Fork

In June 2012 D. Lutman discovered this fork at Bedhampton Wharf. It was found amongst material dredged from licence area 395/1, which lies approximately 12km east of the Isle of Wight in the South Coast dredging region.

Photographs of the fork were shown to Bob Davis, Archaeologist at Wessex Archaeology, to see what additional information could be gained by examining the markings on the handle.

Whilst there are a number of markings on the fork handle, it has not been possible to narrow down where this fork may have been made. Markings were used by manufacturers to indicate what items had been made by them. This was important as well established and known makers would fetch a higher value than others as they would be recognised for the high quality of their products.

There is also no reference to material type marked on the fork, for example 'ns' or 'epns' used to indicate nickel silver and electro plate nickel silver respectively. It is therefore possible that this fork is made from silver.



Close up of fork showing markings on handle

There are many ways in which this fork may have ended up on the seafloor. It is possible that this fork is domestic debris from the Blitz. Alternatively it could be associated with remains from a shipwreck or refuse from a ship travelling around the Isle of Wight region. Vessels and staff working in licence area 395/1 should remain vigilant for future finds which may shed light on maritime activities in this region.

Information about this discovery has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate
- The Receiver of Wreck
- The National Record for the Historic Environment
- The Historic Environment Record for the Isle of Wight
- The Local Government Archaeology Officer for the Isle of Wight
- The Finds Liaison Officer (Portable Antiquities Scheme) for the Isle of Wight



Tarmac_0434: Animal Bone

In October 2012 Merv Smith discovered this animal bone at Southampton Wharf. It was found amongst material dredged from licence area 127, which lies approximately 20km southeast of Bournemouth in the South Coast region.

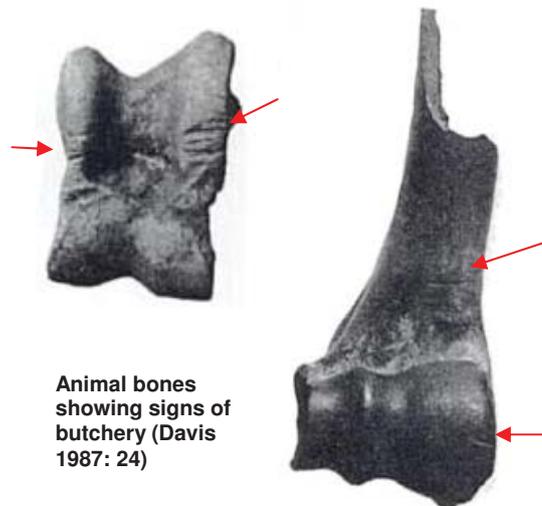
Lorrain Higbee, Wessex Archaeology's Zooarchaeologist, identified the animal bone in this photograph as a fragment of horse femur.

There are a number of ways in which animal bones can appear on the seafloor. It could represent waste from a ship, as vessels would carry animals on board as cargo or provisions. Alternatively it could have been part of animal remains washed from terrestrial deposits into the sea. Older remains could be from an animal that lived and died at a time when areas of the North Sea were dry. This last occurred during the Palaeolithic when, between approximately 70,000 and 12,000 years ago, Ice Age conditions locked water into ice sheets

It is unfortunate that this particular animal bone does not appear to have any butchery marks. Butchery marks can be very useful in understanding the past as they confirm that there was human action on the bone (see image right).

The age of the butchered animal can give us a greater insight into the use of animals in the past, as it can reveal information about the economy (Davis 1987: 39). For example animals kept for meat were generally killed at a younger age than those used for milk or other products.

It is therefore very important to remain vigilant for animal remains, as they can give a significant insight into the actions of past societies.



It is probable that this is an isolated find, particularly if it is waste from a vessel. However further finds from this area may help to shed light on the origins of this bone if it is associated with a shipwreck or buried landscape.

Information about this discovery has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate
- The National Record for the Historic Environment
- The Historic Environment Record for Dorset
- The Local Government Archaeology Officer for Dorset
- The Finds Liaison Officer (Portable Antiquities Scheme) for Hampshire

Davis, S. J. M. 1987: *The Archaeology of Animals*. B.T Batsford Ltd, London.



Tarmac_0436: Cannonball

In November 2012 Gary Phillips found this cannonball at Ridham Wharf. It was found amongst material dredged from licence area 127, which lies approximately 19km southeast of Bournemouth, Dorset.

This cannonball measures approximately 2 $\frac{3}{4}$ inches in diameter and weighs 1.84lb (844.8g). This is slightly smaller than many of the other cannonballs that have been reported through the Protocol, which generally have an average diameter of 3 inches, and weigh around 2kg. These larger cannonballs are thought to have been fired from a saker, but the difference in measurements of this Tarmac_0436 suggests that it would have been fired from a different cannon.

The weight of the ball in particular is of interest, being much lighter than expected. This could indicate that the cannonball was used as grape or canister shot as oppose to solid shot, with the solid iron balls used in grape shot having diameters of approximately 2 inches to 3.5 inches and weighing between 1.1lbs and 4lbs.

This ball fits into this bracket suggesting that it could have been used as grape shot and would probably have been fired from a 18-Pdr or 24-Pdr cannon.

Grape shot was widely used in the 18th and 19th centuries, with the main role being an anti personnel weapon. It involved packing a number of small metal balls into a canvas sack. On firing the balls would spread out from the muzzle of the cannon. Whilst this had a shorter range than solid shot, it was devastating to infantry, or to a vessel's crew on an open deck.



Grape shot balls packed into canvas bag ready for firing
(©Wikimedia Commons)

There are several ways in which this cannonball could have arrived on the seafloor. It may have been fired from a gun during a conflict or a naval battle, between vessels or from shore to vessel, or via wrecking. Cannonballs were also be used to weigh down items, perhaps marked for later recovery.

Licence area 127 has yielded several cannonball finds via the Protocol over the years including recent finds by Tarmac. Licence area 127 is close to several recorded battles including Spanish Armada battles to the south of the Isle of Wight. Whilst this cannonball may date from a later period it is possible that it may simply be a small cannonball from this period of conflict. As more finds from licence area 127 are reported via the Protocol we can learn more about the maritime activities in this region.

Information about this discovery has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate
- The Receiver of Wreck
- The National Monuments Record
- The Historic Environment Record for Dorset
- The Local Government Archaeology Officer for Dorset
- The Finds Liaison Officer (Portable Antiquities Scheme) for London



Tarmac_0437: Animal Bone

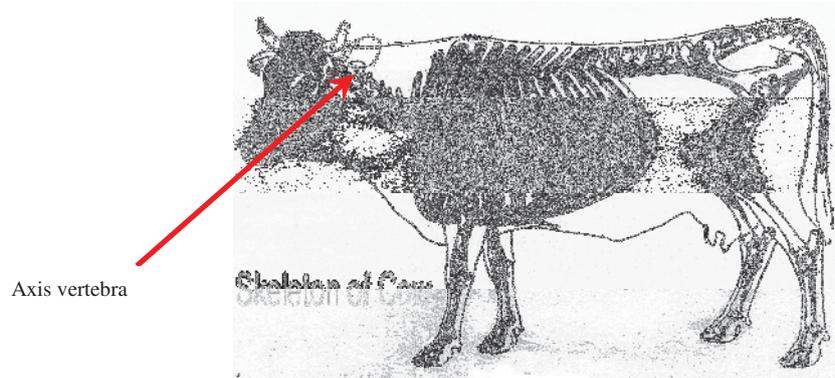
In November 2012, Mark Kirby discovered this animal bone at Erith Wharf from aggregate recovered by the *City of London*. The material was dredged from within licence area 458, which lies approximately 41km south-east of Eastbourne in the East English Channel dredging region.

Lorrain Higbee, Wessex Archaeology's Zooarchaeologist, examined this bone and identified it as a cattle axis vertebra.

The reason that this animal bone ended up in the water is unknown, but there are several possible ways it could have reached the seafloor. It may be from an animal that lived on a buried prehistoric land surface, now below the sea, or from a carcass that has washed out to sea. Alternatively it may have been used on board a ship. Whilst most food on board a ship would have been dried or salted to aid preservation, a small amount of fresh food would have been taken and eaten at the start of a voyage. After consumption any waste would have been thrown overboard to free up space on the vessel.

Though it could have been used for food on board a vessel, there do not appear to be any signs of butchery marks on this piece of animal bone. This suggests that it may not have been butchered for food, though it may have been used for other purposes.

This particular bone is one of seven cervical vertebrae found in cattle, which are attached directly to the skull. These are important as they allow the movement of the skull. The axis vertebra in particular allows the twisting or rotating of the skull by its join with the first vertebra, the atlas.



Isolated finds like this discovery are useful as they are reminders to remain vigilant in these areas for further finds. If a number of archaeological finds are recovered from a specific dredging region then it may indicate past activity.

Information about this discovery has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate
- The National Record for the Historic Environment
- The Historic Environment Record for Sussex
- The Local Government Archaeology Officer for Sussex
- The Finds Liaison Officer (Portable Antiquities Scheme) for London



Tarmac_0438: Cooling Fan

This find was discovered at Tarmac's Greenwich Wharf by Donald Roy Pinnock in October 2012. It was amongst material from area 395/1 which lies 12km east of the Isle of Wight in the South Coast region.

Positively identifying this find has been problematic – experts from a range of backgrounds were consulted and the most plausible identification is that this find is the rotating hub of a cooling fan, such as might be found associated with a vehicle or machinery.

Images of the find were sent to Richard Noyce, Curator of Artefacts at the Museum of the Royal Navy who confirmed that it was not likely to be naval. Images were also sent to experts at the Royal Air Force Museum who agreed that it was unlikely to have originated from an aircraft. Al McLean, Curator of the Royal Air Force Museum in Cosford, suggested that the find originated from a vehicle and was perhaps a cooling fan, noting an 8-bladed example from the 1950's which shows some similarities to Tarmac_0438.

The find shows signs of having corroded during submergence and there is evidence of marine growth on the item. This coupled with the potential for the find to have originated from a vehicle suggest that it may be part of a spread of post-war blitz rubble dumped at sea during the 1950's. This dumped material is well evidenced from area 395/1 and many finds of a domestic or terrestrial nature have been recovered from this marine context. Finds such as this one are adding to our understanding of this event which it appears was not documented by the City of Portsmouth.

Information about this discovery has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate
- The Receiver of Wreck
- The National Record for the Historic Environment
- The Historic Environment Record for Isle of Wight
- The Local Government Archaeology Officer for Isle of Wight
- The Finds Liaison Officer (Portable Antiquities Scheme) Hampshire



Lafarge_0440: Spoon

This spoon was discovered by Andrew Daines working at Lafarge's Thurrock Wharf. It was found amongst material dredged from area 228 which lies in the East Coast region, approximately 12km east of Great Yarmouth.

This spoon bears a stamp reading 'Cunard White Star' which dates its manufacture accurately to within the fifteen year period 1934 – 1949. Cunard White Star Limited was a shipping company formed after the merger of rivals Cunard and White Star in 1934. The company existed in this form until 1949 when Cunard shareholders bought out the company and reverted simply to the name Cunard.

This spoon is a dessert spoon and the wording on the handle has been stamped on. The slightly off-centre location of the mark, combined with the absence of further decoration or styling, indicates that this was not a first-class item and would likely have been used by less affluent guests or by crew aboard a Cunard White Star vessel.

A study of Area 228 carried out in 2011 prior to licensing revealed no charted wrecks (Source: WA Client Report Ref.78670). It is likely then that this find represents a chance loss overboard from a vessel, rather than an indication of a site of further significance. Interestingly none of the Cunard White Star line routes identified by WA travelled the east coast of Britain – instead vessels commonly travelled west from Southampton or Liverpool to America, or east to Europe and beyond. However, normal services were interrupted during the Second World War when civilian vessels were requisitioned and pressed into service for military roles. This may account of the potential presence of a Cunard White Star vessel in the area from which the spoon was dredged.

Given the absence of further evidence – either documentary or artefactual – it is likely that this spoon represents a chance loss from a passing vessel.

Information about this discovery has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate
- The Receiver of Wreck
- The National Record for the Historic Environment
- The Historic Environment Record for Norfolk
- The Local Government Archaeology Officer for Norfolk
- The Finds Liaison Officer (Portable Antiquities Scheme) Essex



Tarmac_0442: Small Pick Axe

This pick head was found by Jon Jerromes in February 2013 at Burnley Wharf. It was amongst material from licence area 395/1 which lies in the South Coast region.

This find was correctly identified by wharf staff as a pick axe head. It measures approximately 40cm from pick to pick and has a number '2' cast into the side of one of the picks. The handle is missing and the find, which is made of iron, shows some signs of corrosion though it is in generally good condition given the circumstances of its discovery.

This tool, known as a pick or pick axe, has been in use since prehistoric times albeit with the earliest picks made from the tines of deer antlers, not iron. The sharp spike, which on modern picks is counterweighted by either a second pick or a chisel, can be used to break up hard ground surfaces, remove tree roots or, in Medieval England, used as a weapon.

This example is likely to date to the 20th century given the quality of the casting used in its production and the relatively low level of corrosion seen on the item. The number '2' would likely indicate its size as these tools come in a range of sizes depending on the circumstances of their intended use. Originally it would have been coupled with a wooden handle though it is common for pick handles to be removable for ease of storage, transport or for ease of repair and sharpening where necessary.

This type of pick may have been issued by the Ministry of Defence who (our research shows) issued a standard 40cm pick. This may date the tool to the middle of last century though this cannot be confirmed on current evidence. Whilst this pick may have been transported, or lost from, a sea-going vessel, picks are not commonly used on boats as they are predominantly agricultural, building or mining tools.

This find may have been deposited with a spread of post-war blitz rubble well evidenced in the vicinity of area 395/1 though further finds from this area may alter this interpretation.

Information about this discovery has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate
- The Receiver of Wreck
- The National Record for the Historic Environment
- The Historic Environment Record for Isle of Wight
- The Local Government Archaeology Officer for Isle of Wight
- The Finds Liaison Officer (Portable Antiquities Scheme) for Hampshire



Tarmac_0443: Blocks and Iron

This find was discovered by J. Jeromes at Tarmac's Burnley Wharf. It was dredged by the *City of Chichester* with material from area 395/1, which lies 12km east of the Isle of Wight in the South Coast region.

This enigmatic find was discovered at Tarmac's Burnley wharf. The find consists of a large wooden block pierced by two corroded iron pins. The longer of the two pins has an additional block attached to one end of it.

The find is made of wood and iron and shows a degree of corrosion on both the wood and the metal indicating a lengthy spell underwater. The wooden construction of parts of the find may suggest that it has originated from a wooden vessel in which case it may be assumed to be over 100 years old. Were this confirmed to be the case the find is in good condition suggesting that it was buried on the seabed prior to dredging.

Wessex Archaeology has not yet been able to obtain a positive ID for the find. Staff at Burnley wharf suggested that it may be a retaining block for a canvas screen. These were used aboard wooden vessels to protect the ship and the men working on her from dust or dirt whilst loading or unloading cargoes such as coal or ore.



Detail of Tarmac_0443

Canvas covers were also used to cover hatches on wooden vessels where it wasn't practicable or feasible to fit a wooden hatch, or as a temporary measure. Images of the find were shown to Richard Noyce, Curator of Artefacts at the Royal Naval Museum, who was unable to identify it. He agreed that the interpretation made by wharf staff was a plausible one but did not recognise the find.

Whilst area 395/1 is well known to contain a spread of blitz rubble, this find is not currently thought to be associated with it. It is thought currently that this find has originated from a wooden vessel demonstrating how important the work of staff at wharves handling material from area 395/1 is in reporting all finds. This find will be added to the National Record of the Historic Environment and reported to the Receiver of Wreck for further investigation.

Information about this discovery has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate
- The Receiver of Wreck
- The National Record of the Historic Environment
- The Historic Environment Record for Isle of Wight
- The Local Government Archaeology Officer for Isle of Wight
- The Finds Liaison Officer (Portable Antiquities Scheme) Hampshire



Tarmac_0444: Iron Finial

This find was discovered at Tarmac's Burnley Wharf by J. Jeromes. It was dredged by the *City of Chichester* from area 395/1 in the South Coast region. The discovery was made in February 2013.

This small corroded piece of metal was correctly identified by wharf staff as a finial – possibly for railings. Faint lines seen running along the side of the item suggest that this find was cast and it is made of iron.

The style of the finial – with gently curving sides and a seemingly spiralling pattern of rings – might suggest that it adorned the top of a bed post rather than railings which were often designed with sharp points to prevent people vaulting over them. Bed post finials by contrast are often more rounded.

The area from which this find was dredged contains a well evidenced spread of post-war debris thought to be blitz rubble originating from Portsmouth or Southampton. Both were heavily bombed during the Second World War in an attempt to diminish British naval power on the south coast. Despite the dumping of this material occurring relatively recently, Wessex Archaeology have so far been unable to obtain records relating to it as it seems the City of Portsmouth did not record the event.

Iron and other metals were at a premium during the Second World War as resources were ploughed into the manufacture of aircraft, vehicles and munitions. Citizens were encouraged to turn in metal for scrap and municipal metals – such as the railings outside parks and civic buildings – were commandeered for use as well. Recently information has come to light that few of these railings were turned into munitions as British manufacturers lacked the resources to process them. Significant numbers of railings removed from the City of London were allegedly dumped at sea in the Thames Estuary and it is possible that dredging in the estuary may one day return them to the shore.

Information about this discovery has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate
- The Receiver of Wreck
- The National Record for the Historic Environment
- The Historic Environment Record for Isle of Wight
- The Local Government Archaeology Officer for Isle of Wight
- The Finds Liaison Officer (Portable Antiquities Scheme) Hampshire



Tarmac_0445: Stainless Steel Knife

This was discovered by J. Jeromes at Tarmac's Burnley wharf. It was amongst material dredged by the City of Chichester in February 2013 from licence area 127. Area 127 lies 11km to the West of the Isle of Wight, and approximately 19km south-east of Bournemouth on the South coast.

The mark on this knife clearly reads 'INOX' which is used to denote items made of stainless steel. The name 'INOX' comes from the French name for this type of metal - *Acier Inoxydable* – which gives rise to the alternative name for the alloy, Inox Steel.

Stainless Steel was pioneered in the early twentieth century and soon become popular due to its corrosion resistant properties. Its protection from rust and staining makes it suitable for many different purposes ranging from domestic items like this knife, to use in building, transport, industrial and military constructions.

Alan Harrison who works for the Stainless Steel Advisory Service on behalf of the British Stainless Steel Association informed us that the word INOX is not used in the UK revealing that this knife was made somewhere in Continental Europe. As such it is likely that this knife was lost from a ship that originated on the Continent, was carrying continental passengers or was travelling between the UK and Europe.

Mr Harrison also gives an insight into the construction of the knife saying: 'The appearance is of a good quality knife with a hardened martensitic stainless steel blade welded to an austenitic stainless steel hollow handle.' Stainless steel, whilst resistant to corrosion, is not immune to it, as can be seen on Tarmac_0445. Under high-salinity and low oxygen conditions Stainless Steel may corrode, demonstrating that this knife may have been underwater for a considerable period of time before dredging.

Area 127 has yielded many finds during the operation of the Protocol (interestingly a spoon and fork have also been reported though the finds are not currently being linked). This may be due to high levels of shipping activity on the South Coast or it may be due to a previously unknown site of archaeological potential such as a shipwreck. The reporting of further finds from the area will continue to enhance our understanding of this licence.

Information about this discovery has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate
- The Receiver of Wreck
- The National Record for the Historic Environment
- The Historic Environment Record for Isle of Wight
- The Local Government Archaeology Officer for Isle of Wight
- The Finds Liaison Officer (Portable Antiquities Scheme) for Hampshire



Tarmac_0446: Iron Shot

This find was discovered by J. Jeromes at Burnley wharf in February 2013. It was amongst cargo from area 127 which lies to the west of the Isle of Wight, in the South Coast region.

This is an iron shot which measures approximately one inch in diameter. There is a direct parallel to this find reported through the Protocol in the 2007-2008 reporting year - UMA_0154. Phil Magrath, an ammunitions expert from the Royal Armouries Museum, identified UMA_0154 as ammunition from a small gun known as a robinet.

A robinet, which is also known as a rabbinett or rabinet, is a gun which was used in the 15th and 16th centuries. The tradition of the time was to name guns after birds, hence the falconet gun was named for the falcon hawk and the saker gun was named for the saker hawk. A robinet, named for the robin, typically weighed around 300 pounds and had a calibre of one inch.

Whilst UMA_0154 was found in the Owers region south of Sussex and Tarmac_0446 was dredged west of the Isle of Wight— the two iron shot are potentially contemporary. The similarities in size and the characteristic elongated shape of the shot, formed during casting, suggest that these are connected chronologically at the very least.

The south coast has played host to a range of naval battles, skirmishes and disputes which could have resulted in the firing of these shots. Naval clashes were endemic in the Channel during the end of the 16th century and the most famous of these is arguably the Spanish Armada. It is possible that this shot relates to the Armada, though this cannot be proven as finds like this one lack a context in which to place and understand them.

Alternatively it may have come to rest on the seabed due to accidental loss or as the result of a practice shot. There is also the possibility that this shot came from a wreck site, though no post-medieval wrecks are recorded in the licence area from which it was dredged.

Information about these discoveries has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate
- The Receiver of Wreck
- The National Record for the Historic Environment
- The Historic Environment Record for Hampshire
- The Local Government Archaeology Officer for Hampshire
- The Finds Liaison Officer (Portable Antiquities Scheme) for Hampshire



UMA_0154 – reported in 2008



Hanson_0447: Shell

This was dredged from area 460 by the *Arco Arun* in March 2013. Graham Price discovered it on the vessel as it left the area which is situated in the East English Channel region.

The discovery of this shell on board the *Arco Arun* led to the evacuation of 10 crew members who were taken from the dredger by lifeboat. The *Arun* was anchored off of Folkestone whilst bomb squad experts came on board to make the shell safe and remove it from the screen tower. Finds like this one are not uncommon offshore and staff in the aggregate industry have been trained to recognise and report them for the safety, as evidenced in this example.

The shell has a 3 inch calibre and measures approximately 20cm long. It displays an obturating ring, on the right in the image above, which were fitted to shells to create a seal between the shell and the breech of the gun firing it, trapping propellant gases behind to ensure efficient firing. This shell is of the correct calibre to have been fired by a 12 pounder 12 cwt naval gun which was popular from 1894 until the middle of the last century.

Unexploded ordnance, aka UXO, pose a significant risk as degradation of the detonator or fuse can render them unstable and an impact could potentially detonate the device. Most ordnance found in British waters relates to WWI or WWII meaning that unexploded ordnance could have lain undisturbed for 70-100 years. The most dangerous MEC – munitions or explosives of concern – in UK waters lie within the wreck of the SS *Richard Montgomery* which sunk off of the Isle of Sheppey, Kent. Carrying approximately 1400 tonnes of explosives and lying in shallow waters close to a populated area the vessel poses a significant risk. In living memory, and presumably before the extent of the risk was understood, enterprising locals offered summer boat trips around the wreck, the masts of which are visible from the shore.

No further finds have been dredged from area 460 which would suggest that this shell is not associated with a site of archaeological significance. It is interpreted as a chance find and can be discharged through the Protocol accordingly.

Information about this discovery has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate
- The Receiver of Wreck
- The National Monuments Record
- The Historic Environment Record for Sussex
- The Local Government Archaeology Officer for Sussex
- The Finds Liaison Officer (Portable Antiquities Scheme) for Sussex



Tarmac_0448: Dead-eye Block

This find was discovered by G. Cooper at Tarmac's Bedhampton Wharf. It was dredged by Hanson's *Arco Dee* with material from area 395/1, which lies 12km east of the Isle of Wight in the South Coast region.

This find was correctly identified by wharf staff as part of a wooden rope block. It was broken at some point either before, during or after dredging but the characteristic curve of the find, coupled with the partial remains of holes for attachment and grooves around the outside of the find to hold rope, reveal its original use.

Wooden blocks were common on wooden sailing ships from the medieval period to the present day where they were used for all manner of tasks including raising and lowering sails, hoisting cargo and larger reinforced examples were used to deploy and retrieve anchors. This example is thought to be a deadeye block used to secure a vessel's shroud – the rigging which supports the mast and secures it to the side of the ship. The two broken holes in the image above would have been joined by a third in a characteristic 'cat's paw' shape giving rise to the identification as a dead-eye.

Examination of the grooves seen curving around the edge of the item reveal that this example was intended for use with rope, as opposed to wire or cable that may be used on a more modern vessel. Whilst it is hard to tell from images it appears that there are wear marks showing that the block has been used.



Wear on Tarmac_0448

Area 395/1 has yielded a wealth of finds during the years that the Protocol has been in operation ranging from maritime objects from a variety of vessels to post-war rubble. The area was studied intensively prior to the granting of licence to dredge and there are no known wooden shipwrecks within the designated dredging areas – a find of that age would certainly have been granted an exclusion zone prior to dredging. Similarly there have been no other finds reported that are clearly associated with this find – no wooden finds of maritime origin were noted in a review of Protocol finds from this area. This suggests that Tarmac_0448 is a chance find deposited at sea from a vessel, as opposed to with one. Should further finds of a similar nature be retrieved this interpretation may change.

Information about this discovery has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate
- The Receiver of Wreck
- The National Record for the Historic Environment
- The Historic Environment Record for Isle of Wight
- The Local Government Archaeology Officer for Isle of Wight
- The Finds Liaison Officer (Portable Antiquities Scheme) Hampshire



Tarmac_0449: Temperature gauge

This find was discovered at Lafarge Tarmac's Greenwich Wharf by Altin Doci. It was dredged by the *City of London* with material from area 447 which lies in the Thames region and found in March 2013.

This brass gauge bears numbered marks labelled from 100 – 400 and a letter thought to be either 'P' or 'F'. The brass construction of this find suggests a role on a vessel offshore as brass is more resistant to corrosion than some other metals such as iron. The lettering is in an antique style implying that this find was manufactured last century or possibly in the century before that. The curve of the item, coupled with holes at one end and in the centre, suggest that it was affixed with screws or nails around machinery on board a vessel.

Interpreting it beyond that is difficult given the lack of further information that the find presents us with. The letter, if found to be an 'F' may stand for Fahrenheit suggesting that this was a temperature gauge. It could either have allowed the temperature to be operator controlled or could have allowed the operator to monitor temperature.

Fahrenheit has been largely phased out in the UK since the 1970's when metric units became the norm and weather reports have been given in Celsius (replacing Fahrenheit) since the early 1960s. This fits with the late 19th/early 20th century date for the find estimated from the typographical styling seen on it.

Anthony Mansfield, a marine engineer, was shown images of the find and concurs that a role in temperature setting or reading is likely for Tarmac_0449. A maximum temperature of 400°F is not excessive, he tells us, and may have referred to oil or been used on a steam boiler with pressure of up to around 150psi.

The find has likely arrived in area 447 due to shipping activity and it may indicate the site of an uncharted wrecked vessel, though the absence of further maritime finds among the same cargo makes this unlikely at present. Other finds of a maritime nature from area 447 include a timber thought to be from a ship which was found in the 2009-2010 reporting year.

Information about this discovery has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate
- The National Record for the Historic Environment
- The Historic Environment Record for London
- The Local Government Archaeology Officer for London
- The Finds Liaison Officer (Portable Antiquities Scheme) London



Tarmac_0450: Mammoth Tooth

This find was discovered by Robert Lawrence at Lafarge Tarmac's Erith wharf. It was found amongst material dredged by the *City of London* from area 447 in the Thames Estuary region. Area 447 lies approximately 17km south-east of Clacton-on-Sea, Essex.

This find was correctly identified as a mammoth tooth. Images of the find were sent to experts at the Natural History Museum for identification. Pip Brewer, Curator of Fossil Mammals, and Dr Adrian Lister viewed the photos – it is difficult to provide a conclusive identification from images alone but based on those available from the wharf this find is thought to have come from a woolly mammoth, *Mammuthus primigenius*.

There were several species of mammoth but *Mammuthus primigenius*, the woolly mammoth, is possibly the best known, being popularised by film and TV. This species evolved around 200,000 years ago in Asia and disappeared from Britain around 14,000 years ago during the Pleistocene, though isolated populations are thought to have existed in remote locations until as recently as 4,000 years ago.

This is not the first mammoth tooth reported from area 447 and several have been reported during the 8 years that the Protocol has operated. In addition to the teeth, finds from this area also include mammoth tusk and fossilised bone, also thought to have come from a mammoth. Tarmac_0450 is one of the largest and most complete teeth to have been reported from this area.

Finds such as this one add to our understanding of how climatic changes influenced species movement and development, and increase our knowledge of submerged prehistory. They provide evidence through which we may be able to understand how mammoth populations evolved and spread, and how at the end of the last Ice Age their numbers diminished into eventual extinction.

Information about this discovery has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate
- The National Record for the Historic Environment
- The Historic Environment Record for Essex
- The Local Government Archaeology Officer for Essex
- The Finds Liaison Officer (Portable Antiquities Scheme) Kent



Tarmac_0451 and Tarmac_0457: Fishing Line or Net Weights

These stones were found at Greenwich Wharf by Jamie Wallis in April 2013. Tarmac_0451, seen on the left here, was found whilst clearing the BAD tunnel and Tarmac_0457, on the right, was found during the processing of four separate cargoes.

These stones are flint - a sedimentary rock that forms in gaps within the matrix of another rock, such as chalk. The holes seen here formed naturally when the stones formed millions of years ago but at some stage in the past someone has utilised this natural feature to turn these stones into line or net weights. Though neither stone is especially heavy on its own, each weighs enough to sink a fishing line or to weight the edge of a net alongside other stones.

The evidence for this is seen on the ends of the stones, around the opening of the holes. Both flints are worn smooth here which experts at WA believe was caused by friction from a rope. Twists of fibre tightening and loosening, a knot under strain or simply the friction caused by daily submersion and use would all cause this pattern of smoothing over a prolonged period of time.

It is not possible to provide a date for their use. Stones have been used as weights from the Palaeolithic to the modern day and these could have been employed as net weights at any point during the past 50,000 years.

Interestingly, stones with naturally occurring holes such as these have historically and superstitiously been believed to protect the bearer from the evil influences of witches – hence their common name ‘witch stone’ or ‘hag stone’. Whilst WA cannot determine whether these stones have protected people from witches in the past, we hope that by their inclusion in the display of dredged finds held at Greenwich wharf they will keep Tarmac staff safe from evil influences in the future.

Information about this discovery has been forwarded to:

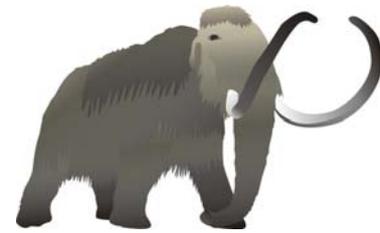
- English Heritage
- BMAPA
- The Crown Estate
- The Receiver of Wreck
- The National Record for the Historic Environment
- The Historic Environment Record for London
- The Local Government Archaeology Officer for London
- The Finds Liaison Officer (Portable Antiquities Scheme) for London



Tarmac_0452: Mammoth Tooth

This find was discovered by Jamie Wallis at Lafarge Tarmac's Greenwich Wharf. It is not known which cargo it arrived with but, given the location of the wharf, it is likely to have come from the south or east coasts.

This find was correctly identified by staff at Greenwich as a mammoth tooth. Images of the find were sent to experts at the Natural History Museum for identification. Pip Brewer, Curator of Fossil Mammals, and Dr Adrian Lister viewed the photos – it is difficult to provide a conclusive identification from images alone (despite the excellent quality of the photographs from Greenwich) but based on those available, this find is thought to have come from a woolly mammoth, *Mammuthus primigenius*.



Woolly Mammoth

There were several species of mammoth but *Mammuthus primigenius*, the woolly mammoth, is possibly the best known, being popularised by film and TV. This species evolved around 200,000 years ago in Asia and disappeared from Britain around 14,000 years ago during the Pleistocene, though isolated populations are thought to have existed in remote locations until as recently as 4,000 years ago.

This is not the first mammoth tooth reported by Greenwich Wharf, where staff are well equipped to recognise Palaeolithic material using an on-site museum of dredged finds which helps promote awareness of the Protocol and train new staff.

Finds such as this one add to our understanding of how climatic changes influenced species movement and development, and increase our knowledge of submerged prehistory. They provide evidence through which we may be able to understand how mammoth populations evolved and spread, and how their numbers diminished into eventual extinction at the end of the last Ice Age.

Information about this discovery has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate
- The National Record for the Historic Environment
- The Historic Environment Record for London
- The Local Government Archaeology Officer for London
- The Finds Liaison Officer (Portable Antiquities Scheme) London



Tarmac_0454: Ammunition Clips

5 metal clips were found at Southampton wharf amongst a cargo from area 395/1. After N. C. Sait discovered them in March 2013, staff at the wharf examined and correctly identified them as ammunition clips. Area 395/1 is in the South Coast region, approximately 12km east of the Isle of Wight.

Jonathan Ferguson, Curator of Firearms at the Royal Armouries in Leeds confirmed that these are indeed ammunition clips. The mark seen in the image above – which reads ‘M13’ – reveals that these are M13 disintegrating links which are used in a number of NATO machine guns. In this case, Jonathan tells us, they have originated from a British L7 General Purpose Machine Gun, which given the context of the find, may have been deployed in a naval role.

This type of clip splits apart as the gun is fired and the clip is pushed out with the empty cartridge cases. M13 disintegrating ammunition clips entered use in the late 1950's and can still be found in use today, though given the degree of corrosion on these examples it is perhaps fair to assume that they are from the earlier part of this time frame.

These finds have likely come to rest on the seabed either during firing of a gun at sea as a test or in training, or with a spread of post-war debris well evidenced in the vicinity of area 395/1. An examination of other finds reported from this licence over the past 7 years of the Protocol does not suggest that this find is indicative of a further site of archaeological significance, such as a shipwreck.



Information about this discovery has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate
- Ministry of Defence
- The Receiver of Wreck
- The National Record for the Historic Environment
- The Historic Environment Record for Isle of Wight
- The Local Government Archaeology Officer for Isle of Wight
- The Finds Liaison Officer (Portable Antiquities Scheme) for the Isle of Wight



Tarmac_0455: Cannonball

This find was discovered by N. C. Sait at Lafarge Tarmac's Southampton Wharf. It was dredged with material from area 395/1, which lies 12km east of the Isle of Wight in the South Coast region.

This find was correctly identified by wharf staff as a cannonball. Heavily corroded and missing a section due to damage or corrosion, it has not been possible to date this find. It is the third example reported from area 395/1 during the 8 years of Protocol operation (see UMA_0068 and UMA_0199).

Round shot such as this one were in use from the medieval period until the 19th century. Early examples were made of stone with iron becoming dominant from the 17th century onwards. This type of ammunition consists simply of a heavy round ball and receives its momentum from gunpowder placed behind it in the barrel of the cannon. They show little variation in construction over time but do change weight and size reflecting changes in the design of the cannon used to fire them. As a significant section of this cannonball is missing it is not possible to date it accurately as a precise diameter and weight, which may allow identification of the gun used to fire it, cannot be determined. It is possible that the damage on this find was caused by impact as despite their size cannonballs were often damaged when striking, for example, the wooden hull of an enemy ship.

Cannonballs are common finds in the South Coast region as the area played host to an abundance of battles during the age of sail. A concentration of them from one area may indicate the site of a naval battle, or (and especially if maritime material is recovered alongside them) the site of a shipwreck.

This example may have been lost with a ship, it may have been fired from a ship or it may have been deliberately discarded overboard – either to lighten the load of a struggling vessel in severe weather, or to sink something to the seafloor. At present it is deemed to be a discrete find.

Information about this discovery has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate
- The Receiver of Wreck
- The National Record for the Historic Environment
- The Historic Environment Record for Isle of Wight
- The Local Government Archaeology Officer for Isle of Wight
- The Finds Liaison Officer (Portable Antiquities Scheme) Hampshire



Hanson_0456: Cannonball

This cannonball was found onboard the *Arco Dijk* en route to Antwerp from area 474 Central, in the East English Channel dredging region. It was found by P Roberts in April 2013.

This cannonball measures approximately 16cm in diameter, equivalent to 6.3 inches. It has suffered damage, either when fired or during its time submerged and it has a distinctive circular mark on one surface.

Identifying cannonballs is difficult – they changed little in their construction during the time they were in use and were made of a solid lump of metal with few distinctive features. Some examples, strictly known as shells, were hollow and contained gunpowder. They were designed to explode on impact and were equipped with a fuse to facilitate this. The fuses were circular and a similar size to the mark seen on Hanson_0456, but they stood proud of the ball and were often made of brass. Whilst the circular dimple on this find is enough to raise suspicion (and WA would advise safe handling of this find just in case it contains explosives) it is not thought on available evidence to indicate that this is a shell or mortar. It may be that this mark formed during casting – either denoting the hole through which the molten iron was poured into the mould, or a vent in the mould.

Cannonballs are identified by size and weight. This is a relatively large example and was potentially fired by a demi-cannon gun though this cannot be confirmed. It is likely to have arrived on the seafloor after firing. During the post-medieval period the English Channel was host to a range of naval battles which may account for its presence in the East English Channel dredging region. In the 2010-2011 reporting year an iron shot was dredged from Area 474C which may be connected with Hanson_0456.

Alternatively, there may be a post-medieval wreck in the area though every licence is investigated for archaeology (through record searches and geophysical interpretation, amongst other methods) and any identified wrecks of this age would have been protected by an exclusion zone. Future finds from this region may provide further insight into the history of this area.

Information about this discovery has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate
- The Receiver of Wreck
- The National Monuments Record
- The Historic Environment Record for Sussex
- The Local Government Archaeology Officer for Sussex
- The Finds Liaison Officer (Portable Antiquities Scheme) for Hampshire



Tarmac_0458: Ammonite Fossils

These fossils were discovered at Tarmac's Bedhampton Wharf by Gary Cooper. The collection of four fossils was dredged from the South Coast, from either area 127 or area 372.

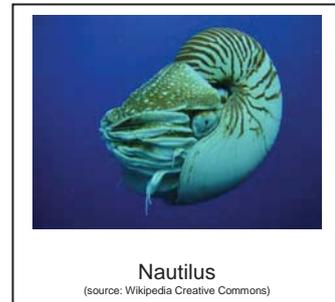
These find were correctly identified by wharf staff as fossils – specifically they are ammonite fossils. Ammonites were marine creatures similar to the nautilus and they lived between 240million and 65 million years ago. They went extinct with the dinosaurs and many of them are preserved as fossils.

They were identified by the characteristic spiral shape of the shell which has created the curved shape of these four large examples.

This type of fossil is well evidenced along the south coast and coastal areas of Dorset attract thousands of people on the hunt for fossils every year.

Ammonites are preserved when buried in sediments on the seafloor. Over millions of years and under pressure the organic components of the creature become fossilised and turn to stone. These examples are partial examples having either been only partially formed or having broken before, during, or after removal from the seabed. One of the examples (labelled b when reported) appears to show a second fossil inside the larger example. It is difficult to tell from pictures but this may either be a second ammonite and the two have fused together during fossilisation, or it may be one of the inner spirals of the same creature.

Technically an ammonite does not constitute an archaeological discovery as archaeology only studies the human past and ammonites such as these lived millions of years ago during the Jurassic period. The earliest known hominin occupation of Britain occurred a mere 700,000 years ago by comparison. There is evidence though that, just as people collect fossils today, people in the past valued fossils, for example as jewellery, ornaments or curios so it is important that all further finds of a similar nature are reported through the Protocol.



Information about this discovery has been forwarded to:

- BMAPA
- The Crown Estate



Tarmac_0460: Fossilised Limb Bone

Terry Clancy found this item in the crusher house chute at Greenwich Wharf in May 2013. Whilst the original dredging location is not known, the location of the wharf suggests that it is from the east coast, south coast or Thames regions.

This find is the (at least) partially fossilised limb bone of the large mammal. This was confirmed by experts at the Natural History Museum and Wessex Archaeology's own zooarchaeologist. Unfortunately damage that has occurred to the item before its discovery limits much further interpretation, despite the excellent quality of the photographs provided by Greenwich Wharf.

Breaks in the bone, which appear well-rounded suggesting that they likely occurred before dredging, reveal the characteristic 'bubble' effect that denotes bone marrow. This reveals the find to be bone, as opposed to ivory or tusk, despite the curving shape of the find. This curve can be attributed to the shape of the breaks to the shaft.

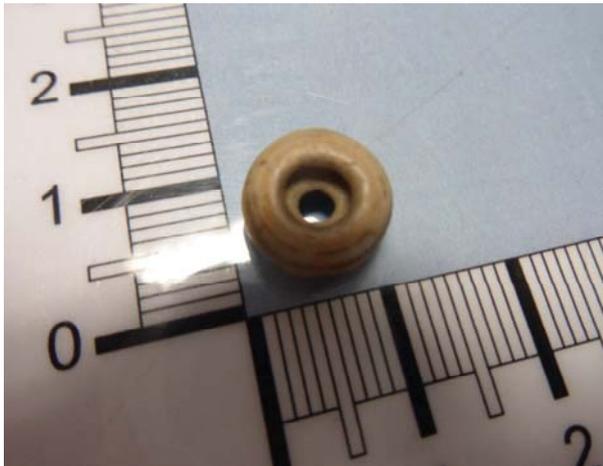
The size of the find suggests that it was from a large animal – especially since the ends of the bone are broken masking the true size of the object. It is the loss of these ends which prevents further interpretation as unique features on the end of all limb bones are key to their identification.

The size of the find and the level of fossilisation suggest that this find dates to the Palaeolithic or Old Stone Age. For periods during this time Britain was joined to what is now mainland Europe and huge beasts or megafauna, such as the mammoth roamed the landscape. Finds from this period are the oldest reported through the Protocol dating to a time classified as beginning around 700,000 years ago.

Finds such as this one offer us a unique insight into this enigmatic time about which comparatively little is known and staff at Tarmac are commended for reporting it through the Protocol even though the dredging area is unknown.

Information about this discovery has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate
- The National Record for the Historic Environment
- The Historic Environment Record for London
- The Local Government Archaeology Officer for London
- The Finds Liaison Officer (Portable Antiquities Scheme) for London



Tarmac_0461: Glass Bead

This find was discovered by Paul Scrace at Lafarge Tarmac's Greenwich Wharf and reported by Paul and Bradley Troubridge. It was found during maintenance on the 10mm silos and the licence area is not known.

Greenwich Wharf, whose staff have long been known for their dedication to the Protocol and the protection of our heritage, have outdone themselves with this incredible find. Given the operational circumstances of an aggregate wharf, noticing an artefact this small and recognising its significance is phenomenal.

The bead was reported in May 2013 and was sent to Wessex Archaeology for closer analysis in September. Sue Nelson, who supervises our finds team, studied the bead under a microscope. Sue works to clean, record, catalogue and curate finds from all over the country excavated by our field teams. She is very familiar with many different types of finds and she identified that this bead was made of glass.

Finds like this are often dated by the context in which they are found – beads in a Saxon grave could usually be assumed to be Saxon, those in the remains of a Romano-British building to be Roman and so on, though of course exceptions do apply. The lack of context for this find makes absolute dating impossible but Sue has seen many examples similar to this bead dating from the Roman and Saxon periods. Consequently, she tells us, this bead is potentially Roman or Saxon, though given the greater abundance of Saxon beads, probably Saxon.

This is an incredible find – the first Saxon find reported through the Protocol, one of the smallest finds reported through the Protocol and one of the oldest historical finds reported through the Protocol.

How it came to be on the seabed is not known – it may have washed from a terrestrial context, been lost or dropped over board or it may have come from a Saxon wreck (the discovery of a wreck of that age would be national, if not international, news).

The Anglo-Saxon period in the UK is broadly agreed to span from 410AD to 1066. During this time, European tribes from areas of what is now Denmark and Germany came to England where they settled with the native population. New cultures developed, distinct from those of the Romano-British period which preceded it, and which included the creation of elaborate and highly prized jewellery. Wealthy Saxon women are often pictured in reconstructions wearing beads strung between two clasps or brooches (often finely decorated) attached to cloaks. Far from being the 'Dark Ages' (a largely discredited term) this was a time of music, art, myth and storytelling. Against this background, the bead reported by Greenwich was likely made and lost to the sea.

Information about this discovery has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate
- The Receiver of Wreck
- The National Record for the Historic Environment
- The Historic Environment Record for London
- The Local Government Archaeology Officer for London
- The Finds Liaison Officer (Portable Antiquities Scheme) London



Hanson_0462: Anchor Stock

This find was discovered onboard the Arco Arun in May 2013. Graham Price found it amongst material dredged from licence area 240 which is approximately 13km south-east of Great Yarmouth, in the East Coast region.

This find was identified by Wessex Archaeology's Coastal and Marine team as part of a 19th or 20th century iron anchor stock. The type of anchor this was part of, known as an Admiralty or Fisherman's anchor, is one of the most recognisable anchor shapes and has been widely used throughout the last 200 years. The earliest forms of this anchor had wooden stocks before they were superseded by metal stocks like this one.

This find was likely lost from a vessel either accidentally whilst the anchor was deployed to the seabed or due to deliberate discard. If the anchor broke during use onboard the vessel, for example during the process of retrieving and catting the anchor, it may have been dumped at sea. Alternatively it may have been lost with a shipwreck though an examination of other finds reported from this area and a review of the initial archaeological assessment of licence area 240 does not currently suggest the presence of an unidentified shipwreck. Further finds from the area may alter this interpretation and they should be reported as this find has been.



Example of a stocked anchor.

Information about this discovery has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate
- The Receiver of Wreck
- The National Record for the Historic Environment
- The Historic Environment Record for Norfolk
- The Local Government Archaeology Officer for Norfolk
- The Finds Liaison Officer (Portable Antiquities Scheme) Norfolk

Tarmac_0463, Lafatarm_0474 and Lafatarm_0486: Aircraft Remains

These finds were all dredged from area 395/1 in the South Coast region, east of the Isle of Wight. The finds reported as Tarmac_0463 were discovered by N. C. Sait on 11th June 2013. Lafatarm_0474 were found by Steve Smith and Dean Lutman and were dredged on 25th June 2013. Steve Smith and Dean Lutman also found Lafatarm_0486 on 23rd July 2013.



These finds were dredged amongst 3 separate cargoes from the same licence area. Those shown on the left above were reported as Tarmac_0463 and that on the right as Lafatarm_0474. Those on the bottom left are Lafatarm_0486. Images of the finds were sent to experts at the Royal Air Force Museum.

Ewen Cameron, Curator of the Royal Air Force Museum Stafford, identified the first 2 sets of reported finds as being likely to have come from a Jumo 211 engine. This German engine was used on various Luftwaffe aircraft including the He111, the Ju 88 and the Ju 87. Ewen recognised the large find reported as Lafatarm_0486 as a torque link from the undercarriage of a Ju 87, giving the best indication to date of the identification for the remains retrieved from Area 395/1.

Image source - Bundesarchiv, Bild 183-J16050 / CC-BY-SA
http://en.wikipedia.org/wiki/File:Junkers_Ju_87Ds_in_flight_Oct_1943.jpg

The Junkers 87, known as the Ju 87 or Stuka, was a two man dive bomber first flown in 1935 and used extensively during the Second World War. With its distinctive inverted gull wings it was a recognisable symbol of German air power used to promote the Luftwaffe and popularise air victories. It was produced until 1944 giving a potential 9 year period for the date of the manufacture of these finds.

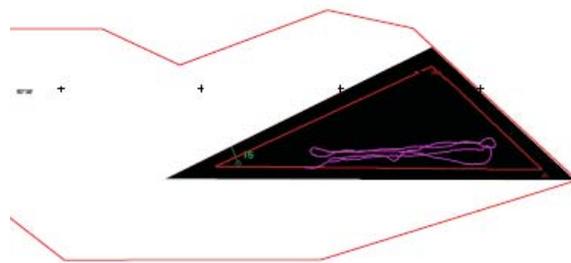
The position of this material on the south coast to the east of the Isle of Wight may suggest that this plane was lost during the Battle of Britain in 1940. The Ju 87 was flown against the Royal Air Force to destroy political, military and industrial targets including those on the south coast at Portsmouth and Southampton. In the early phases of the Battle of Britain Stukas, and other aircraft, attacked shipping in the Channel and suffered heavy losses.

These are significant finds – aircraft remains of this era are likely to represent war graves and should not knowingly be disturbed. Extensive studies are conducted prior to the licensing of dredging areas to identify and protect archaeological sites and remains in order that they can be avoided during work offshore. Sites such as the one that has yielded these finds are hard to identify though. Aircraft, being light in nature in order to get airborne, often fragment when downed in water – either due to the force of impact with the surface of the water or the seabed, or due to whatever cataclysmic damage has caused them to ditch in the first place. As such, aircraft remains can be spread over a wide area with no clear site or nucleus

Area 395/1 is a well dredged licence which has been in use since the late-1990s and it has not previously yielded aircraft remains. In collaboration with Lafarge Tarmac, Wessex Archaeology has reviewed the available geophysical data and previous reports relating to the licence and no targets or sites have been identified that may relate to this material. The last geophysical survey of the area, conducted in 2010 by Emu Ltd. highlighted only one target of potentially high archaeological interest:

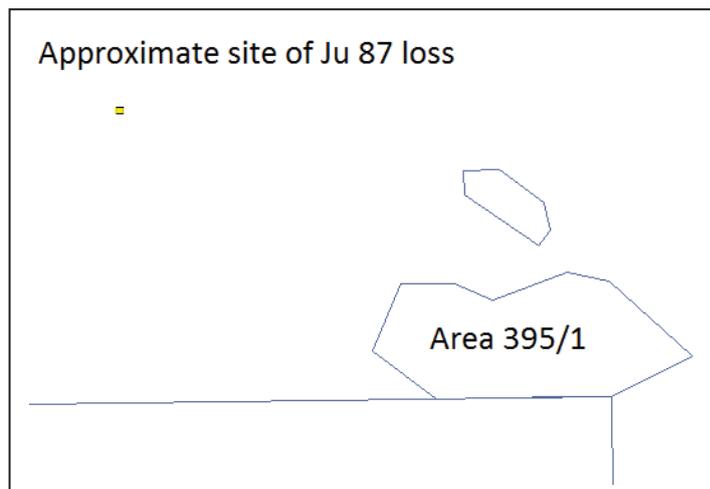
Within the ADZ, out of 223 contacts only 1 contact of interest had a high anthropogenic rating and may be a potential hazard to dredging activities. Target G1652_SSS_0219 was located in the west of the ADZ, and described as scattered possible debris. The contact was also seen in the swath bathymetry dataset in the west of the ADZ, with a length of approximately 50 m, and a width of around 28 m, standing between 0.2 m and 0.7 m high above the surrounding seabed. (EMU Ltd. Report 2010)

This potential site or feature of the seabed is approximately 600m west of the lanes dredged on the days that the finds pictured above were found so it is not currently thought to be linked to this material. Where important archaeological remains have been dredged across more than one separate cargo in the past, Wessex Archaeology have worked with the company concerned to implement an archaeological exclusion zone in the area where the relevant trackplots overlap. This may not be practicable in this instance as there is little overlap between the trackplots currently available, suggesting again that this is a highly dispersed site.



Trackplots for Tarmac_0463 and Lafatarm_0474

Wessex Archaeology conducted a desk-based scoping study of all recorded aircraft crash sites at sea after the reporting of significant aircraft remains from the east coast in the 2006-2007 reporting year. The scoping study – Aircraft Crash Sites at Sea (available online) – was completed in 2008. Study of data collected for this project reveals no recorded German crash sites in the vicinity of Area 395/1. This is not unusual as in the context of warfare, tracking, logging and recording aircraft losses with any accuracy was extremely difficult. Without modern GPS technology most recorded losses offshore were positioned by eye witness accounts and radio call signs - many are believed to be inaccurate and the loss positions of many aircraft were not recorded at all. The closest loss to the licence area is, interestingly, a Ju 87 lost on 8th August 1940 during the Battle of Britain with the loss of the lives of the two pilots named as Uffz Walz and Gefr Shutz (source: Historic Environment Records for the Isle of Wight). However, the approximate loss site for this plane is some 5km from the lanes dredged when these finds were encountered.



At this stage WA are not advising an exclusion zone as the remains are believed to be dispersed across the licence area and as such there is no clear site to protect by exclusion. We do urge caution though – partly as historic aircraft hold archaeological significance and have the potential to be war graves, but also as aircraft were heavily armed and there is a high potential for the recovery of unexploded ordnance with these remains. In all situations where ordnance is recovered, the health and safety of industry staff takes precedence and company policy with regards the safe disposal of munitions should be completed prior to the reporting of ordnance through the archaeological Protocol.

Any further aircraft material from the area should be reported through the Protocol as a matter of high importance as future finds may identify a concentrated site which may require protection.

For more information on the reporting and treatment of aircraft remains amongst aggregate, see 'Annex to the Protocol: Guidance on the use of the Protocol for reporting finds of archaeological interest in relation to aircraft crash sites at sea.' This is available on Wessex Archaeology's website (<http://www.wessexarch.co.uk/projects/marine/bmapa/docs.html>).

Information about this discovery has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate
- The Receiver of Wreck
- The Ministry of Defence
- The National Record for the Historic Environment
- The Historic Environment Record for Isle of Wight
- The Local Government Archaeology Officer for Isle of Wight
- The Finds Liaison Officer (Portable Antiquities Scheme) Hampshire



Tarmac_0466: Cannonball and Knife

These two finds were discovered by N. C. Sait at Tarmac's Burnley Wharf. They were amongst cargo from area 127 which lies to the west of the Isle of Wight, in the South Coast region.

These two finds, which are not thought to be linked, were found amongst the same cargo dredged from the South Coast region.

Images of the knife were shown to Alan Harrison from the Stainless Steel Advisory Service operated by the British Stainless Steel Association. This example is of a low-cost construction made, Alan suspects, from ferritic grade steel. This can be confirmed with a magnet as ferritic grade steel is magnetic.



Tarmac 0466: Cannonball

The handle bears the initials GWF US. At present the company GWF US has not been positively identified but it may have originated from American shipping company, the Great White Fleet. They were emailed for comment but as yet Wessex Archaeology has not received confirmation from them. It is likely that a large shipping company such as the Great White Fleet would use a cheap metal for cutlery onboard their commercial vessels and this knife may have been lost overboard. *Great White Fleet* was also the popular nickname of a US naval fleet that circumnavigated the globe in the early 20th century but (as it was a nickname) its initials were not likely to have been immortalised on cutlery.

The Cannonball has suffered severe damage either during or after its time in the water and this makes interpretation difficult. Cannonballs changed little in their construction over the hundreds of years they were in use and their main diagnostic differences lie in their weight and diameter. As this is not a complete example a positive identification cannot be made. Cannonballs entered the water either after firing, during conflict or training, due to loss with a vessel or due to deliberate discard – for example to lighten the load of a struggling vessel or to sink an object to the seafloor. They are common finds in the South Coast region which has played host to numerous offshore battles during Britain's long maritime history, the most famous of which is probably the Spanish Armada which sailed east along the English Channel in 1588.

Area 127 has yielded a variety of interesting, though seemingly unconnected, finds recently and Lafarge Tarmac staff are praised for their close attention to cargoes and clear reporting.

Information about this discovery has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate
- The Receiver of Wreck
- The National Record for the Historic Environment
- The Historic Environment Record for Isle of Wight
- The Local Government Archaeology Officer for Isle of Wight
- The Finds Liaison Officer (Portable Antiquities Scheme) Hampshire



Tarmac_0467: Potentially fossilised wood

This find was discovered by N. C. Sait at Lafarge Tarmac's Burnley wharf. It was dredged in June 2013 from area 395/1 which lies to the east of the Isle of Wight.

This find was described by wharf staff as possibly being fossilised wood. Based on images alone, this is an interpretation with which Wessex Archaeology would concur.

The find measures approximately 16cm by 8cm and displays a rough curving shape. A lack of uniformity or regularity to the find suggests that it has not been shaped or worked by man in any way and as such it is unlikely to represent a find with any archaeological significance.

Wessex Archaeology contacted a range of specialists to try and ascertain whether the find was of any palaeo-ecological interest but as yet a firm identification has not been reached. Images were uploaded onto the Natural History Museum's Nature Plus forum for discussing fossils and rocks. Two responses were received though neither poster could conclusively identify the find based on images. Both highlighted the darker outer surface of the possible ecofact – which could represent bark if the specimen is found to be wood.

One poster suggested sending or taking the find to the Natural History Museum's Angela Marmont Centre for UK Biodiversity which holds identification sessions. More information can be found here: <http://www.nhm.ac.uk/visit-us/darwin-centre-visitors/marmont-centre/>

As the find is not thought to be archaeological and is believed to be wholly natural in origin it does not need to be added to the National Record for the Historic Environment and can be discharged through the Protocol.

Information about this discovery has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate



Tarmac_0468: Paving Slab

This find was discovered at Tarmac's Bedhampton Wharf by Gary Cooper. It was dredged by the *Arco Dee* from area 127 in the South Coast region. The discovery was made in June 2013. Area 127 lies 11km to the West of the Isle of Wight, and approximately 19km south-east of Bournemouth on the South coast.

Gary Cooper and the staff of Bedhampton wharf correctly identified this find as a paving slab which was dredged from the South Coast region. Images of the find were shown to Bob Davis – one of Wessex Archaeology's experts on historic buildings.

Bob agrees that the find looks like a paving slab, highlighting the differing surfaces of the find. One side is striated with tool marks from when the stone, which is limestone, was sawn into sections for use. The other side, the smooth side, would have been the upward facing side forming a street or path to bear the weight of potentially thousands of footsteps.



The smooth side of
Tarmac_0468

The tool marks, Bob highlights, continue across the face of the slab from one side to the other without interruption. This likely reveals them to be saw marks as opposed to chisel marks which Bob tells us look markedly different. Modern limestone slab production is undertaken by machine driven saws, though in the past hand tools would have been the norm. It is not possible to tell from the images whether this find has been machine or hand tooled.

The other side, the smooth side, is interesting as, Bob tell us, 'despite being in the sea it appears to show the tell-tale signs of dark patina associated with dirt from being walked on and oxidation.' This suggests that the find was in use as part of a pathway before its eventual deposition at sea.

The stone looks like Purbeck Limestone so it hasn't travelled far from its quarry to the licence area, however how it came to be at sea is a mystery at present. Area 127 has yielded a range of finds more likely to have originated in a domestic and terrestrial context than a marine one in recent years and further finds from the area may enhance our understanding of how these finds became lost at sea.

Information about this discovery has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate
- The Receiver of Wreck
- The National Record for the Historic Environment
- The Historic Environment Record for Isle of Wight
- The Local Government Archaeology Officer for Isle of Wight
- The Finds Liaison Officer (Portable Antiquities Scheme) Hampshire

CEMEX_0470: Machine Components

These finds were recovered by Adam Johnson at CEMEX's Northfleet wharf. They were dredged in June 2013 from area 460 which lies in the East English Channel.



This small collection of metal objects was found on the magnet at Northfleet wharf. The finds have clearly spent some time in the water and many show signs of oxidation or other water damage due to their time submerged. It is possible that these eight broken pieces of metal may have come from a single bigger item. All of the pieces show damage, which may have occurred before or during their entry into the water, or through post-depositional recovery by the dredger.

Identifying them conclusively has not been possible. Marine Engineer Anthony Mansfield studied images of the finds and has suggested that rather than having come from a vessel, they may be parts of machinery. One of the finds he believes is a self-regulatory bearing of the type used in machinery, as opposed to on vessels.

Only three other finds have been reported from area 460 – two cannonballs and an artillery shell also reported within the 2012-2013 reporting year – none of which are thought to be linked to these finds.

Whilst firm identification of these finds has not been possible, they are not currently thought to represent a further site of archaeological significance and as such can be discharged through the Protocol. Details of the finds will be held on Protocol databases against which future finds from the area are cross-referenced in case further discoveries from area 460 place these finds within a context in which we can understand them better. They will also be added to national databases which are again cross-referenced if future finds from the area are discovered, or if further work takes place in the region.

Information about this discovery has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate
- The Receiver of Wreck
- The National Monuments Record
- The Historic Environment Record for Sussex
- The Local Government Archaeology Officer for Sussex
- The Finds Liaison Officer (Portable Antiquities Scheme) for Kent



CEMEX_0472: Cannonballs

These were found by Adam Johnson at Norhfleet wharf. They were dredged by the *Sand Fulmar* from licence area 460 which lies in the East English Channel dredging region, south-east of Eastbourne, Sussex.

These two cannonballs have clearly sustained some damage – potentially after firing and before entering the water. The uniform level of corrosion seen on the finds suggests that this damage did not occur during dredging and is probably historical. Cannonballs are solid lumps of metal (exceptions where the balls are hollow and filled with explosives are more accurately termed shells). To suffer the damage seen on them, the cannonballs reported as CEMEX_0472 must have impacted heavily, potentially with a target.

Cannonballs were commonly in use from the medieval period, first being made of stone and by the 17th century of iron. They fell out of use in the 19th century following innovations in artillery and ammunition. These examples are likely to date from the post-medieval period (1500 – 1800AD).



CEMEX_0472

Dating them more accurately is not possible due to the level of damage. As cannonballs vary little in their construction and form, interpretation can only be assigned based on size and weight. The loss of part of each of these makes measurements inaccurate and so further dating is not possible. Allowing for the loss of some of their structure, these are potentially of the right size to have been fired by a saker or demi-culverin gun, though this cannot be confirmed.

Interestingly, the two were found together amongst one cargo. This may suggest that either the surface of the sea above the area from which they were dredged has played host to a battle or violent armed dispute between ships, or that there is a post-medieval wreck lying in the licence area. Every licence is investigated for archaeology (through record searches and geophysical interpretation amongst other methods) and any identified wrecks of this age would have been protected by an exclusion zone. Future finds from area 460 may provide further insight into the history of this licence.

Information about this discovery has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate
- The Receiver of Wreck
- The National Record for the Historic Environment
- The Historic Environment Record for Sussex
- The Local Government Archaeology Officer for Sussex
- The Finds Liaison Officer (Portable Antiquities Scheme) for Kent



Lafatarm_0475: Fork

This find was discovered by N. C. Sait at Lafarge Tarmac's Southampton Wharf. It was dredged with material from area 395/1, which lies 12km east of the Isle of Wight in the South Coast region.

This fork bears the name 'Thomas Wilkinson & Sons Birmingham'. Thomas Wilkinson, a veteran of the Napoleonic wars, trained as a silversmith in Sheffield before establishing his company at 15 Great Hampton Street, Birmingham in 1832.

His sons – George and William Henry - joined him in business in 1846 though sources suggest that the '& Sons' may not have been officially adopted into the company name until Thomas Wilkinson's death in 1874. The company was sold to A. L. Davenport in 1932. This dates the fork to the latter half of the 19th century or the early 20th century.



Detail on Lafatarm_0475

There are several possible scenarios accounting for its appearance amongst aggregate from 395/1 – it may have been lost from a ship, lost with a ship or it may have been deposited with blitz rubble well evidenced in the area.

A review of our records reveal that a fork dating to a similar period (late 19th century) was dredged from the area in the 2009-2010 reporting year (Tarmac_0326) alongside a clinch bolt (Tarmac_0327). A concentration of potentially linked finds from a similar period may indicate the presence of previously undiscovered maritime wreck in the dredging area and Wessex Archaeology will continue to work with Lafarge Tarmac to ensure that further finds are investigated and considered in context.

Information about this discovery has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate
- The Receiver of Wreck
- The National Record for the Historic Environment
- The Historic Environment Record for Isle of Wight
- The Local Government Archaeology Officer for Isle of Wight
- The Finds Liaison Officer (Portable Antiquities Scheme) Hampshire



Lafatarm_0477: Anchor fluke

This find was discovered by Gary Phillips at Ridham wharf. It was dredged from area 254 in June 2013. Area 254 lies in the east coast region, approximately 10km east of Great Yarmouth in Norfolk.

Images of Lafatarm_0477 show a resemblance to an anchor fluke, similar to one seen on a partial anchor reported in the 2009-2010 reporting year from the same area. This example measures around 19cm long and is made of wrought iron, giving the characteristic 'wood grain effect' seen on the find. Because of the partial nature of the object it is not possible to determine exactly what type of anchor it may be from or its age, though it is of the correct size to have come from a small stocked anchor dating from the post-medieval or modern periods.

There are a number of reasons why an anchor may end up on the seabed, such as being fouled, as part of a shipwreck event or lost due to broken chains or ropes. Anchors are important as they can tell us a great deal about the history of an area, where an anchorage was located, areas of danger to ships or the location of shipwrecks.



Tarmac_0316: reported in the 2009-2010 reporting year

At present, this fluke appears to be an isolated find and does not necessarily indicate a wreck site on the seabed.

However, as other finds have been discovered in this licence area that are indicative of a shipwreck (Tarmac_0292 & 0293), and as there is a Temporary Exclusion Zone in place, staff should remain vigilant when working with material from licence area 254.

Given the location of its discovery this find is likely to have come from a vessel but whether it was part of a vessel, used on a vessel or was simply discarded from one cannot be determined at present.

Information about this discovery has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate
- The Receiver of Wreck
- The National Record for the Historic Environment
- The Historic Environment Record for Norfolk
- The Local Government Archaeology Officer for Norfolk
- The Finds Liaison Officer (Portable Antiquities Scheme) for Norfolk



Lafatarm_0478: Fossilised Bone

This find was discovered by Gary Phillips at Lafarge Tarmac's Ridham Wharf. It was dredged with material from area 254, which lies in the East Coast region, 10km east of Great Yarmouth, Norfolk.

This fragment of fossilised or partially fossilised bone was dredged by the *City of Westminster* with aggregate from the east coast region. Gary Phillips discovered it at Ridham wharf. Recognising a small piece like this one amongst a dredged load takes keen eyes and shows Ridham's dedication to the Protocol.

Bone falls into two main categories – long bone and flat bone. Long bones live up to their name forming the limbs of a creature, whilst flat bone makes up, for example, the skull and pelvis. This example appears to be a fragment of long bone.



Detail of cortical surface Lafatarm_0478

Despite the sample being small (it measures 6cm in length) it appears to be a broken fragment of the shaft of a much larger bone. The general scale of it, combined with the level of fossilisation apparent, suggests that it is likely to have come from prehistoric megafauna, such as a mammoth.

Identifying bone from a fragment of the shaft alone is incredibly difficult – especially in fossil species and from photographs. Diagnostic features are more prominent on the articular surfaces, the ends of the bone, and the absence of these makes identification of Lafatarm_0478 difficult.

At present it is only possible to identify this as a fossilised fragment of long bone. The fossilisation suggests that this bone is incredibly old, possibly tens of thousands of years old, and likely dates to the Palaeolithic, or Old Stone Age. Bone of this age is common from the east coast. During the last ice age, which ended some 12,000 years before present, parts of the North Sea were dry for extended periods of time and people and animals could live in the area that is now submerged. Finds of this nature help us to understand the movement of animals and provide an insight into this enigmatic and distant time.

Information about this discovery has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate
- The National Record for the Historic Environment
- The Historic Environment Record for Norfolk
- The Local Government Archaeology Officer for Norfolk
- The Finds Liaison Officer (Portable Antiquities Scheme) Kent



Lafatarm_0479: Pin

This find was discovered by Gary Phillips at Lafarge Tarmac's Ridham Wharf. It was dredged with material from Area 254, which lies approximately 12km east of Great Yarmouth in the East Coast region.

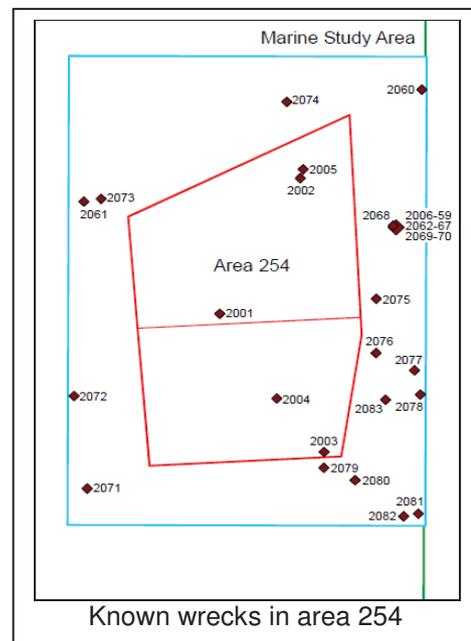
This find was correctly identified by wharf staff as a pin. It appears to be made from corrosion resistant metal, such as bronze or copper, and is likely to have originated on a vessel. This type of pin may have been used in the construction of the vessel itself, as part of the fittings or may have been part of an item used on board. Wessex Archaeology's Toby Gane believes that it is a ship's fastening given the size of the pin and its construction from metal equipped to resist corrosion in the marine context.

This find may have been lost from a vessel or may have been lost with a vessel. A study of Area 254 prior to licensing conducted by Wessex Archaeology in 2002 identified 5 shipwrecks (either recorded in what was previously known as the National Monuments Record and UKHO records or detected on geophysical surveys). These known wrecks would likely impact upon and potentially damage dredging gear, as well as contaminating the load, and so exclusion zones are commonly placed around them to protect the archaeology and the dredging company. This pin may have migrated from one of these wreck sites, it may have come from a previously undiscovered wreck site or it may have been lost from a vessel rather than from a shipwreck.

Several finds that could have come from a vessel have been reported through the Protocol from Area 254 including a collection of silverware (Tarmac_0292 and Tarmac_0293), a wooden pulley block (UMA_0147), part of a wrought iron anchor (Tarmac_0316) and a wrought iron bracket (Tarmac_0324). At present these finds are not being linked and are not thought to represent a site of further archaeological significance, though further material from the area may change this hypothesis.

Information about this discovery has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate
- The Receiver of Wreck
- The National Record for the Historic Environment
- The Historic Environment Record for Norfolk
- The Local Government Archaeology Officer for Norfolk
- The Finds Liaison Officer (Portable Antiquities Scheme) Norfolk





Lafatarm_0480: Spoon

This find was discovered by Gary Phillips at Lafarge Tarmac's Ridham Wharf. It was dredged with material from area 254, which lies around 12km east of Great Yarmouth, in the east coast region.

This spoon originated in area 254 which lies in the East Coast region. The spoon measures approximately 17cm long with a bowl measuring 5cm in length. This makes it comparable with a modern day teaspoon.

Images of the find were shown to Lorraine Mephram, finds specialist at Wessex Archaeology. With no hallmarks apparent in the images it has been hard to conclusively identify this find. However, Lorraine highlighted comparable examples from the twentieth century and suggested that this spoon was contemporary with them – potentially from the earlier half of the century.

The absence of hallmarks suggests that this find is not silver. It is possibly made from pewter – a popular alloy of tin used for all manner of cutlery, flatware and ornamental items in the post-medieval and modern periods.

Area 254 yielded a collection of hallmarked silverware in 2010 bearing the heraldic arms of John Dalrymple, 6th Earl of Stair (1749 – 1821). This spoon is not currently thought to be linked to that assemblage given the disparity in dates and the marked difference in styling between the spoons.

It is not known how this spoon came to rest on the seabed but given the absence of related contemporary material it is suspected that this was a chance loss from a vessel. Lafatarm_0480 was dredged and reported with Lafatarm_0477, Lafatarm_0478 and Lafatarm_0479. The four finds are not currently thought to be linked.

Information about this discovery has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate
- The Receiver of Wreck
- The National Record for the Historic Environment
- The Historic Environment Record for Norfolk
- The Local Government Archaeology Officer for Norfolk
- The Finds Liaison Officer (Portable Antiquities Scheme) Kent



Detail on Lafatarm_0480



CEMEX_0483: Mixed Assemblage

These finds were discovered by Neil Coombs on the Sand Falcon. They were dredged with material from area 319, which lies 8km east of Lowestoft, Suffolk.

This is an interesting and varied assemblage of archaeological material dredged from the east coast. The finds in the image above are (clockwise from top) a piece of long bone, a fragment of metal (probably iron), part of a bird (?) bone, a natural stone, a stone with unusual concretion and a cork fishing net float.

The finds on the right here are described as fossilised teeth. The colour of the bone, dark grey/black, is characteristic of fossilised bone and some of the finds suggest teeth by their shape. It is very difficult to identify these further from images alone however, the level of fossilisation may suggest that these predate the arrival of hominids (fossil humans) in Britain and as such they may be of palaeontological interest, rather than archaeological interest, especially if they are identified as sharks' teeth. Wessex Archaeology will endeavour to secure the finds when possible and issue an updated report if further identification is possible.



CEMEX_0483: Fossilised bones

The bone seen at the top of the image above is part of the cortical or outer surface of a long bone. Identifying which animal it came from is not possible without the epiphyses, or ends, of the bone. The metal find in the top right appears to be iron. Again, without any distinctive features identification is limited, but it may have come from a vessel – either as part of the ship or as part of a tool or implement used on it. The ridges seen on the item suggest that it was wrought, as opposed to cast. On the right above is a fragment of bone with a hole through the centre of its shaft. Again identification is hindered by the small size of the find and the loss of part of the bone but it may be from a bird. Bird bones are normally hollow in order to make them light enough to take flight. The two stones are interesting. One is natural, despite its pointed shape and the second has what appears to be a metallic concretion on its surface. This is unusual – it may be naturally occurring or it may be that this stone has come into contact with smelt during the metalworking process. Finally, the largest find reported as CEMEX_0483 is a cork fishing net float. The slit through the side of the find is likely to be the break that released it from its rope and set it adrift in the sea.

This is an interesting and varied assemblage of finds from a variety of periods. They are not currently thought to be connected to each other or to a site of further significance such as a shipwreck, however future finds from the area may alter this interpretation.

Information about this discovery has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate
- The Receiver of Wreck
- The National Record for the Historic Environment
- The Historic Environment Record for Norfolk
- The Local Government Archaeology Officer for Norfolk
- The Finds Liaison Officer (Portable Antiquities Scheme) Norfolk



Hanson_0487: Aircraft Remains

This find was discovered by Neal Williams on the Arco Dee. It was dredged with material from area 395/1, which lies 12km east of the Isle of Wight in the South Coast region, and was found in the draghead of the dredger.

Hanson_0487 is the fourth report of aircraft material from area 395/1, all made in summer 2013. The other reports received through the Protocol detailed material identified as part of a Jumo 211 engine (Tarmac_0463 and Lafatarm_0474) and material including the torque link from the undercarriage of a Junkers 87 (Lafatarm_0486). Initially the three previous finds were thought to be linked as Ju 87's (AKA Stuka Dive Bombers) were equipped with Jumo engines.

Hanson_0487 casts doubt on this interpretation however as whilst it is part of a Jumo engine, it is a component of a version of the engine not fitted to the Ju 87s flown over Britain.



The find on board the Arco Dee

Ewen Cameron, Curator at the Royal Air Force Museum in Stafford has been studying images of all the aircraft finds from this area and he believes that Hanson_0487 is a supercharger for a Jumo 211 J engine – identified by the serial number on the find. This type of engine was only fitted to later models of the Stuka, which were not flown over this country. If this piece is indeed from a Jumo 211 J, Ewen tells us, it is far more likely to have come from a Junkers 88. This is noteworthy as it potentially means that there are the remains of more than one aircraft in the licence area. This is not uncommon and Wessex Archaeology has received multiple reports from other licences detailing finds from more than one aircraft.

All of the aircraft material from area 395/1 is significant– aircraft remains of this era are likely to represent war graves and should not knowingly be disturbed. Extensive studies are conducted prior to the licensing of dredging areas to identify and protect archaeological sites and remains in order that they can be avoided during work offshore. Sites such as the one that has yielded these finds are hard to identify though. Aircraft, being light in nature in order to get airborne, often fragment when downed in water – either due to the force of impact with the surface of the water or the seabed, or due to whatever cataclysmic damage has caused them to ditch in the first place. As such, aircraft remains can be spread over a wide area with no clear site or nucleus

Area 395/1 is a well dredged licence which has been in use since the late-1990s and it has not previously yielded aircraft remains. Wessex Archaeology has reviewed the available geophysical data and previous reports relating to the licence and no targets or sites have been identified that may relate to this material.

Wessex Archaeology conducted a desk-based scoping study of all recorded aircraft crash sites at sea after the reporting of significant aircraft remains from the east coast in the 2006-2007 reporting year. The scoping study – Aircraft Crash Sites at Sea (available online) – was completed in 2008. Study of data collected for this project reveals no recorded German crash sites in the vicinity of Area 395/1. This is not unusual as in the context of warfare, tracking, logging and recording aircraft losses with any accuracy was extremely difficult. Without modern GPS technology most recorded losses offshore were positioned by eye witness accounts and radio call signs - many are believed to be inaccurate and the loss positions of many aircraft were not recorded at all. The closest loss to the licence area is, interestingly, a Ju 87 lost on 8th August 1940 during the Battle of Britain with the loss of the lives of the two pilots named as Uffz Walz and Gefr Shutz (source: Historic Environment Records for the Isle of Wight). However, the approximate loss site for this plane is some 5km from the lanes dredged when these finds were encountered.

At this stage WA are not advising an exclusion zone as the remains are believed to be dispersed across the licence area and as such there is no clear site to protect by exclusion. We do urge caution though – partly as historic aircraft hold archaeological significance and have the potential to be war graves, but also as aircraft were heavily armed and there is a high potential for the recovery of unexploded ordnance with these remains. In all situations where ordnance is recovered, the health and safety of industry staff takes precedence and company policy with regards the safe disposal of munitions should be completed prior to the reporting of ordnance through the archaeological Protocol.

Any further aircraft material from the area should be reported through the Protocol as a matter of high importance as future finds may identify a concentrated site which may require protection.

For more information on the reporting and treatment of aircraft remains amongst aggregate, see ‘Annex to the Protocol: Guidance on the use of the Protocol for reporting finds of archaeological interest in relation to aircraft crash sites at sea.’ This is available on Wessex Archaeology’s website (<http://www.wessexarch.co.uk/projects/marine/bmapa/docs.html>).



Other aircraft finds from area 395/1
From L to R: Tarmac_0463, Lafatarm_0474 and Lafatarm_0486

Information about this discovery has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate
- The Ministry of Defence
- The Receiver of Wreck
- The National Record for the Historic Environment
- The Historic Environment Record for Isle of Wight
- The Local Government Archaeology Officer for Isle of Wight
- The Finds Liaison Officer (Portable Antiquities Scheme) Hampshire



Hanson_0488: Sinker

This find was discovered by G. Price who works on board the Arco Arun. It was found at Vlissingen (Flushing) amongst material from area 240 which is in the East Coast Region, approximately 13km south-east of Great Yarmouth.

This small find measures approximately 55mm across and has a loop which would have allowed it to be strung or hung. It is made of metal which the finders have described as potentially being lead and it was probably made in a mould. The loop, seen on the left in the image above, may have stood proud of the item and has been flattened at some point in its life.

Images of this find were shown to Wessex Archaeology's in-house experts. Sue Nelson, who works with our finds team, identified it as a sinker. Sinkers are used to weight fishing lines to the riverbed or seafloor and to weight down bait. Sinkers are made in a huge range of styles and shapes, ranging from circular weights like this one, to pyramids, squares and lozenge shapes. They also come in a huge range of sizes. Smaller weights may be used in shallow waters whilst heavier weights are needed to sink lines when deep sea fishing.

Lead was a popular material for sinkers given its relative ease of moulding, resistance to corrosion and dense weight. However, concerns have been raised about the environmental impact of using lead as it can cause harm to wildlife. Since 1986, lead weights of a certain size have been illegal for use in fishing as they are harmful to mute swans when ingested.

Assigning a date to this type of sinker is difficult. Weights have been used in fishing since prehistoric times and lead has been mined and used for well over 6,000 years. This example, with its fairly symmetrical shape suggests a good quality of mould which perhaps provides a twentieth century date for this find, possibly from the earlier twentieth century given the level of corrosion on the sinker.

This item was probably lost by a hapless fisherman angling in Area 240 hoping to catch one of the many species of fish that inhabit the North Sea. Whilst Area 240 has yielded material from ships previously, this find is not thought to be linked to them and is not thought to be indicative of a further site of archaeological significance, such as a shipwreck.

Information about this discovery has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate
- The Receiver of Wreck
- The National Record for the Historic Environment
- The Historic Environment Record for Norfolk
- The Local Government Archaeology Officer for Norfolk
- The Finds Liaison Officer (Portable Antiquities Scheme) Norfolk



Hanson_0489: Sounding Lead

This find was discovered by G. Price on the *Arco Arun* in August 2013. It was dredged with material from Area 473, which lies 30km south-east of Eastbourne in the East English Channel Region.

This small lead weight may be a line sinker or net weight, but more likely it is a sounding lead, used to gauge the depth of water below a vessel. The hole seen in the top of this item allowed it to be strung before being thrown to the seabed ahead of a vessel.

Sounding leads are one of the oldest navigational instruments and have been used for over 2000 years. Innovation meant that by around 1600 AD the line attached to the lead was marked by tying a piece of material every 6 feet to measure depth in fathoms.

This is a relatively small example. Hand lead lines of about 25 fathoms were used with a lead weighing around 7 pounds (3.18kg) to measure coastal water depths of up to around 20 fathoms (36.5m). Larger weights weighing 14 pounds (6.35kg) were used with a deep sea lead line marked at intervals of 5 fathoms to measure greater depths.

The underside of some sounding leads have a recessed dimple which would have been filled with tallow, a waxy substance that on contact with the seafloor would pick up sediment. Crew on board would then know whether they were sailing over mud, sand or gravel which assisted navigation and the charting of the seafloor.

It is likely that this lead is an isolated find lost overboard whilst in use. However there is the potential for it to have come from a shipwreck and further loads should be monitored as per the Protocol in case other finds are brought to the surface.

Information about this discovery has been forwarded to:

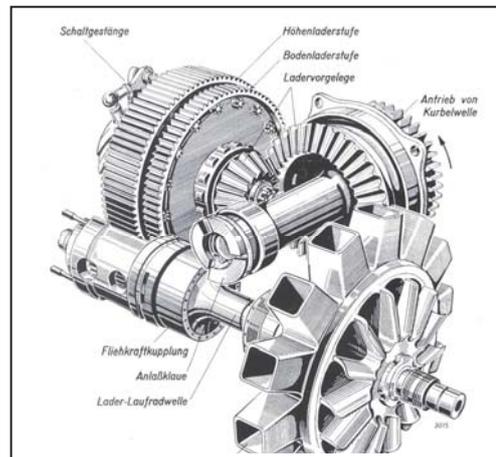
- English Heritage
- BMAPA
- The Crown Estate
- The Receiver of Wreck
- The National Record for the Historic Environment
- The Historic Environment Record for Sussex
- The Local Government Archaeology Officer for Sussex
- The Finds Liaison Officer (Portable Antiquities Scheme) Sussex

LTM_0491 and LTM_0492: Aircraft remains

LTM_0491 was found by Steve Smith and Dean Lutman at Bedhampton Wharf and LTM_0492 was found by N. C. Sait at Burnley Wharf. Both were dredged from Area 395/1 in the south coast region.



Images of these finds were shown to Ewen Cameron at the Royal Air Force Museum. He confirmed what Lafarge Tarmac staff suspected, that these finds are connected with remains previously dredged from Area 395/1. The licence area contains wreckage from a downed aircraft – believed on current evidence to be a German WWII Stuka dive bomber. The finds reported here are components of a Jumo engine. Protocol finds suggest that there may be more than one aircraft in the area as a find reported previously may be from a version of the Jumo not installed into the Stukas that were flown over Britain.



The pieces reported as LTM_0491 (shown on the left above) are likely to be part of the hand starting mechanism of a Jumo engine (pictured). Specifically, the rusty clogged find appears to be a good match for the part labelled 'Antrieb von Kurbelwelle' (drive from crankshaft) shown on the right of the diagram. The find LTM_0492 is also thought to be from an aircraft though initial inspection has not yet been able to link it to a specific part.

At present the 'site' is believed to be highly dispersed. The remains certainly suggest the presence of a downed aircraft but whether the bulk of the wreckage lies within the licence or outside of it is not yet known. Wessex Archaeology will continue to work with Lafarge Tarmac to ensure that dredging continues with respect to our submerged cultural heritage.

Information about these discoveries has been forwarded to:

- English Heritage
- BMAPA
- Ministry of Defence
- The Crown Estate
- The Receiver of Wreck
- The National Record for the Historic Environment
- The Historic Environment Record for Isle of Wight
- The Local Government Archaeology Officer for Isle of Wight
- The Finds Liaison Officer (Portable Antiquities Scheme) for Hampshire

Hanson_0493: Various finds made at Flushing, Holland



Vlissingen wharf have an agreement with local fossil specialists. Under the supervision of the Natural History Museum, Rotterdam, interested collectors study material that has been delivered to Vlissingen wharf from area 240 (which lies off of Norfolk) and retain the remains of fossil mammals from sediments dating from the Pliocene, Pleistocene and Holocene. Curation of these remains is organised by the group and overseen by the museum. The finds above were retrieved between October 2012 and May 2013 and detailed in a report by Dick Mol.

These finds relate to several Pleistocene and Pliocene species including mammoth, rhinoceros, elephant and deer. Of the mammoth remains, 2 bones have been interpreted as having come from *Mammuthus meridionalis*, the southern mammoth. The more commonly known *Mammuthus primigenius*, the woolly mammoth, is also represented through the presence of teeth and bone in this assemblage. Some of the pieces are believed to be scientifically important.

In 2008 88 handaxes were dredged from this licence area and found at Vlissingen wharf, prompting the ALSF funded WA project, *Seabed Prehistory: Site Evaluation Techniques (Area 240)*. This used a variety of geotechnical and geophysical techniques in order to better understand the geology and archaeology of the licence area. The results of the project are available online. These finds add to our understanding of the licence and provide another layer of information through which we can explore the distant past of what is now the North Sea.

Appended to this report is a catalogue of the finds above, adapted from that kept by the finders.

Information about these discoveries has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate
- The National Record for the Historic Environment
- The Historic Environment Record for Norfolk
- The Local Government Archaeology Officer for Norfolk

Brief list of finds retrieved from Vlissingen wharf between October 2012 and May 2013: Adapted from report by Dick Mol.

Object description	Epoch
7 whale vertebra	Pliocene
<i>Mammuthus meridionalis</i> metacarpal	Early Pleistocene
<i>Mammuthus meridionalis</i> metatarsal	Early Pleistocene
<i>Rhinocerotidae</i> distal end of radius	Unknown
<i>Elephas antiquus</i> molar	Middle Pleistocene
<i>Eucladoceros</i> skull and antler fragment	Early Pleistocene
<i>Eucladoceros</i> fragment of shed antler	Early Pleistocene
<i>Mammuthus primigenius</i> 14 molars (poor preservation)	Late Pleistocene
<i>Mammuthus primigenius</i> vertebra	Late Pleistocene
<i>Mammuthus primigenius</i> pisiform	Late Pleistocene
<i>Bison priscus</i> 2 vertebra	Late Pleistocene



Metacarpal IV of an immature individual of the species *Mammuthus meridionalis* (Image from report submitted by finders)

Metatarsal III of an immature individual of the species *Mammuthus meridionalis*. (Image from report submitted by finders)



LTM_0495: Cannonball

This find was discovered by the crew of Lafarge Tarmac's *City of Westminster*. It was dredged from area 430 which lies in the East coast region.

Cannonballs have been common finds from the east coast region during the eight years that the Protocol has been in operation and area 430 has yielded 11 since the Protocol's inception. The wealth of solid shot reported from this area is likely to relate to the Anglo-Dutch wars of the 17th century as during these conflicts the surface of the sea above area 430 played host to a series of battles.

The Anglo-Dutch Wars are an extremely important part of England's history. Not only are they significant as events in the history of naval warfare, but also as struggles for commerce rather than territory, they played a significant role in determining the development and control of trade routes across the sea. These great battles were based entirely at sea and as such had a profound impact in shaping the development of the English Royal Navy.

Two major battles of the Anglo-Dutch Wars are thought to have taken place in the vicinity of area 430 - The Battle of Lowestoft 1665 (the first engagement of the Second Anglo-Dutch War 1665-7) and the Battle of Sole Bay 1672 (the first engagement of the Third Anglo-Dutch War 1672-4).

This cannonball measures approximately 7 inches diameter (gauged from images) and weighs 9.3kg, the equivalent of around 20lb. This is incongruous as a cannonball of this size would normally be expected to have been fired by 42-pounder however this ball is clearly lighter than expected. The only comparable example dredged from area 430 (based on diameter - UMA_0145 reported in 2007-2008) also weighed less than could be expected for a cannonball of this size, coming in at only 36lb.

This cannonball likely reached the seabed after firing though there is the potential that it was deliberately discarded or that it was lost with a vessel during wrecking. Further finds from this area may tell us more about the post-medieval history of the east coast and the battles it hosted.

Information about this discovery has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate
- The Receiver of Wreck
- The National Record for the Historic Environment
- The Historic Environment Record for Norfolk
- The Local Government Archaeology Officer for Norfolk
- The Finds Liaison Officer (Portable Antiquities Scheme) Norfolk

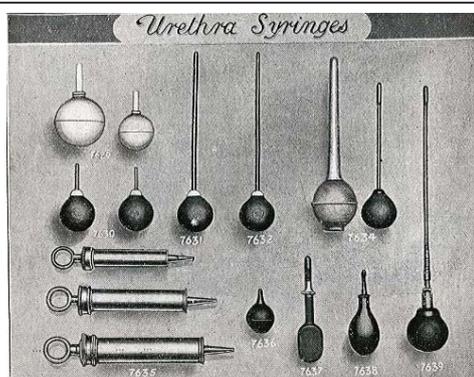


LTM_0496: Pewter syringe

This was discovered at Bedhampton Wharf by Gary Cooper. It was dredged amongst material from area 395/1 which lies in the south coast region, to the east of the Isle of Wight.

Alan Humphries, Librarian of the Thackray Medical Museum in Leeds believes that this is a urethral syringe, used to treat ailments in men by injecting substances into the urethra. He tells us that this design was manufactured from the early 1800's up until the First World War and that this example potentially dates to the late 19th century.

Urethral syringes were used to introduce substances thought to be medicinal into the body via the penis. Examples of these have been found on the *Mary Rose*, arguably the most famous shipwreck discovered in British waters, which sunk in 1554. In the Tudor period, mercury (which is now understood to be highly poisonous) was injected into sailors through the urethra in an attempt to remedy venereal diseases picked up during shore leave.



Urethral syringes in the 1905 S. Maw & Sons medical catalogue

As is common with matters of a medicinal nature, Wessex Archaeology received a second opinion. Sarah Bond representing London's Museums of Health and Medicine believes that this is a syringe for delivering enemas rectally and there is a comparable example pictured in the Wellcome Trust's online image library dating from the late 19th century. Enemas were given either to purge the body (until recently they were given to women in labour to induce defecation prior to childbirth) or to introduce a medicinal substance into the body through the anus.

It is not possible to ascertain definitively whether this item was inserted anally or through the urethra. It is a late 19th century pewter syringe and a very interesting find to have come from offshore. It may have been lost from a ship or it may be part of a spread of post-war rubble known to lie in the vicinity of area 395.

Information about this discovery has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate
- Ministry of Defence
- The Receiver of Wreck
- The National Monuments Record
- The Historic Environment Record for Isle of Wight
- The Local Government Archaeology Officer for Wight
- The Finds Liaison Officer (Portable Antiquities Scheme) for Hampshire

email: protocol@wessexarch.co.uk
<http://www.wessexarch.co.uk/projects/marine/bmapa/docs.html>



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