Forgotten Wrecks of the First World War

Lelant Quay, Hayle

Site Report

Maritime Archaeology Trust

LOTTERY FUNDED

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FORGOTTEN WRECKS
OF THE FIRST WORLD WAR

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SITE REPORT
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MAT staff involved in the recording: Jan Gillespie, Amanda Bowens.
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ii Copyright Statement
This report has been produced by the MAT with the assistance of funding provided by the Heritage Lottery Fund through their Heritage Grants Programme. Unless otherwise stated all images are copyright of the MAT. If copyright is unknown, this is indicated in the caption.
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1 Project Background

Forgotten Wrecks of the First World War was a Heritage Lottery Funded project dedicated to raising the profile of a currently under-represented aspect of the First World War. While attention is often focused on the Western Front and major naval battles like Jutland, historic remains from the war lie, largely forgotten, in and around our seas, rivers and estuaries.

With over 1,000 wartime wrecks and dozens of coastal sites along England’s south coast alone, the conflict has left a rich heritage legacy and many associated stories of bravery and sacrifice. The underwater memorials represent the vestiges of a vital, yet little known, struggle that took place on a daily basis, just off our shores. The study and promotion of these archaeological sites presents a unique opportunity to better interpret them and improve physical and virtual access.

The project focused on underwater and coastal sites from the Isle of Thanet in Kent, to beyond the Isles of Scilly, and over half way into the English Channel. The sites include merchant and naval ships, passenger, troop and hospital ships, U-boats, ports, wharfs, buildings and foreshore hulks. These sites, under water and on the foreshore, have been degrading and deteriorating due to natural and human processes for approximately 100 years and, as a result, are extremely fragile. In many cases, this project represented a final opportunity to record what remains on the seabed and foreshore before it is lost forever.

The project aimed to characterise the nature and extent of the maritime First World War archaeological resource surviving on the south coast’s seabed and around the coast. This enabled an understanding of the record of maritime activity created during the conflict and provided a window onto some of the surviving sites. While it was not be possible to visit and record every site dating to the First World War along the south coast of England, a representative sample of sites were selected for more detailed study, analysis and interpretation.

With particular regard to coastal, rather than fully submerged archaeological remains, it has been noted in wider commentaries on England’s coastal heritage (Murphy, 2014: 94) that there are relatively few surviving sites because of subsequent reuse and/or destruction during or following the Second World War. As a result, from the perspective of identifying coastal research priorities an emphasis has been placed (Murphy, 2014: 119) on the need to differentiate First World War sites from those of the Second World War. With all of this in mind, the following report addresses one of the coastal sites dating to the First World War - an estuary revetment near Lelant Quay on the Hayle Estuary (Figure 1).

2 Site Background and Context: Lelant Quay, Hayle

At Lelant on the River Hayle, St Ives, Cornwall, several sections of revetment, accessible via the beach at low water, comprise sections of iron plate held in place by wooden posts. The iron plating appears to be sections of ship hull, recycled to create an estuary revetment. *Lost Ships of the West Country*, Langley and Small (1988) suggests that these sections are from a First World War Torpedo Boat Destroyer (TBD).

The area falls within a World Heritage Site and a Site of Special Scientific Interest and in 2011, as a condition of planning permission to carry out repairs at the site, Archaeological Consulting Limited were contracted by the Hayle Harbour Master to undertake historical research and archaeological recording at the site (Goacher & Mossop 2011). The subsequent repairs undertaken at the site resulted in the removal of some of the archaeological features noted in the 2011 report.
2.1 Geographical Context

On the west side of the River Hayle, east of St Uny’s Church, Lelant is Lelant Quay, known locally as Dynamite Quay and accessed by Wharf Road. Steps at the northern end of Dynamite Quay provide access down to the beach at low water. From here, the riverside wall extending north-west from the end of Dynamite Quay can be observed. The wall has a NNW-SSE orientation with the SSE end being at 50.188995, -5.433321 (SW5502537751) and the NNW end being at 50.189845, -5.434015 (SWS498037848).

Figure 1: Location of Lelant Quay, Hayle, Cornwall

Figure 2: Aerial photography (2013) showing the site

Image (SW5438_20130825) courtesy of Channel Coast Observatory (www.channelcoast.org)
2.2 Site History
The present granite Lelant Quay (commonly referred to as Dynamite Quay), to the south east of the area under study, was built in the 1870s along with the nearby railway (Archaeological Consulting Ltd 2011:9).

The site was purchased by Thomas W Ward in 1920 where he established a ship breaking yard, an enterprise described in local papers at the time as “welcome news indeed” in the post-war years when Hayle is described: “at one time famous for its engineering works and explosives manufacture, has recently fallen on bad times” (Cornishman 1920, 13 October). The business was clearly successful with the same newspaper reporting towards the end of 1924 “extensive ship breaking being carried on there” (Cornishman 1924).

In 1926 Ward’s shipbreaking yard at Hayle was in the news again, with the arrival of the 35-year old SS Cornishman, a four-masted, single funnel 5,749 ton vessel built by Harland and Wolf in Belfast as the Nomadic for the Montreal cattle trade and “considered one of the finest ships in existence for this type of work” (Cornishman 1926).
The yard was still active in the 1930s as the liner *Philadelphian* is reported as being taken to “Messrs. Ward’s yard at Lelant Quay to be broken up” (Western Morning News 1933).

It seems that following the Second World War, however, the shipbreaking business at Lelant Quay was all but finished: “The Lady Dorothy...which made fast at Ward’s Quay, Lelant, during the week-end, is the first ship of any size to dock there since the Rosabelle was towed into Lelant to be broken up over seven years ago. During the war [Second World War], many invasion barges built at Hayle, were moored alongside the quay which was regularly used many decades ago when the shallow merchant ships could sail right up to St. Erth itself.” (Cornishman: 1946).

The 1/2500 Ordnance Survey map of 1908 (Figure 5) shows a relatively straight edge to the south west side of the river, north west of the granite Quay. It is not possible to tell if there is any revetment or shuttering like that seen today, but at this time, there are no buildings or railway infrastructure. The 1936 version (Figure 6) shows a slipway down to the beach at the northern end of the site and a railway siding immediately adjacent to the estuary’s edge and it appears that some form of revetment or shuttering is in place by this time.
Lost Ships of the West Country describes:
“TW Ward, long-established shipbreakers of Gray’s Essex, used Lelant Quay for extensive shipbreaking of redundant vessels after the Great War….The remains in the embankment are of an early Torpedo Boat Destroyer (with whaledeck for’ard) dismantled by Gray’s….not a complete hull but a large section of the port side deeply embedded in the sand, and an area of superstructure plating, with scuttles still in position, retaining the bank…..It is impossible now to establish her identity but she may well be a veteran of Jutland” (Langley & Small 1988: 106-7).

Two references were found in local newspapers relating to Torpedo Boat Destroyers being scrapped at Hayle, unfortunately, neither refer to a specific or named vessel:

“Messrs. Thos. Ward and Sons, who have taken over the old shipyard and quay at Hayle evidently do not intend to let the grass grow under their feet. On Saturday by the afternoon tide, two torpedo-boat destroyers were towed into the harbour and berthed near the slipway. These, we understand, are to be broken up, and will be followed by others. It is possible that Hayle will soon regain, and perhaps exceed, her old-time bustle and activity” (Cornishman: 1920: p5)
“A torpedo-boat destroyer went ashore at Hayle bar whilst being towed to the ship-breaking yard at Hayle on Thursday.” (Cornishman: 1921).

Richard Maskiell of the shipsnostalgia.com forum, using Dittmar and Colledge’s index to Brsith Warships 1914 – 1918 (navalhistory.net) has established that the following First World War destroyers were scrapped at Lelant and Hayle:

- Chelmer and Arun (sold on 30 June 1920).
- Minos (sold on 31 August 1920).
- Alarm, Oak, Marvel, Pylades, Tartar, Nymphe, Badger, Beaver, Acasta, Cockatrice, Spitfire, Leonidas, Mentor, Nugent, Pasley, Plover, Prince (sold on 9 May 1921 for scrapping at Hayle).
- Oak and Pylades arrived at Hayle in September 1922.
- Larne and Gabriel (sold 9 May 1921 for scrapping at Lelant). Larne arrived October 1922.
- Sable (ex-Salmon 1933) sold on 28 January 1937 for scrapping at Hayle.

Maskiell further identifies that of those listed above, only Oak, Marvel, Acasta, Spitfire and Badger were at the Battle of Jutland (shipsnostalgia.com).

The scrapping of three of the above in the area is confirmed by the reporting of the sale at Hayle of ships’ furniture from Badger, Plover and Alarm (Cornishman, 17 August 1921).

Hayle Archive, however, state that the revetment at Lelant used the sides of a First World War cruiser HMS Newcastle (sister ship of HMS Bristol) that was scrapped by Wards at Hayle in the 1920s (Chris Quick, Hayle Archive, pers. comms). Newcastle’s sale to Wards at Lelant on 9 May 1921 is confirmed in British Warships, 1914 – 1918 (navalhistory.net).

2.3 Research Questions
The Forgotten Wrecks of the First World War project provided an opportunity to return to this site, five years after recording work which had been undertaken by Archaeological Consulting Ltd. Work aimed to:

- develop understanding of which vessel parts are present at the site;
- search for vessel features to determine if an identity can be assigned to the vessel; and
- understand any changes to the site following the wall repairs that necessitated the 2011 archaeological work.

2.4 Fieldwork Methodology
Forgotten Wrecks Project site visits and fieldwork aimed to:

- Provide opportunities for volunteers to access and take an active role in the recording and research of a range of different types of maritime First World War site.
- Record extant remains for heritage records.
- Record extant remains for public dissemination, enabling ‘virtual’ access for those not able to achieve physical access.
- Undertake public outreach to raise the profile of maritime heritage and archaeological techniques.

Work at Lelant Quay included characterisation of remains through detailed inspection, full photographic survey deploying a drone, measured survey of specific features and elements of the site, and the use of data to create a 3D model.

For further information about methodologies employed, please refer to the MAT’s Forgotten Wrecks of the First World War: Project Methodology Report.
3 Research and Fieldwork Results

3.1 DBA & Historical Research
The Desk-Based Assessment (DBA) and historical research phase of investigation was helpful in establishing the nature and extent of the site.

The archaeological report undertaken in 2011 provided background information to the site and its use, plus two photographs of detail on two of the ship hull panels (Goacher & Mossop 2011).

Online research turned up some photographs of the site taken by Raymond Forward in 2009, which proved to be particularly useful, in addition to references in local newspapers (see Section 2.2).

3.2 Photographic Survey
On 23 June 2016, staff from the Maritime Archaeology Trust undertook a photographic and measured survey of the site, using a hand-held GPS camera and a drone.

Three main sections of revetment survive (Figure 7) and it can be seen that the two most northerly sections (A & B in Figure 7) were once connected and appear to be from the same ship’s hull. While Section A/B and C both appear to be constructed using recycled ships’ hull, differences in apparent material and construction features suggests that the revetment hull panelling nearest Dynamite Quay (C in Figure 7) is from a different ship to that further north (A/B in Figure 7).

3.2.1 Revetment Section A
The northern most section of revetment (Section A), still extant in 2016, is approximately 16m in length, comprising 9 ship’s hull panels (Figure 10).
In May 2009 Raymond Forward took a series of photographs of the revetment at Lelant that he shared via [www.picturepenzance.com](http://www.picturepenzance.com). They have provided a useful means of identifying changes to the site between 2016 (Figure 8) and 2009 (Figure 9).

For example, by 2016 it can be seen that a bank of rubble and stones has been introduced at the base of the hull sections, concealing the bottom of them (Figure 8 & 9).

The 2009 photograph (Figure 9) shows three horizontal rows of panels (strakes). The top strake is lap joined, overlapping the middle strake in clinker fashion, fastened by a double row of rivets. The middle strake appears to be welded to the bottom one. In 2016, only the horizontal join between the top and middle strakes could be seen (Figure 8).

To aid description, the individual panels in Section A have been numbered 1 to 9 (Figure 10).
Construction features: rivets
From what was visible in 2016, all panel joins and reinforcements are riveted (Figure 8) indicating a pre-Second World War date for the vessel/s that the hull panels came from. The rivets are dome-headed with a diameter of approximately 22mm.

Features: gunwale rivets
At the gunwale (top edge) there is a double row of rivets, one row above the other. Double riveting became the norm for large vessels towards the end of the 19th century (McCarthy 2005: 151).

For Panels 6-9 a ‘zig-zag’ riveting pattern can be seen at the gunwale, with each rivet in the lower row positioned between two rivets in the row above (Figure 11).

Between panel 6 and 5 there is a joining strip of metal approximately 25cm in width, attached to both panels with round-headed bolts. The riveting pattern at the gunwale on either side of this joining strip is different (Figure 12).
For Panels 5/4 (to the right/north of the joining strip) the rivets in the upper and lower rows are directly above/below each other, contrasting with the zig-zag riveting pattern for panels 6-9.

Panels 5/4 are also unusual in having no portholes and having extra riveting running diagonally across the panels (Figure 13). The gunwale riveting pattern for Panels 3 - 1, reverts to that of Panels 6-9.

It seems likely that panels 4 and 5 represent a different section of the original vessel (requiring different construction techniques and riveting patterns), or (perhaps less likely, given other similarities between all the panels at the site) they are from a different vessel.
Figure 13: Panel 4 (right) and 5 (left)

**Features: vertical joins**
The vertical joins between panels (in Section A and B) are treble riveted butt joins. Though they could not be seen, it is assumed that a butt strap is located behind/inside the vessel. The riveting pattern here is referred to by McCarthy (after Thearle) as ‘chain riveting’, with alternately three and two rivets on both sides of the joint (Figure 14).
**Features: horizontal joins**

The horizontal joins (in Section A and B) are fastened with the top strake overlapping the one below, secured with a double riveted lap join (McCarthy 2005: 152) comprising a double row of rivets, one rivet above the other (Figure 15).

Note the riveting pattern around the portholes, with a double line of rivets (zig-zag pattern) across the top of the portholes and a single line down each side of each porthole (Figure 15 & 16).
Features: portholes
It can be seen that the majority of the hull panels in Section A have portholes in them, with the exception of panels 4 and 5. Eleven portholes are present, each approximately 0.26m in diameter.

A semi-circular reinforcing strip/visor can be seen above each of the portholes, fixed with 6 rivets (Figure 17). This is a typical feature for naval ships of the first half of the 20th century.

![Figure 17: Reinforcements above portholes](image)

In one instance, the porthole could be viewed from what would have been the inside of the vessel and remains of the hinge and locking mechanism could be seen (Figure 18).

![Figure 18: the rear/inside of a porthole - with remains of the hinge and locking mechanisms](image)

Panel 7 is unusual in having 3 portholes. In addition, there appears to be another opening in the hull panel, possibly rectangular in shape, between two of the portholes (Figure 19).
Figure 19: Panel 7 (see Figure 10 for panel numbers)

This rectangular opening has bolts through the hull plating on either side and a bolted feature of unknown purpose protruding from what would have been the inside of the vessel (Figure 19).

Figure 20: rectangular opening in hull plating, Panel 7

Panel 6 also has an additional opening in the hull between the two portholes, though it is difficult to determine its shape (Figure 21).
Panel 6 also has two roughly circular areas of damage in the bottom left corner of the panel (Figure 21). The larger of the two appears to have been sealed, in a similar manner to some of the portholes (see below). The position, size, shape and general appearance of these features are consistent with ship battle damage, which may also provide an explanation for the larger hole between the two portholes in this panel.

A number of portholes have storm covers or seals in place, covering the hole, e.g. Panel 3 has two portholes, both with storm-covers/porthole seals (Figure 22).

At the northern end of Section A, there are two panels (Panels 1 & 2 from Figure 10) at approximately 90 degrees to the panels so far examined in this section. Panel 2 has two portholes (one covered), see Figure 23.
Panel 1 has no portholes (Figure 24). The top edge of the hull panels appear to be the ship’s gunwale, this assumption is reinforced by the presence of deck fitting in Section B of the revetment (see Section 3.2.2).
3.2.2 Revetment Section B
To the south of Section A Panel 9, there is an area of rubble, where ship hull panels no longer survive and then eight further panels, this section of revetment is just over 23m in length. The position for the southern end of Section B is N50°11’22 W5°26’02. As with Section A, the panels in Section B are held up with wooden stakes and rubble (Figure 25).

![Figure 25: Revetment Section B (Panels 10 - 16)](image)

Portholes are present in Panels 10 (2 portholes, one sealed), 13 (2 portholes, one sealed) and 14 (2 portholes, both sealed).

The gunwale riveting pattern for all of the Section B panels (10 – 17 see Figure 25) is the same as Panels 6-9 in Section A (Figures 15 &16) except for Panel 15, on the end where it meets Panel 14. Here, the gunwale riveting pattern matches that for Panels 4 & 5 of Section A. Panel 15, like Panel 4, also has a diagonal line of riveting (towards top right corner of panel).

![Figure 26: Gunwale riveting pattern Panel 10](image)

**Features: deck fittings**
On top of the gunwale, on Panel 10 is a shroud plate: a fixing point for standing rigging (Figure 27).
A similar arrangement can be seen on HMS Defender (1911), see Figure 28. Note the similarities in the riveting shown on HMS Defender in Figure 28, to that seen in the revetment at Lelant.

On the gunwale of Panel 14 a left hand fairlead can be seen (Figure 29 & 30). This would have been used to guide the vessel’s mooring lines and along with the shroud plate on Panel 10, confirms that the top of the revetment was once the gunwale of a ship.
Figure 29: fairlead on gunwale of Panel 14, Section B

Figure 30: left hand fairlead, Panel 14, Section B

Figure 29 shows that for Section B, more of the lower strake can be seen. Note how the vertical joins in the lower strake (Figure 29) are also treble riveted and that the joins are staggered so joins in the upper and lower strakes do not line up, thus providing greater structural hull strength.

In 2016, a section of revetment that can be seen in Raymond Forward’s 2009 photographs, was no longer present (Figure 31).
Another of Forward’s photographs shows this area, with sections of ship hull collapsed onto the sand either side, and what Goacher & Mossop describe as “concrete and iron debris” that had been held behind the shuttering prior to collapse (Figure 32).

![Figure 32: collapsed hull plating either side of a standing section, supported by 3 wooden stakes (Photo by Raymond Forward 2009)](image)

In 2016, the section of hull plating circled in Figure 31 and 32, was no longer present, having been replaced with a bank of rubble (Figure 33).

![Figure 33: the revetment in 2016. The two collapsed sections of hull and the upstanding section between them seen in Figure 31 & 32 no longer survives](image)

This section of hull plating, present in 2009 (Figure 31 & 32) showed signs of damage and repair, described as: “a ‘star’ shape with a central patch measuring 0.35m by 0.3m and radial repairs reinforcing an area of c. 3.5m diameter repaired with metallic mesh and welded iron” (Goacher & Mossop 2011). While no longer present in 2016, this feature was fortunately photographed by Raymond Forward in 2009 (Figure 32 & 34).
In the bottom right of Figure 34, a large roughly circular impact mark can be seen, this has been sealed, in a similar manner to some of the portholes and the possible shell damage in Panel 6 (Figure 21). Radiating out from the main impact mark are the repairs described by Goacher & Mossop (see above). The MAT is extremely grateful to Raymond Forward for his photographs which constitute an important record of our maritime heritage that sadly no longer survives.

3.2.3 Revetment Section C
South of Section B is Section C which butts up against Dynamite Quay. The position for the Dynamite Quay end of Section C is N50°11’20 W5°26’00. This section of revetment is just over 19.5m in length and is separated from Section B by an area of boulders and rocks.

As can be seen in Figure 35, the revetment at Section C has a very different appearance to that for Section A and B. The metal sheets are more corroded and dark brown/red in colour. At first glance it looks as if the ship hull plating in this section, could be from a different ship to that in Section A and B.

There are only 3 portholes in Section C (Figure 36), at the Dynamite Quay end, and these are slightly larger in diameter (0.28m) than those in Section A & B. The third porthole, partially obscured by one of the structural wooden posts, has been sealed and it appears that the method to do this differs from...
that used in Section A & B, i.e. the heads of bolts/rivets can be seen near the circumference of the sealing plate (Figure 36). There are no signs of the semi-circular reinforcing strip/visors that can be seen above the portholes in Section A & B, though his may be due to the poorer preservation.

![Figure 36: Portholes (one sealed and partially obscured by post) in Section C](image)

The poorer preservation of the ship hull panels in Section C makes it hard to identify the riveting patterns, but in places, common features to those of Section A & B can be found (see Figure 38 & 39).

![Figure 37: Sealed porthole, Section C](image)
Figure 38: Treble chain riveted vertical butt joins, double riveted horizontal lap joins in Section C

Figure 39: Gunwale riveting (zig-zag pattern) in Section C
4 Discussion & Conclusions
The revetment at Lelant Quay, now comprising three separate sections (labelled A – C for this report) appears to have been built using sections of a ship’s hull, recycled from scrapped vessels by TS Ward, sometime during the 1920s.

Features present in the surviving sections are consistent with a vessel built in the late 19th / early 20th century and signs of damage (extant Panel 6, Figure 21 and the no longer surviving panel shown in Figure 34) are consistent with shell damage, likely to have been sustained in the First World War.

One suggestion for the identity of the vessel remains at Lelant was HMS Newcastle, built in 1909 and scrapped by Wards at Hayle in the 1920s.

However, one of the very noticeable features of the vessel remains at Lelant, is how close to the gunwale the portholes are, i.e. approximately 25cm (see Figure 41). The people standing towards the stern of HMS Newcastle in Figure 40 give some indication of scale and it can be seen that the distance between the portholes and the gunwale is considerably more than 25cm.
Lost Ships of the West Country describes the Lelant revetment as follows: “….The remains in the embankment are of an early Torpedo Boat Destroyer (with whaledeck for’ard) not a complete hull but a large section of the port side deeply embedded in the sand, and an area of superstructure plating, with scuttles still in position, retaining the bank.....It is impossible now to establish her identity but she may well be a veteran of Jutland.” (Langley & Small 1988: 106-7).

It can be seen from the two photographs of earlyTorpedo Boat Destroyers (Figure 42 and 43) that TBD portholes are unusually high in the hull and close to the gunwale and this is consistent with the remains at Lelant.

Figure 42: HMS Daring, Torpedo Boat Destroyer (1893)

Figure 43: HMS Decoy, Torpedo Boat Destroyer (1894)
Early Torpedo Boat Destroyers like *Decoy* and *Daring* had a length overall of 56m. The surviving sections (as of 2016) at Lelant total approximately 60m of ship’s hull, so, given some sections photographed in 2009 have since been removed, it would seem that more than a single side of an early Torpedo Boat Destroyer was used to create the revetment at Lelant.

It is not clear what led Langley and Small to suggest that it is the port side of a TBD that is represented at Lelant. Further examination of ships’ plans and photographs and comparison with the remains at Lelant have the potential to reveal more. The left handed fairlead on the gunwale of Panel 14, the shroud plate on Panel 10 and the distribution of portholes could be particularly helpful with this.

Another area of potential interest could be to examine the document that Figure 28 came from for further illustrations of damage to specific vessels at the Battle of Jutland. While a long shot, this line of enquiry has the potential to reveal the identity of the vessel, the remains of which survive at Lelant.

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