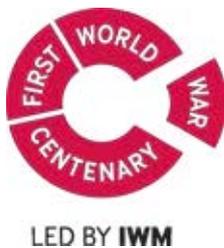


Forgotten Wrecks of the First World War

Pendennis U-boats

Site Report



May 2018



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MAT staff involved in the recording: Jan Gillespie, Julie Satchell, Amanda Bowens.

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ii Copyright Statement

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1. Project Background

Forgotten Wrecks of the First World War is a Heritage Lottery Funded project which is 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 1,100 wartime wrecks along England's south coast alone, the conflict has left a rich heritage legacy and many associated stories of bravery and sacrifice. These 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 focuses on underwater and coastal sites between Kent and Cornwall, which include merchant and naval ships, passenger, troop and hospital ships, U-boats, ports, wharfs, buildings and foreshore hulks. These sites, under water, on the foreshore and around the coast, 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 represents a final opportunity to record what remains before it is lost forever.

The project aims 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 will enable an understanding of maritime activity just off our shores during the conflict and provide a window onto some of the surviving sites. While it will not be possible to visit and record all c.1,100 vessels dating to the First World War, lost off the south coast of England, a representative sample of sites have been selected for more detailed study, analysis and interpretation.

This report collates information collected during the project, relating to a group of German submarines, the remains of which lie off the western side of Pendennis Point, near Falmouth, Cornwall.

2. Methodology

General detail on the methodologies employed during the project are outlined within the *Forgotten Wrecks of the First World War: Project Methodology Report*. This report section concentrates on approaches and resources in relation to the Pendennis U-boats.

2.1 Desk Based Research

2.1.1 Online Information/Sources

The Pendennis U-boat wrecks are listed in the National Record of the Historic Environment (NRHE), with the following Monument Numbers:

| Submarine | Pastscape account of wreck event | Monument No. | NMR No. | Notes |
|-----------|----------------------------------|--------------|--------------|---|
| UB-86 | 1547203 | 919745 | SW 83 SW 57 | Easternmost of group of six submarines charted as a group |
| UB-97 | 1547208 | 919746 | SW 83 SW 58 | |
| UB-106 | 1547206 | 919743 | SW 83 SW 55 | |
| UB-112 | 1547217 | 919744 | SW 83 SW 293 | |

| Submarine | Pastscape account of wreck event | Monument No. | NMR No. | Notes |
|-----------|----------------------------------|--------------|--------------|------------------------------------|
| UC-92 | | 919749 | SW 83 SW 61 | Position confirmed on Castle Beach |
| UB-128 | 1547231 | 919748 | SW 83 SW 294 | |

Pastscape states that all six of the above submarines were lost “*in a gale, en route under tow to being expended as gunnery targets*” in 1921 and that “*All were said to have been broken up shortly afterwards or during the Second World War, or both.*” (Pastscape: UB-86).

The most recent Wrecksite.eu records for UB-86, UB-97, UB-106, UB-128 and UC-92 state that they were stored at anchor in Falmouth Bay, destined for use as gunnery targets when a winter storm drove them ashore on Pendennis Point. It gives the cause of loss as ‘ran aground (wrecked)’ and date of loss as 3 February 1921 (wrecksite.eu: UB-86).

Uboat.net reports that UB-86, UB-97, UB-106, UB-112, UB-128 and UC-92 were surrendered and “*Broken up in situ from 1921 after grounding near Falmouth*” (Uboat.net: UB-86).

The Wikipedia entries for the Pendennis U-boats appear to use a mix of the above sources for information about fates of the submarines, agreeing that all were broken up after 1921 off Pendennis Point.

A number of SCUBA divers/dive clubs have uploaded video of dives on the Pendennis U-boat wrecks (see Section 8.1).

Datasets available via the Channel Coastal Observatory Map Viewer were consulted, specifically ortho-rectified photography from 2013 and Bathymetry Multibeam from 2012 (www.channelcoast.org).

2.1.2 Records at The National Archives

A number of documents held at The National Archives (TNA), Kew were consulted for information they could provide about the U-boats at Pendennis Point. Of particular interest was the *Explosive trials on German submarines: report* (TNA, ADM 189/102) and the Ship’s Log for Depot ship *Maidstone* for the end of 1920 and early 1921 (TNA, ADM 53/47941 and ADM 53/80240).

2.1.3 Other Historical Sources

Technical detail and identifiable characteristics for U-boats were derived from Rössler (2001) and Uboat.net.

Information about the whereabouts of the U-boats following their surrender at Harwich in November 1919 has been gleaned from a number of contemporary newspaper reports and historical photographs (in addition to the documents listed above at The National Archives).

2.2 Associated Artefacts

While the Forgotten Wrecks project had a non-recovery policy, where possible, the project aimed to record and ‘virtually reunite’ artefacts historically recovered from the wrecks. For information relating to UC-92 artefacts, please also see the UC-92 report (Wessex Archaeology 2013). During the Forgotten Wrecks project, 18 objects were identified as having been recovered from the Pendennis U-boat wrecks and recorded with the help of volunteers (see Section 5).

2.3 Fieldwork

In June 2016, staff from the Maritime Archaeology Trust visited Pendennis Point, Falmouth. They met with Mark Milburn of Atlantic Scuba, who has extensive knowledge of sites in the area. Thick kelp coverage meant that diving was not undertaken. However, the visit included an exploration of the western side of Pendennis Point and the area called the Silver Steps.

3. Vessel Biographies: *Pendennis U-boats*

There is some confusion around the U-boats wrecked off Pendennis Point, including how many there are, which submarines they are and how they came to be there.

Locally and in numerous secondary sources, reference is made to the submarines having been blown ashore in a storm. It is known that the U-boats were present on the rocks and beach at Pendennis by March 1921 (see Section 3.5) and no contemporary reports referring to a storm driving the U-boats ashore in 1920/21 could be found.

However, documents in The National Archives indicated that a number of U-boats were deliberately beached off Pendennis Point at the end of 1920 and beginning of 1921. This occurred after the submarines had been used for explosive trials between November 1920 and March 1921 (TNA, ADM 189/102).

The submarines listed as being part of the trials at Falmouth in 1920/21 are:

- UB-86
- UB-97
- UB-106
- UB-112
- UB-128
- UC-92

And the report contains information and/or photographs relating to testing of each of the above, confirming their presence in Falmouth at that time.

It seems that UB-118 should have been part of the group at Falmouth but having left Devonport at 8.10 am on 21st November 1920 *“in tow of the tug Woonda for Falmouth, sank off Dodman Point, near Falmouth, the same afternoon. The explanation of the accident is that when the vessel was in tow valves in her fore compartments gave way, and the vessel partially filled and submerged. An alarm was signalled, and the sloop Kennet, a fishery patrol craft, arrived on the scene and by gunfire sank the submarine which was regarded as a danger to navigation.”* (Western Morning News: 23 November 1920). Other contemporary newspaper reports refer to it being the aft compartments that gave way.

3.1 Vessel Type and Build

The six German submarines believed to be wrecked at Falmouth comprise five UBs and one minelayer (UC). All the UB submarines taken to Falmouth were Type UB IIIs. UB-86 and UB-128 were built at A.G. Weser, Bremen, UB-97 was built at Vulcan, Hamburg and UB-106 and UB-112 were built at Blohm & Voss, Hamburg. UC-92 was a UC III, also built at Blohm & Voss, Hamburg.

UB III Type submarines had an overall length of 55.3m (pressure hull length of 40.10m), beam of 5.8m and draught of 3.7m. They had two 550hp diesel engines and two 394hp electric engines. They had four bow torpedo tubes and one stern tube and typically carried ten 50cm torpedoes and an 88mm deck gun (Rössler, E. 2001: 332).

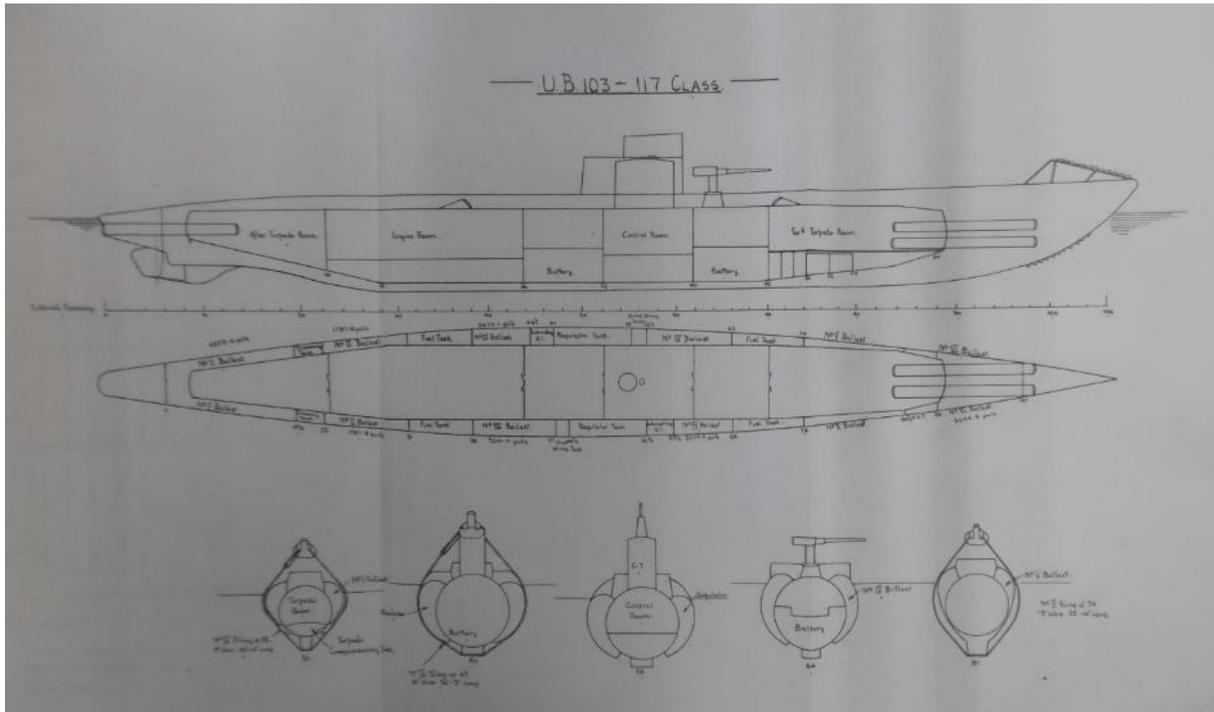


Figure 1: Diagram of a UB III Type submarine (TNA, ADM 189/102)

Only 15 UC III U-boats were built, all at Blohm & Voss, Hamburg. They had an overall length of 56.1m (pressure hull length of 42.20m), beam of 5.5m and draught of 3.8m. They had two 300hp diesel engines and two 385hp electric engines, 2 bow torpedo tubes and one stern tube. UC IIIs typically carried seven 50cm torpedoes, 18 UC200 mines a 10.5cm deck gun and a crew of 32 (Rössler, E. 2001: 332).

3.2 First World War Use & Loss

Only three of the six U-boats believed to be at Pendennis undertook any patrols, with UB-86 completing five, UB-112 completing three and UB-128 completing two:

| Submarine | Commissioned | Patrols | Ships sunk | Commanders |
|-----------|------------------|---------|------------|------------------------------------|
| UB-86 | 10 November 1917 | 5 | 4 | Hans Trenk |
| UB-97 | 26 July 1918 | 0 | 0 | Oskar Brinkmann George Stollenz |
| UB-106 | 7 February 1918 | 0 | 0 | Hugo Thielmann Max Schmidt |
| UB-112 | 16 April 1918 | 3 | 11 | Wilhelm Rhein |
| UB-128 | 11 May 1918 | 2 | 1 | Wilhelm Canaris |
| UC-92 | 14 August 1918 | 0 | 0 | None listed |

(Uboat.net)

It is believed that all the vessels were surrendered at Harwich in November 1919. At the end of 1920 these six submarines were brought to Falmouth for explosive trials. This is confirmed by photographs and references to each of the U-boats within the text of the explosive trials report and occasional references in contemporary newspapers (see below).

Between November 1920 and March 1921 a variety of explosive tests were undertaken using *Cyklops*, described as an “*ex-German submarine lifter*” (Figure 2) with HMS *Maidstone* as parent ship and Trawler *Strathcoe* being used to tow the submarines (TNA, ADM 189/102).

On 12 November 1920 the Hampshire Telegraph reports: “*The Cyklop, a submarine raising vessel surrendered by the Germans, which has been moored in Portsmouth Harbour for several days, left the port on Monday for Falmouth, where, it is understood, she will be used for experimental purposes*” (Hampshire Telegraph: 12 November 1920).

The movements of *Cyklop* and *Maidstone* are recorded in the Western Morning News, this includes a small notice about Christmas Leave arrangements over December 1920 and January 1921 (Western Morning News: 1 December and 28 December 1920). *Cyklop* appears to be at Falmouth for 3 weeks before returning to Devonport for coal on 22 January 1921 (Western Morning News: 22 January 1921), returning to Falmouth a week later (Western Morning News: 28 January 1921). *Cyklop* returned to Devonport for stores on 17 February 1921 (Western Morning News: 18 February 1921) going back to Falmouth on 22 February 1921 (Western Morning News: 23 February 1921). The explosive trials are evidently complete by 16 March 1921 as *Cyklop* is attempting to leave Devonport for Portsmouth by this date, though rough weather is preventing it (Western Morning News: 16 March 1921).

The Ship’s Log of *Maidstone* (parent vessel to *Cyklop*) for December 1920 and the first three months of 1921 is available at The National Archives, Kew. It records *Cyklop*’s arrival at Falmouth on 12th November 1920 and *Cyklop* sailings (presumably to undertake the U-boat explosive trials as detailed and photographed in ADM 189/102) on 20 November and 8 December 1920 and on 13 January 1921. On 2 February 1921 *Maidstone*’s Log records: “*Torpedo party to Cyklop, working about torpedoes in U-boat*”. On 9 February it makes reference to the Drifter tending to RFA *Cyklop* and to having “*Landed working party to beach U-boat*”. On 17 February another submarine-beaching party is landed ashore, this one comprising 11 able seamen, 1 signalman, 3 marines and 2 other personnel. On 11 March 1921 at 5pm, *Maidstone*: “*Landed Beaching party, RFA Cyklop proceeded to beach s/m*”. This process evidently took under two hours as the beaching party had returned by 7pm. The following day (12 March 1921) *Maidstone* returned to Portsmouth (TNA, ADM 53/80240 & ADM 53/80241).

The submarine trials involved lowering the submarines to a specified depth beneath *Cyklop*, replicating “*the condition of a submarine in diving trim as nearly as possible*”. A range of different charges were then set off at a variety of distances from the submarines which were subsequently brought back to the surface and the damage observed and recorded. The experiments on each submarine are recorded in the report, which includes photographs of the experiments and damage inflicted on the U-boats (TNA, ADM 189/102).

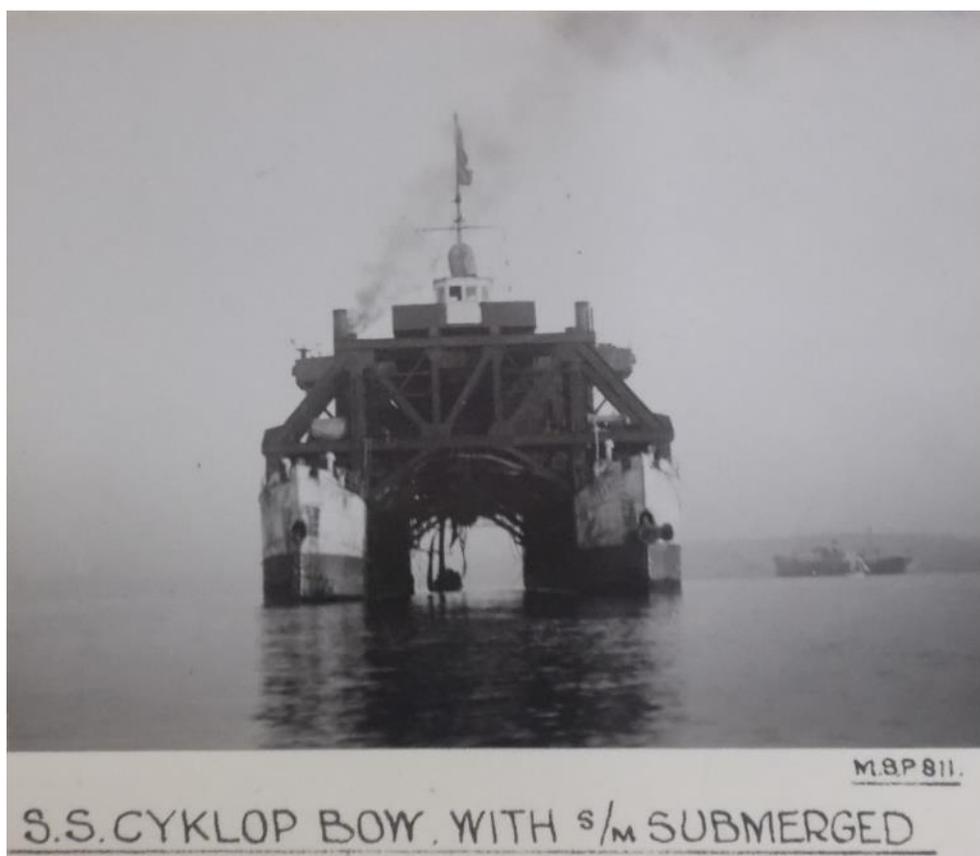


Figure 2: Cyklop off Falmouth (TNA, ADM 189/102)

A month after the end of the Falmouth explosive trials, the Naval and Military column in the Western Morning News reports: “We heard so much about the ex-German salvage vessel *Cyklop* and the wonderful things she could do, when she first arrived in this country on delivery under the terms of the armistice, that it will come as rather a surprise to learn that she is now being offered for sale by the Admiralty. The strange-looking twin-hulled vessel has been tested in a variety of ways and the substance of the reports upon her performances is that, whilst these were satisfactory enough, it was considered that better results could have been attained with our own weight-lifting craft.” (Western Morning news: 14 April 1921). *Cyklop* was “paid off for disposal at Portsmouth” some two months later (Western Morning News: 10 June 1921).

3.3 Associated Vessels and People

Only three of the U-boats believed to be at Pendennis undertook patrols during the war (see Section 3.2).

The ships sunk by UB-86 under Hans Trenk were:

| Date | Name of ship | Ship Type | | Tonnage | Nationality |
|------------------|-----------------|-----------|-------------------|---------|-------------|
| 21 February 1918 | <i>Mercia</i> | Steamer | North Sea | 1,127 | Swedish |
| 18 April 1918 | <i>Gregynog</i> | Steamer | North Cornwall | 1,701 | British |
| 17 August 1918 | <i>Denebola</i> | Steamer | Off Gurnards Head | 1,481 | British |
| 17 August 1918 | <i>Helene</i> | Steamer | Off St Ives Head | 1,567 | Danish |

(Uboat.net: Ships hit by UB-86)

The *Denebola* and *Helene* were both lost in the Forgotten Wreck project area, off the north west tip of Cornwall, torpedoed on the same day (17th August 1918).

SS *Denebola* was a British steamer of 1481 tons, owned at the time of its loss by Everett & Norwegian and armed with a 12 pounder gun. On 17 August 1918 *Denebola* left Swansea for Rouen with a cargo of 1846 tons of coal and a crew of 21. At 19.40 the vessel was “*Struck by two torpedoes, abreast Nos. 2 & 3 hatches on the starboard side and sank at once*”. Most of crew were rescued by a patrol vessel and landed at St Ives but the 2nd Engineer and an Able Seaman were lost (TNA, ADM 137/2964). The 2nd Engineer was Thomas Arthur, son of Edward and Jane Arthur, husband of Caroline Batty Arthur (nee Lay), he was born and lived in Sunderland and was 29 years old. The Able Seaman was Anthony Murray, son of Mary Anne Murray (nee Longbrill) and John Murray of Wicklow, he was 33 years old (CWGC: *Denebola*).

Helene was a Danish steamer of 1,567 tons built in Kiel in 1896 and operated at the time of its loss by H. A. Guldager of Copenhagen. On 17 August 1918 *Helene* was travelling in ballast from Rouen to Swansea when torpedoed by UB-86 approximately 6 miles off St Ives Head. There was one casualty (Uboat.net: *Helene*).

The ships sunk by UB-112 under Wilhelm Rhein were:

| Date | Name of ship | Ship Type | Tonnage | Nationality |
|-------------------|----------------------------|----------------|---------|-------------|
| 21 August 1918 | <i>The Stewart's Court</i> | Steamer | 813 | British |
| 22 August 1918 | <i>Prunelle</i> | Steamer | 579 | British |
| 23 August 1918 | <i>Heros</i> | Steamer | 351 | Swedish |
| 30 September 1918 | <i>Atlantico</i> | Sailing Vessel | 319 | Portuguese |
| 1 October 1918 | <i>Aldebaran</i> | Steamer | 1,683 | Swedish |
| 1 October 1918 | <i>Gjertrud</i> | Steamer | 593 | Norwegian |
| 2 October 1918 | <i>Bamse</i> | Steamer | 1,001 | British |
| 2 October 1918 | <i>Poljames</i> | Steamer | 856 | British |
| 3 October 1918 | <i>Atlantis</i> | Steamer | 1,171 | Norwegian |
| 3 October 1918 | <i>Westwood</i> | Steamer | 1,968 | British |
| 4 October 1918 | <i>Nanna</i> | Steamer | 1,125 | Norwegian |

(Uboat.net: Ships hit by UB-112)

From the above it can be seen that UB-112 was active in the Forgotten Wrecks project area in September and October 1918. Its victims included vessels of four different nationalities; with a few exceptions, they were generally steamships transporting coal, sunk without warning by torpedo.

Atlantico: this Portuguese sailing vessel, built in Sunderland in 1880 was stopped and sunk by gunnery 6 miles west of Bishop Rock, Isles of Scilly on 30 September 1918 while on route from Newport to Oporto, Portugal with a cargo of coal (Uboat.net: *Atlantico*).

Aldebaran: this Swedish steamer, built in West Hartlepool in 1882 as the *City of Truro* was torpedoed 7 miles off Wolf Rock on 1 October 1918 while on route from Marbella, Spain to Ayre with a cargo of ore. All hands were lost (Uboat.net: *Aldebaran*).

Gjertrud: a Norwegian steamer built in Newcastle in 1893, was sunk 2 miles west of the Lizard, Cornwall on 1 October 1918 while on route from Newport, Wales to St. Malo, France with a cargo of coal. There were 11 casualties (Uboat.net: *Gjertrud*).

Bamse: a British steamer carrying 1225 tons of patent fuel. On 2 October 1918, while travelling from Swansea, Wales, bound for Dunkirk, France, via Falmouth, the vessel was torpedoed on the starboard side, approximately 5 and a half miles south of the Lizard, Cornwall. The ship sank immediately. The Master and four hands were picked up by the French smack *Jean Bart*, with three others rescued by the schooner *My Lady*. All survivors were landed at Falmouth (TNA, ADM 137/2964). Eleven people were lost when *Bamse* was torpedoed, they are all commemorated on the Merchant Navy Memorial at Tower Hill, London, with the exception of William Pullman who, being in the Royal Naval Volunteer Reserve is commemorated on the Chatham Naval Memorial:

| Surname | Forename | Age | Rank | Additional Information |
|------------|------------------|-----|-----------------------|---|
| PULLAN | WILLIAM HENRY | 26 | Able Seaman (RNVR) | Son of Sarah Pullan, of 2, Back Lane, Bramley, Leeds. |
| TILLTI | JOHN MATSON | 58 | Able Seaman | Son of the late Matthew and Sophia Matson: husband of Matilda Matson Tillti (nee Frankel), of 25, Chancery Lane, Cardiff. Born at Biorko. Viborg. |
| WATKINS | | | Mate | |
| WINCHESTER | ALFRED BLACK | 45 | Chief Engineer | Son of John and Elizabeth Winchester; husband of Sarah Jane Winchester (nee Coates), of 7, Brabant Rd., Aigburth, Liverpool. Born at Birkenhead. |
| ORTIGA | | 23 | Able Seaman | Born in Chile. |
| PORTER | BERNARD | 49 | Donkeyman | Son of the late William and Mary Porter; husband of Sarah Porter (nee Davies), of 13, Lewis St., St. Thomas, Swansea, Glam. Born in London. |
| HITCHCOCK | ALBERT ERNEST | 17 | Assistant Steward | Son of John William and Emily Elizabeth Hitchcock (nee Robinson), of 58, Peel St., Hull. |
| ROBERTS | THOMAS | 17 | Able Seaman | Son of Thomas and Elizabeth James Roberts (nee Morris), of 4, Mersey St., Borthy Gest, Portmadoc, Carnarvonshire. |
| SOTO | FRANCISCO | 42 | Able Seaman | Son of the late Mr. and Mrs. Pedro Soto; husband of Agnes Soto (formerly Murphy, nee McGrath), of 40, Christina St., Cardiff. Born in Chile. |
| STANFORD | WILLIAM | 18 | Mess Room Boy | Son of Catherine Stanford (nee Donovan), of 10, Wells St., Canton, Cardiff, and the late Charles Stanford. Born at Mardy, Glam. |
| LOCKRIN | | | Able Seaman | |

Poljames: a British steamer carrying 826 tons of coal and armed with a 90mm gun. On 2 October 1918, while travelling from Newport, Wales to St Malo, France the vessel was torpedoed on the starboard side of the engine room, approximately 6 miles south of the Lizard, Cornwall. The ship sank

immediately. Survivors were picked up by Norwegian ship SS *Eker* and landed at Falmouth (TNA, ADM 137/2964). Thirteen people were lost when *Poljames* was torpedoed, they are all commemorated on the Merchant Navy Memorial at Tower Hill, London, with the exception of James Coe, Charles Mayne and Robert Norman who, being in the Royal Naval Volunteer Reserve are commemorated on the Plymouth Naval Memorial:

| Surname | Forename | Age | Rank | Additional Information |
|---------|----------------------|-----|--------------------------|---|
| COE | JAMES HENRY | 25 | Leading Seaman (RNVR) | Son of Bessie Grant (formerly Coe), of 11, York Rd., Paignton, Devon. |
| MAYNE | CHARLES | | Able Seaman (RNVR) | |
| NORMAN | ROBERT | | Able Seaman (RNVR) | |
| FELLOWS | JOHN | 26 | Able Seaman | Son of George and Emily Fellows; husband of Mary Jane Fellows (nee Parker), of 52, Clifton St., Roath, Cardiff. Born at Hastings. |
| TANAKA | KUYEMON | 30 | Second Mate | Son of Kintaro Tanaka (Father); husband of Mato Tanaka (nee Miura), of 36, George St., Pier Head, Cardiff Docks. Born in Japan. |
| WIRTMAN | JOHN | 47 | Able Seaman | Son of the late Mr. and Mrs. Mathias Wirtman; husband of Mary Elizabeth Wirtman (formerly Watkins, nee Thomas), of 55, Phyllis St., Barry Island, Glam. Born at Riga, Latvia. |
| NUGENT | THOMAS | 62 | Boatswain | Son of Robert and Margaret Nugent (nee Veakins); husband of Ellen Nugent (nee Deasy), of Manderille Terrace, Kinsale, Co. Cork. Born at Kinsale. |
| CLARKE | ARTHUR HAROLD | 17 | 2nd Steward | Son of Frederick Charles Nichols Clarke and Maud Clarke, of 12, Eastwood House, Leiston, Suffolk. |
| ABBOTT | ALFRED WILLIAM | 20 | Second Engineer | Son of Rose Hannah Eliza Abbott (nee Cave), of 78, Cottage Grove, Stockwell, London, and the late Charles Benjamin Abbott. Born at Glasgow. |
| BATTEN | FREDERICK WILLIAM | 47 | First Mate | Husband of Ellen Taylor Norton Batten, of 2, Llanfair Rd., Canton, Cardiff. Born at Clapham, London. |
| ROCHE | ROBERT | 28 | Chief Steward | Son of Robert Roche, and the late Ellen Roche; husband of Louie Roche (nee Gowman), of 29, Hawkstone Rd., Rotherhithe, London. Born in London. |
| RODICK | EDWARD ASKEW | 67 | Chief Engineer | Husband of Agnes Ann Rodick, of 29, West Bank Rd., Devonshire Park, Higher Tranmere, Birkenhead. Born at Arnside, Westmorland. |

| | | | | |
|------|--------|----|-----------|---|
| LUCK | GEORGE | 27 | Donkeyman | Son of George and Laura Amelia Luck (nee Knee), of Birling Farm, Southborough, Kent. Born at Tunbridge Wells. |
|------|--------|----|-----------|---|

Atlantis: a Norwegian steamer built in Denmark in 1906, was sunk 6 miles south east of the Lizard, Cornwall on 3 October 1918 while on route from Barry, Wales to Rouen, France with a cargo of coal. There were two casualties (Uboat.net: *Atlantis*).

Westwood: a British steamer carrying 3000 tons of coal. On 3 October 1918, while travelling from Barry, Wales to Devonport with a crew of 24, the vessel was torpedoed on the starboard side of No. 4 hold, approximately 6 miles south of the Lizard, Cornwall. The ship sank immediately and most of the crew escaped in two boats except for "an Arab fireman who fell overboard and was drowned" (TNA, ADM 137/2964). The "Arab fireman" was called Ali Hasan and being in the Indian Merchant Service is commemorated on the Bombay 1914-1918 Memorial, Mumbai, India.

Nanna: a Norwegian steamer built in Trondheim, Norway in 1900, was sunk 10 miles WNW of the Lizard, Cornwall on 4 October 1918 while on route from Barry, Wales to St Malo, France with a cargo of coal. There were nine casualties (Uboat.net: *Nanna*).

The ship sunk by UB-128 under Wilhelm Canaris was:

| Date | Name of ship | Ship Type | | Tonnage | Nationality |
|----------------|------------------|-----------|--------------|---------|-------------|
| 21 August 1918 | <i>Champlain</i> | Steamer | Off Portugal | 7,418 | French |

(Uboat.net: Ships hit by UB-128)

3.4 People Associated with the Pendennis U-boats

UB-86: Hans Trenk was born on 23 June 1887. He commanded UB-86 from 10 November 1917 to the end of the war, sinking four ships and damaging one (see Section 3.3). He left naval service at the end of January 1920.

UB-112: Wilhelm Rhein was born on 10 March 1887. He commanded UB-112 from 16 April 1918 to the end of the war, sinking 11 ships and damaging one (see Section 3.3). Prior to UB-112 he commanded UB-30 (8 August 1917 to 21 April 1918) and UB-16 (23 April 1917 to 25 August 1917). He was awarded the Royal House Order of Hohenzollern in November 1918. This is a title that was awarded to a total of only approximately 320 naval officers during the First World War (<https://uboat.net/wwi/men/decorations/5.html>). Rhein died in July 1964.

UB-128: Wilhelm Canaris was born on 01 January 1887. He commanded UB-128 in the final months of the war, from 11 May 1918, sinking one ship (see Section 3.3). Prior to UB-128 he commanded a range of U-boat types UB-38 (16 September 1917 to 15 November 1917), UC-27 (28 November 1917 to 14 January 1918), U-47 (14 January 1918 – 14 June 1918) and U-34 (18 January 1918 to 13 March 1918). Before U-boats he served on the light cruiser *Dresden*. He also served in U-boats in the Second World War during which he turned against the Nazi regime, finally being executed for high treason on 9 April 1945 (Wikipedia: Wilhelm Canaris).

Commanders of the other U-boats believed to be at Pendennis are not covered here as they did not undertake any patrols. Information can be found at u-boat.net

3.5 Post-loss Activity

Larn & Carter report that six submarines (UB-106; UB-112; UB-128; UB-86; UB-97; UC-92) were sold to Messrs R H Roskell and A Rogers in March/April 1921 (Pastscape: UB-86).

The U-boats at Pendennis and attitudes towards them can be traced through articles and remarks in contemporary local newspapers as follows:

A photograph in a newspaper on 28 March 1921 was captioned: *“Five ex-German submarines lying stranded on the rocks at Falmouth and many have been attracted to the spot. In the above photograph the conning tower of one of the derelicts sunk in deeper water can also be seen.”* (Figure 3). Mark Milburn believes this to be UB-112 (foreground), with UC-92 in deep water behind – prior to it being towed to Castle Beach for scrapping.

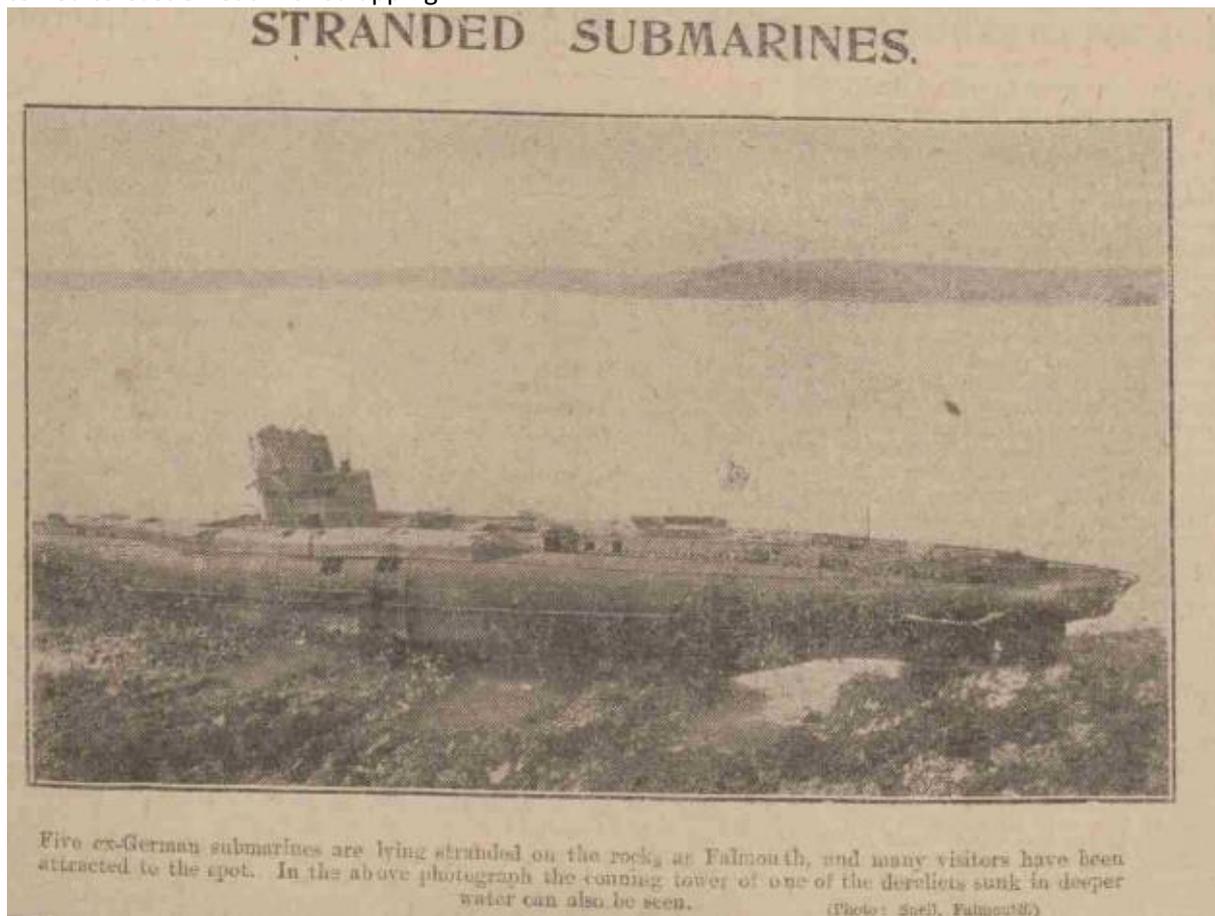


Figure 3: Two U-boats near Falmouth. Image Western Morning News, 28 March 1921.

The following month, an article in the same newspaper describes how the submarines continue to attract interest and have become a playground for local children. The submarines are described with many negative connotations: *“five German submarines which have been the object of so much interest at Falmouth will perform no more nefarious work. Dismantled, rusty, battered, holed, water-logged they now lie, of no further use except as scrap iron, on the Pendennis Castle side of Gyllyngvase Bay, and a happy playing ground for boys, who enjoy themselves to their hearts’ content in running over the hulks and peering down into the vessels whenever opportunity allows”* (Western Morning News: 2 April 1921).

Work was clearly being undertaken on the Pendennis U-boats in June 1921 as a contemporary newspaper reports the loss of tug *Alice* that had been involved with the salvage operations: *“The Alice*

had been engaged in work in connection with the removal of the ex-German submarines lying on Castle Point, and was moored a short way off the Point” (Cornishman 1921).

Two years later an article in another newspaper suggests that the U-boat hulks are becoming part of Falmouth’s local identity and its role in the war: *“Acknowledging the toast, Mr Chas. Aveling, of Southport, a past president of the National Chamber, said when they saw the ex-German submarines lying near Pendennis Point they realised the importance of Falmouth during the war. In that town they had played their part nobly.” (West Briton and Cornwall Advertiser: 7 June 1923).*

Another couple of years pass and the U-boats feature in a review of Falmouth: *“...a touch of grimness is lent to the scene by the stark skeletons of three German submarines, which after the Armistice were used for experimental purposes, and are now rusting to nothingness on the north of the bay” (Western Morning News: 14 August 1925).*

In 1929 a photograph of the U-boats is captioned with recurring sentiments of ‘rot’ and ‘dereliction’: *“THOSE WHO LIVE BY THE SWORD SHALL PERISH BY THE SWORD: An impression of the retribution that has overtaken one of the submarines captured during the War. It now lies rotting derelict beneath Pendennis Castle, Falmouth” (Figure 4).*

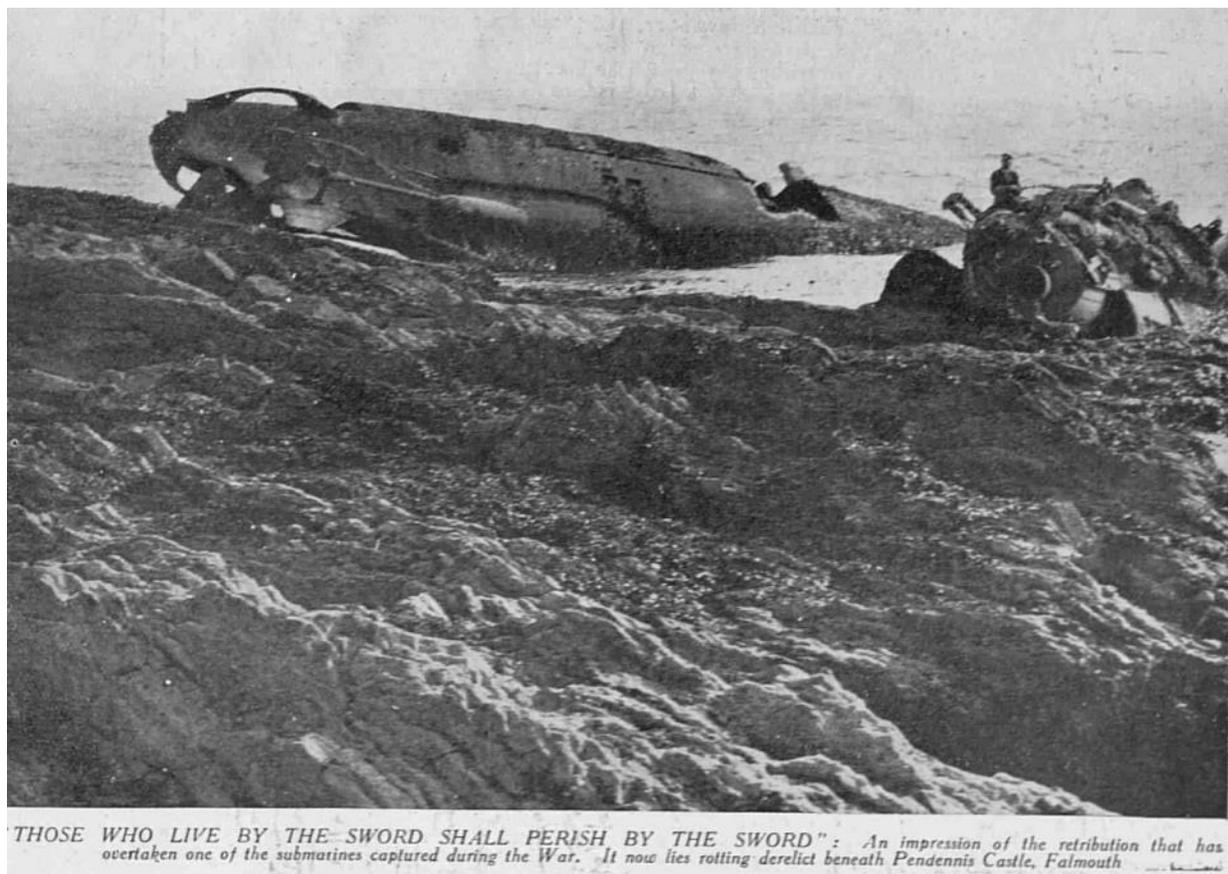


Figure 4: The Sphere: 16 February 1929. Believed to be UB-106 (left) and UB-128.

A sentiment that is reiterated the following year in an article which mentions: *“he pointed out the five German submarines wrecks still lying on the rocks as souvenirs of the Great War; and they are grim, rusty and ugly reminders of the catastrophe which shattered world-peace, destroyed millions of lives,*

piled up colossal war debts, and closed many of the channels of world-trade and commerce.” (Cornishman: 4 September 1930).

In the 1930s, photographs continue to appear in local newspapers. For example, in November 1932, Figure 5 was captioned: *“Derelict for 14 years – One of the German submarines beached on the rocks beneath Pendennis Castle, Falmouth, photographed at low tide.”* (Western Morning News: 19 November 1932).

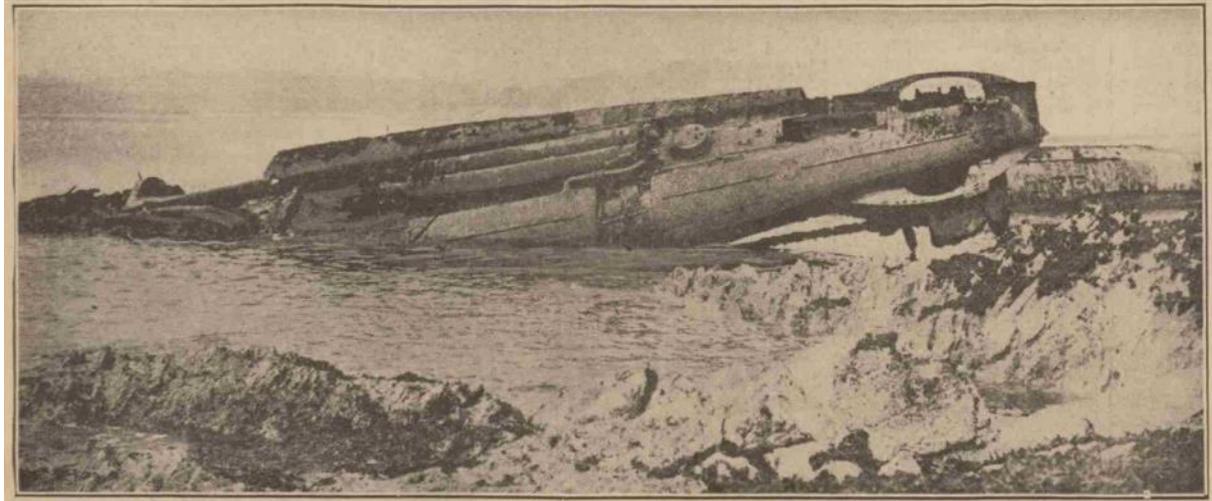


Figure 5: Western Morning News (19th November 1932). Believed to be UB-106 (foreground) and UB-128.

Finally, not long before the outbreak of the Second World War, another photograph appears (Figure 6) captioned: *“RELICS OF THE WAR – Men at work breaking up the old German submarines lying on the rocks near Pendennis point, Falmouth, watched by Mr. C. A. Chard (left), ex-Mayor of Falmouth, who is a diver.”* (Western Morning News: 23 April 1938).

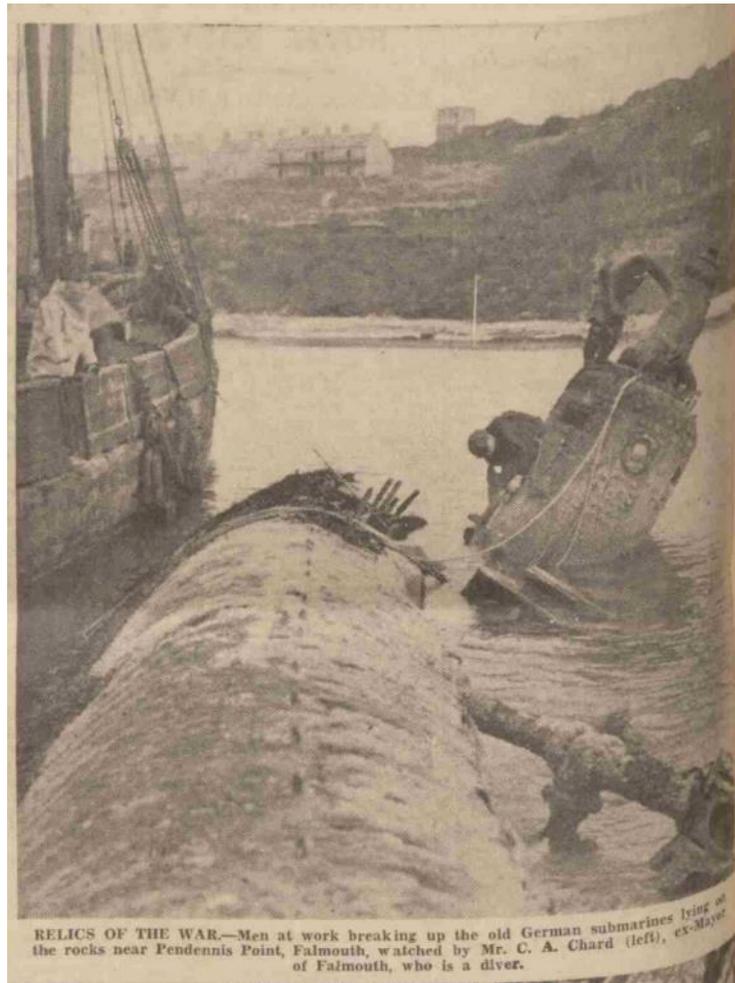


Figure 6: Western Morning News: 23 April 1938. Believed by Mark Milburn to be UB-112.

Several of the submarines at Pendennis were salvaged by Roland Morris who in 1969 describes: "*Many years ago, I cut up several ex-German submarines. These were the small First World War U-boats of about 800 tons and they lay about on the rocks at Falmouth like a flock of stranded whales.*" (Morris 1969: 12).

McCartney reports that as late as 1983, the wreck of UB-86 was sold to T & L Feeney for scrap (Pastscape: UB86).

4. Seabed Remains

4.1 Site Location and Environment

While a number of U-boat wrecks are known to exist off the western side of Pendennis Point, the exact number, their location and identity is unclear.

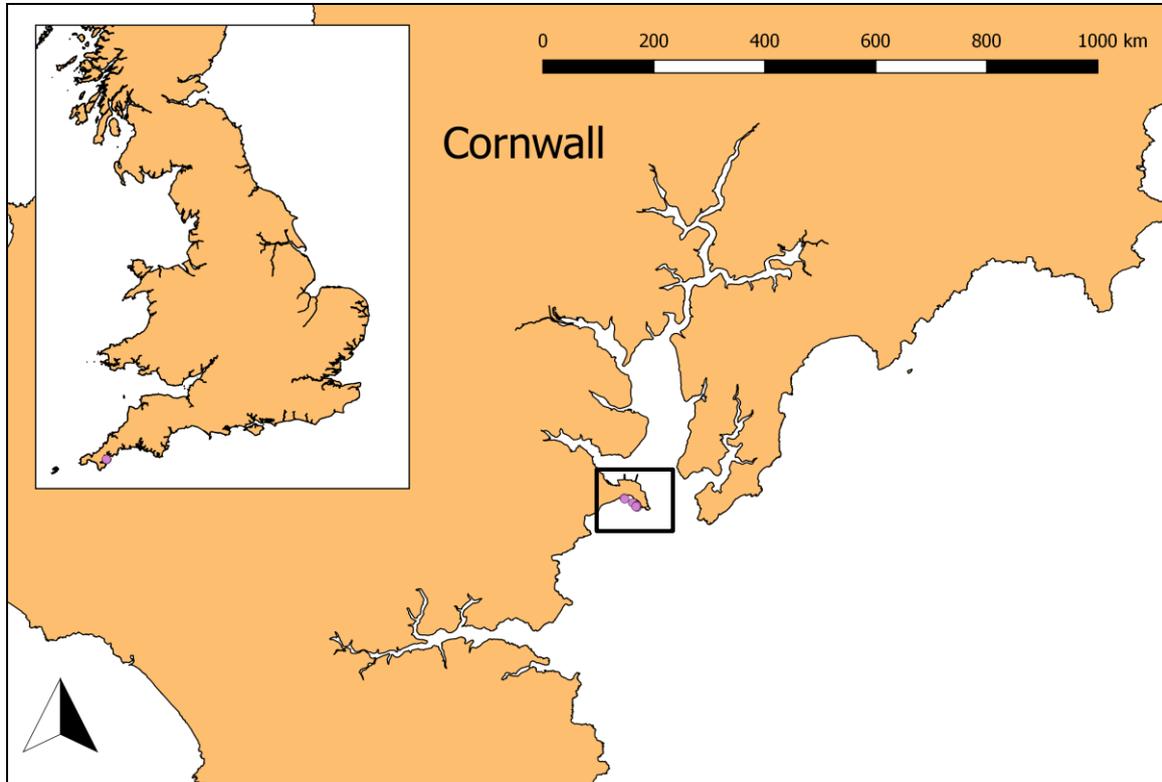


Figure 7: Location of the Pendennis U-boats site, near Falmouth, Cornwall

The Pendennis U-boats lie in and on the rocks and sandy seabed off the western side of Pendennis Point and Castle Beach, near Falmouth. Depths are in the region of 2-10m and can be accessed by snorkel as well as SCUBA. Marine life is abundant and thick kelp forests grow on the wreckage and seabed seasonally. The kelp obscures the nature and extent of remains on the seabed.

4.2 Archaeological Methodology

In 2013 Wessex Archaeology undertook a photographic survey of the U-boat wreck on Castle Beach, Falmouth (Figure 8). Their report concluded that it was the only minelaying submarine of the Pendennis U-boats: UC-92 (Wessex Archaeology 2013). UC-92 will not be covered in this report, except for artefacts recovered from the wreck that were recorded as part of the project (see Section 5).



Figure 8: The Castle Beach U-boat wreck (UC-92), image courtesy of Chanel Coast Observatory (2013 data). NB, the Falmouth Hotel can be seen at the top of the image, left of centre.

Forgotten Wrecks project work has included a non-diving site visit (see Section 2.3) and consultation of recent aerial photography, alongside historical photographs, in an attempt to determine the location and, where possible, likely identity of the U-boats at Pendennis.

4.3 Locating and Identifying the Remaining Pendennis U-boats

4.3.1 UB-86 and UB-112

The U-boat in the foreground of Figure 9 can be identified by its number being visible on the conning tower (UB-86).

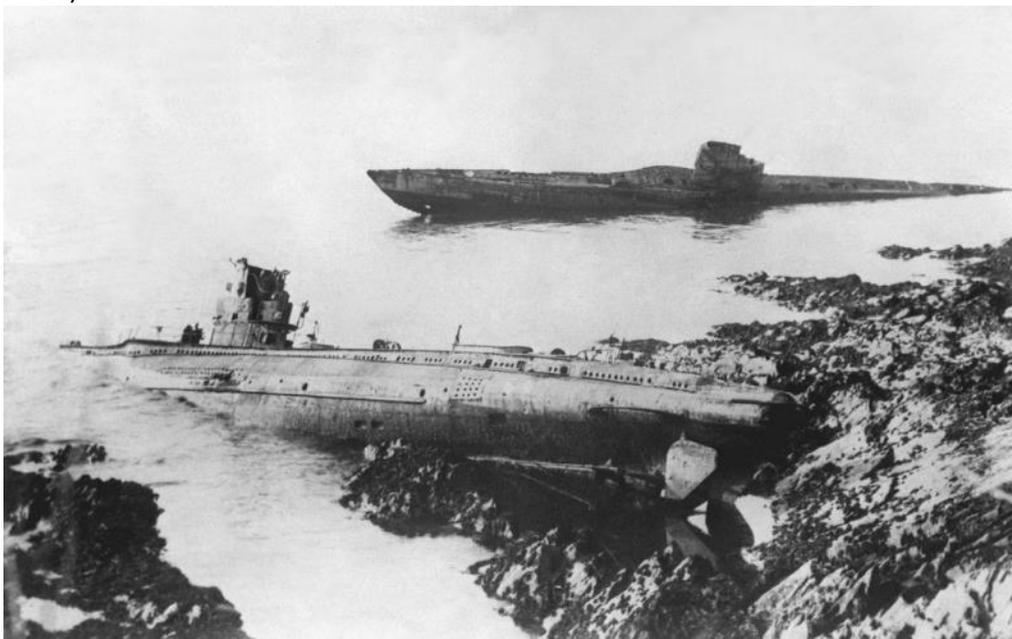


Figure 9: Photograph (date unknown) showing UB-86 (foreground) and UB-112 (background).

Another UB III submarine can be seen in the background of Figure 9. Amongst the photographs in the Falmouth explosive trials report, there is one of UB-112 'ashore' (Figure 10):



Figure 10: UB-112 ashore at Pendennis (TNA, ADM 189/102)

UB-112 was the subject of explosive trials at Falmouth on 20th November and 1st December 1920 (ADM 189/102). While *Maidstone's* log (see Section 3.2) refers to the beaching of U-boats near Falmouth, it does not identify which U-boats were beached on which date. However, a contemporary newspaper report clarifies that UB-112 was beached close to Pendennis Point by 16 December 1920 (West Briton and Cornwall Advertiser, 16 December 1920).

Although there are signs of physical deterioration of the U-boat in the background of Figure 10, close study of the features and markings of the U-boat in both photographs (Figure 9 and 10) clarifies that it is the same submarine.

Figure 11 shows the same two U-boats seen in Figure 9 (i.e. UB-86 in foreground and UB-112 behind) off the rocks on the western side of Pendennis Point. The Falmouth Hotel can be clearly seen on the other side of the bay and Figure 12 shows the same view in 2016.

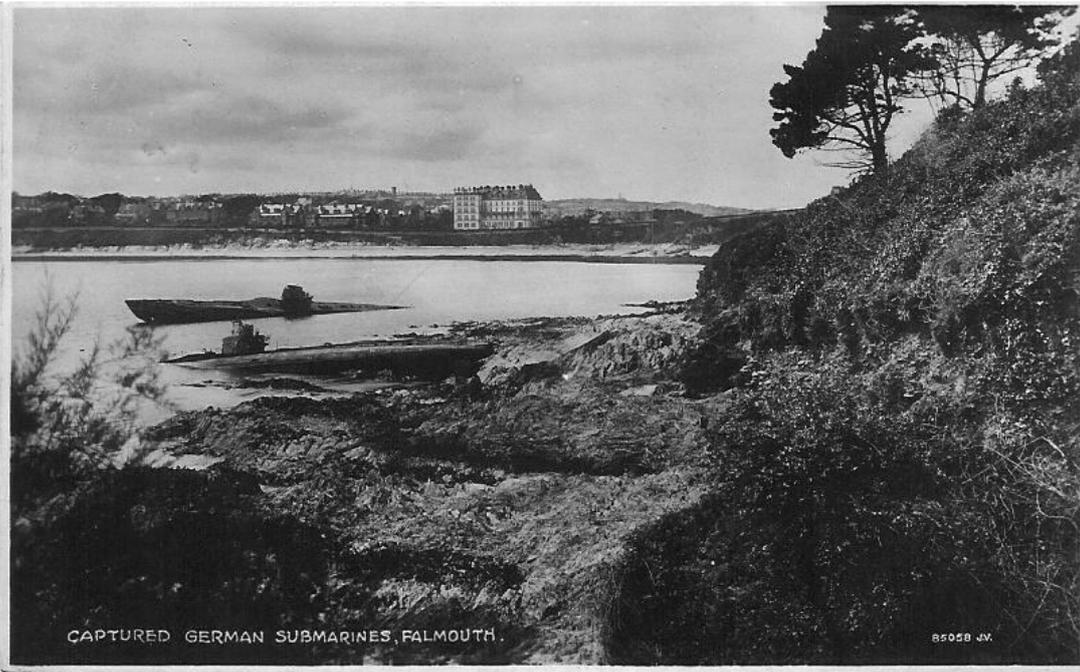


Figure 11: UB-86 (foreground), UB-112 (behind), Falmouth Hotel centre background. Image courtesy of Atlantic Scuba.



Figure 12: The western side of Pendennis Point, looking across to the Falmouth Hotel (2016)

Another of the photographs from the Falmouth explosive trials report shows UB-112 being beached (Figure 13).

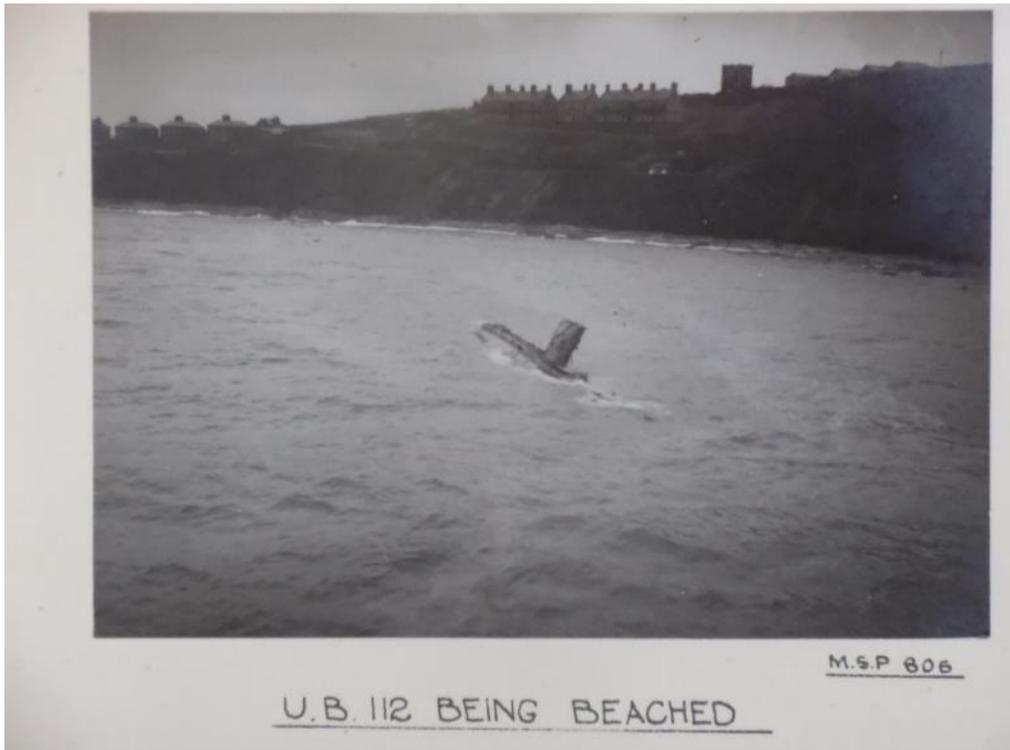


Figure 13: The beaching of UB-112 TNA, ADM 189/102

The buildings with chimneys that can be seen above the U-boat in the photograph (Figure 13) are still present today on Castle Close. The smaller single pitch-roofed building that can be seen closer to the water, with two white windows no longer survives, however, in the Chanel Coast Observatory orthorectified photography dataset from 2013, it can clearly be seen (Figure 14).

Another photograph (date unknown) looking down into the bay from Pendennis Point shows a single submarine, believed to be UB-112, by this time, the bow is missing (Figure 15).



Figure 14: Orange area indicates the approximate position of the remains of UB-86 and UB-112, red areas highlight buildings that can be seen in Figure 13. Image courtesy of Chanel Coast Observatory (2013 data)



Figure 15: Looking down into bay, probably UB-112, the Falmouth Hotel to right. Image Dive Falmouth.

Figures 9 - 15 and the buildings that can be seen in them, that still survive today, help determine an approximate location for where UB-86 and UB-112 ended up following the explosive trials in 1921 (Figure 14).

Mark Milburn of Atlantic Scuba has photographed U-boat remains off Pendennis Point and kindly shared them with the MAT for use in this report (Figure 16 – 21).



Figure 16: Remains of UB-86 at lowest spring tide



Figure 17: Remains of UB-86 at High Water



Figure 18: UB-86 wreckage.



Figure 19: UB-86 wreckage. Possible part of hydroplane guard.



Figure 20: UB-112 possibly part of hydroplane mechanism



Figure 21: UB-112 possibly part of hydroplane operating shaft.

Above photos courtesy of Mark Milburn, Atlantic Scuba.

Remains thought to be from UB-112 includes a section of superstructure, incorporating a double row of round holes in what appears to be hull plating (Figure 22). Comparison with some of the photographs of the UB IIIs from the explosive trials report (TNA, ADM189/102) suggests that this might be from the area just aft of the conning tower (Figure 23 & 24).



Figure 22: remains thought to be from UB-112 (photo: Mark Milburn)

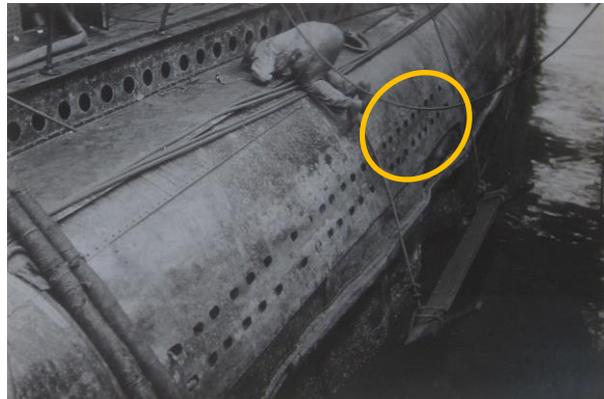


Figure 23: UB-86 (ADM 189/102)



Figure 24: UB-112 (ADM 189/102)

4.3.2 UB-106 & UB-128

Two more photographs from the Falmouth explosive trials report show UB-106 being hauled ashore on the western side of Pendennis Point, further towards the Point (SE) than UB-86 and UB-112, beneath a bend in Castle Drive (Figure 25).



Figure 25: UB-106, TNA, ADM 189/102

Figure 26 shows UB-106, stern up on the rocks, bow submerged and pointing into the bay.

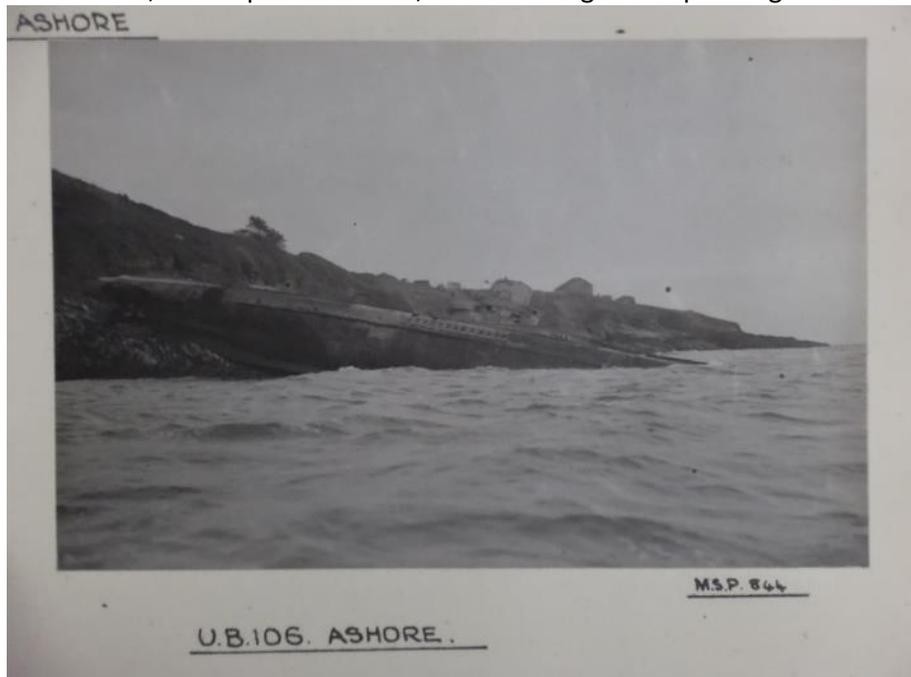


Figure 26: UB-106, TNA, ADM 189/102.

Figure 27 – 29 show seabed remains thought to be UB-106 as photographed by Mark Milburn in May 2018.



Figure 27: Believed to be from UB-106.
Possible steering link.



Figure 28: Believed to be from UB-106.
Frame and section of hull plating



Figure 29: Believed to be part of UB-106's pressure hull

The above photographs are courtesy of Mark Milburn, Atlantic Scuba.

The photograph in *The Sphere* in 1929 (Figure 4) appears to show the same U-boat, stern to shore, heeled to port, with a hole in the hull-plating on the starboard side, towards the stern. Another U-boat can be seen adjacent to the north. In another photograph, found by Mark Milburn in the Historic England archive (Figure 30) the number on this U-boat's conning tower reveals it to be UB-128.

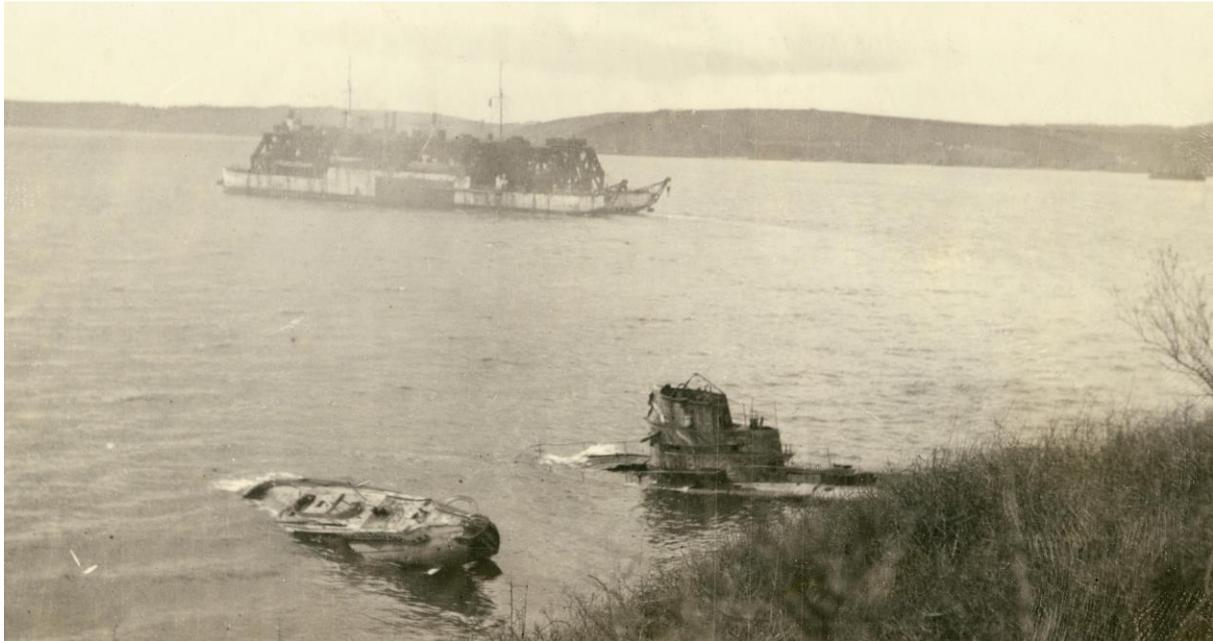


Figure 30: Photo showing *Cyklop* and two of the Pendennis U-boats off the rocks on the western side of Pendennis Point. The number UB-128 can be seen on the port side of the conning tower of the U-boat to the right, UB-106 can be recognised from other photographs (e.g. Figure 18 & 19). Image from Historic England archive.

The remains of a U-boat can be seen in the Channel Coast Observatory ortho-rectified photography dataset from 2013 in this approximate location (Figure 31).



Figure 31: U-boat remains off the Silver Steps, Pendennis. Image courtesy of Chanel Coast Observatory (2013 data)

The remains are oriented approximately NE/SW and measurements from the ortho-rectified photography dataset give an approximate length of 40m. An intact UB III had an overall hull length of just under 55m and a pressure hull length of 40m.

Looking NW along the western side of Pendennis Point today (Figure 32), the Falmouth Hotel can be seen on the other side of the bay, right of centre. The remains of UB-106 lie off the rocks here, along with the remains of UB-128.



Figure 32: Western side of Pendennis Point 2016

Figure 33 – 37 show seabed remains thought to be UB-128 as photographed by Mark Milburn in May 2018.



Figure 33: Believed to be from UB-128.

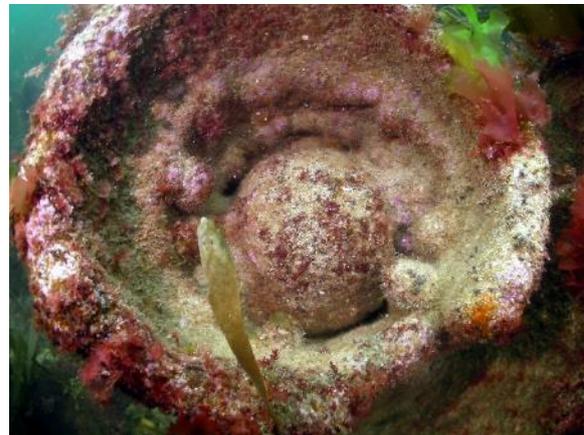


Figure 34: Believed to be from UB-128. Possible con rod and gudgeon pin in cylinder bore, piston eroded away.



Figure 35: Believed to be from UB-128. Possible con rod.



Figure 36: Believed to be from UB-128. Possible crank shaft.



Figure 37: Believed to be UB-128. Hull structure, possibly from near keel towards bow or stern.
The above photographs are courtesy of Mark Milburn, Atlantic Scuba.

Amongst the rocks, rusted metal pins and sockets can be seen (Figure 38 & 39), probable remnants of the activity required to haul the U-boats ashore in 1921 (see Figure 25).



Figure 38: Metal pin (bottom left), diameter 450mm, found in the rocks.



Figure 39: Metal pin and socket concreted into rock near the site of UB-106 (2016).

Another historical photograph shows UB-112 and UB-86, along with a third U-boat lying on its starboard side, parallel to the shore (centre of Figure 40).



Figure 40: U-boats off western side of Pendennis Point, UB-112 in background, UB-86 to right. Image copyright Morrab Library, reproduced with permission.

This U-boat can also be seen behind the two people in Figure 41, with what is believed to be UB-128 to the left (south).



Figure 41: Western side of Pendennis Point, right to left: UB-112, UB-97, UB-128. Falmouth Hotel right edge. Image copyright Morrab Library, reproduced with permission.

4.3.3 UB-97

The relatively intact U-boat that can be seen lying parallel to the shore in both photographs (Figure 40 and Figure 41), lies between the two pairs of U-boats (UB-112/UB-86 and UB-128/UB-106). By a process of elimination, because the other five U-boats have been accounted for, this must be UB-97, also seen, photographed from the stern and in relatively intact condition, in Figure 42.



Figure 42: UB-97 lying parallel to the shore, photographed from the stern, looking forwards. Image copyright Morrab Library, reproduced with permission.

Yet another date-unknown photograph (Figure 43) shows UB-106 (stern high on the rocks to the left), UB-128 alongside and what appears to be a much deteriorated UB-97, still parallel with the shore, conning tower, bow and stern now missing.



Figure 43: Looking south along the western side of Pendennis Point, UB-106 and UB-128 can be seen to the left of the picture. UB-97 lies, stern to the right/north. Date Unknown. Photo courtesy Mark Milburn.

UB-97 can be seen some years later in Figure 44. While the date for this photograph is not known, the absence of a bow on UB-112 in the background and the apparent condition of UB-97, indicates it must be of a later date than Figure 41.



Figure 44: Pendennis U-boats (date unknown) from right to left: UB-112, UB-86 and UB-97 in foreground. Image courtesy Mark Milburn.

Seabed remains in this location were photographed by Mark Milburn in 2018 (Figure 45 - 51) and include possible frames, a hatch cover, cylinders and parts of a hydroplane arrangement.



Figure 45: Believed to be UB-97 Possible frames.



Figure 46: Believed to be UB-97 Possible bow frames (v-shaped).

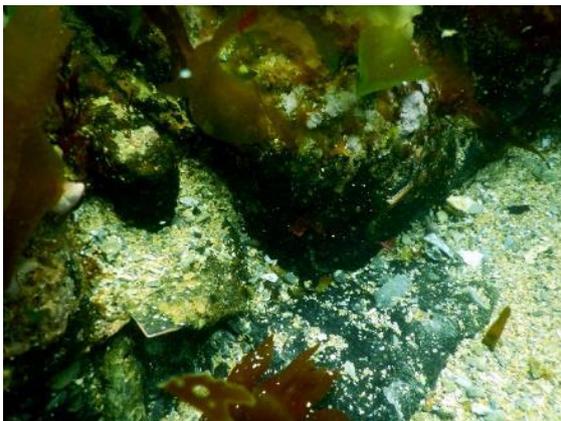


Figure 47: Believed to be UB-97 Possible piece of electric motor.

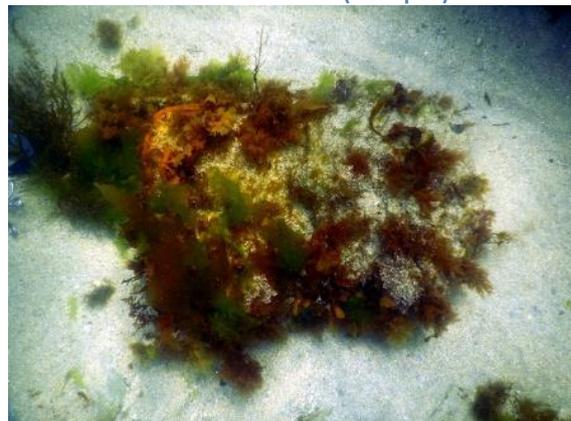


Figure 48: Believed to be UB-97 Possible hatch door.



Figure 49: Believed to be UB-97. Possible keel block.



Figure 50: Believed to be UB-97. One of several supposed HP air cylinders in the vicinity.



Figure 51: Believed to be UB-97. Possible part of hydroplane mechanism.

The above photographs are courtesy of Mark Milburn, Atlantic Scuba.

Between UC-92 on Castle Beach (Figure 8) and UB-112/UB-86 beneath the Castle Drive Parking Layby (Figure 15) several features (Figure 52) can be seen amongst the sand and rocks in the Channel Coastal Observatory 2013 ortho-rectified photography data that look similar to the remains of UC-92 (Figure 8).



Figure 52: Seabed features beneath where Cliff Road meets Castle Drive. Image courtesy of Channel Coastal Observatory (2013 data). NB the remains of UC-92 can be seen centre bottom and the Falmouth Hotel can be seen top left of the image

Measurements from the ortho-rectified photography dataset (Figure 52) give an approximate length for the feature of 50m, however, ground-truthing dives by Mark Milburn in May 2018 determined that these were natural features and no U-boat remains were to be found in these positions.

In May 2018, Mark Milburn, using a GPS camera, collected positions (Table 1) for the various submarine wreck remains on the seabed off Pendennis Point. Please note, the identifications assigned to the various U-boat remains below are based on the historical photographs and reasoning above. These positions have been plotted on a GIS (Figure 53).

| Submarine | Approximate position |
|--|--|
| UB-86 (end furthest from shore) | 50:8:44.424N 5:3:2.022W (MM) 50.14567333333333,-5.05056166666667 (MM) |
| UB-86 (HP air cylinder) | 50:8:44.412N 5:3:1.638W (MM) 50.14567,-5.050455 (MM) |
| UB-86 (Highest point – shows most LW) | 50:8:44.574N 5:3:0.851W (MM) 50.145715,-5.05023638888889 (MM) |
| UB-97 (stern hydroplane) | 50:8:43.212N 5:2:58.128W (MM) 50.14533666666667,-5.04948 (MM) |
| UB-97 (electric motor piece) | 50:8:43.146N 5:2:57.474W (MM) 50.14531833333333,-5.049298333333333 (MM) |
| UB-97 (hatch door) | 50:8:42.732N 5:2:57.112W (MM) 50.14520333333333,-5.049197777777778 (MM) |
| UB-97 (keel weight) | 50:8:42.516N 5:2:57.222W (MM) 50.14514333333333,-5.049228333333333 (MM) |
| UB-97 (gas cylinders and curved piece of similar diameter) | 50:8:42.408N 5:2:57.426W (MM) 50.14511333333333,-5.049285 (MM) |
| UB-97 (bow frames) | 50:8:41.898N 5:2:56.250W (MM) 50.14497166666667,-5.048958333333333 (MM) |
| UB-106 (hull, largest and shallowest part) | 50:8:40.767N 5:2:55.854W (MM) 50.1446575,-5.048848333333333 (MM) |
| UB-106 (hull) | 50:8:40.698N 5:2:56.028W (MM) 50.14463833333333,-5.048896666666667 (MM) |
| UB-106 (torpedo tube pieces & HP air cylinder) | 50:8:40.032N 5:2:55.818W (MM) 50.14445333333333,-5.048838333333333 (MM) |
| UB-106 (possible conning tower) | 50:8:39.732N 5:2:55.164W (MM) 50.14437,-5.048656666666667 (MM) |
| UB-106 (steering link) | 50:8:41.430N 5:2:55.962W (MM) 50.14484166666667,-5.048878333333333 (MM) |
| UB-112 Bow (possible hydroplane) | 50:8:44.826N 5:3:4.698W (MM) 50.145785,-5.051305 (MM) |
| UB-128 (bow) | 182221.4, 31609.7 (from CCO) 50.144466, -5.049415 (WGS84) |
| UB-128 (stern on rocks) | 182243.0, 31647.4 (from CCO) 50.144815, -5.049129 (WGS84) |
| UB-128 (furthest piece from shore) | 50:8:40.218N 5:2:58.074W (MM) 50.144505,-5.049465 (MM) |
| UB-128 (engine part) | 50:8:40.920N 5:2:57.354W 50.1447,-5.049265 |
| UC-92 (bow towards beach) | 181767.48, 31943.89 (from CCO) Lat/Long: 50.147299, -5.055951 (WGS84) |
| UC-92 (stern) | 181787.31, 31909.00 (from CCO) Lat/Long: 50.147001, -5.055652 (WGS84) |

(MM): position of seabed remains identified by Mark Milburn, positions recorded with GPS camera in May 2018.



Figure 53: GPS positions (courtesy of Mark Milburn) for the U-boat wreck remains at Pendennis, Cornwall (UB-112, UB-86, UB-97, UB-128, UB-106)

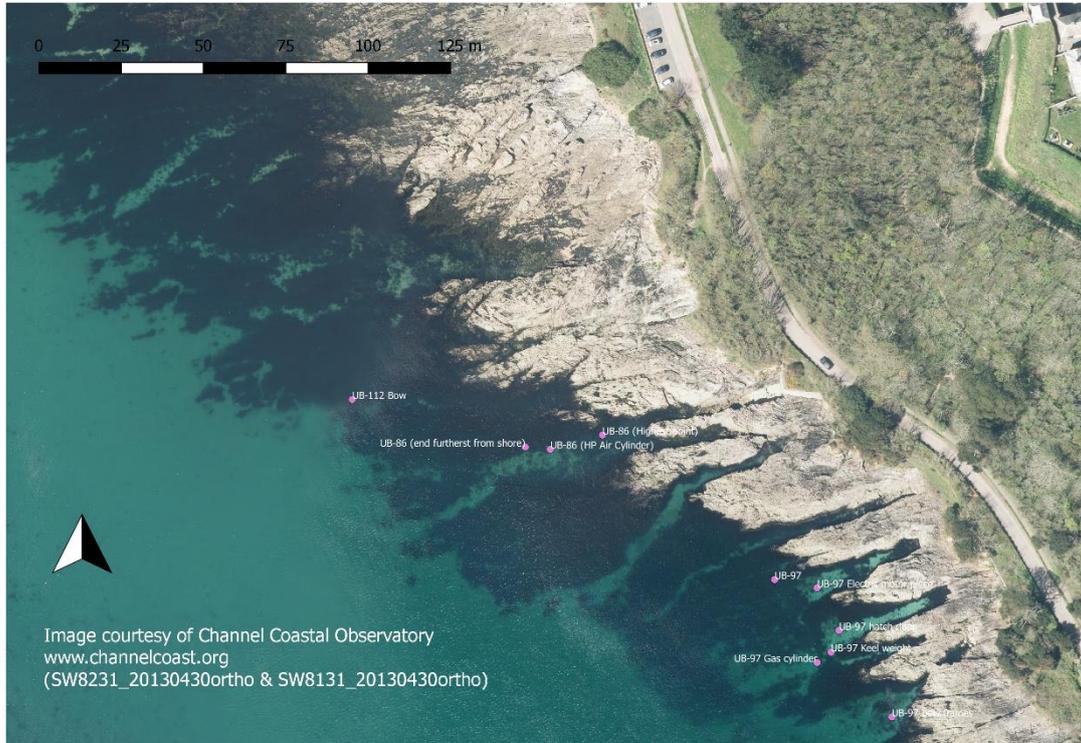


Figure 54: GPS positions (courtesy of Mark Milburn) for the U-boat wreck remains (UB-112, UB-86, UB-97)



Figure 55: GPS positions (courtesy of Mark Milburn) for the U-boat wreck remains (UB-86, UB-97, UB-128, UB-106)

Summary

All six U-boats (UB-112, UB-86, UB-97, UB-128, UB-106 & UC-92) were brought to Falmouth for use in the explosive trials of November/December 1920 and January to March 1921. Between December 1920 and 11 March 1921 the submarines were deliberately beached and hauled ashore by parties of marines and seamen dispatched from ex-German submarine-raiser *Cyklop* and parent ship *Maidstone*. Five of the U-boats were visible at various states of the tide for many years. Figure 6 shows one of them being dismantled for scrap as late as 1938.

5. Recovered Artefacts

Objects recovered from the Pendennis U-boats are held within a number of private collections. It has been possible to identify the following artefacts recovered from the Pendennis U-boats and reported to the Receiver of Wreck either during the wreck amnesty in 2001, or subsequently:

- Brass tap (Droit A/242)
- Brass (Droits A/243 and A/245)
- A brass valve and gear cogs (Droit A/246)
- A brass handle (Droit A/247)
- A piece of brass shaft, a gauge cover, and a hatch cover, recovered from wreck thought to be UB-86, position 50 09N 005 03W (Droit A/1575).

The Forgotten Wrecks project enabled the recording in 2016 of the following artefacts recovered from the Pendennis U-boats and held in private collections:



Thought to be from: UB-86
 Brass washer
 Dimensions (mm): diameter 65, thickness 13, weight 176g



Thought to be from: UB-86
 Torpedo tube fragment
 Dimensions (mm): L 305, W 160, H 8, weight 1802g



Thought to be from: UC-92
 Bracket with multiple fixing holes
 Dimensions (mm): L 100, W 56, H 20, weight 536g



Thought to be from: UC-92
 Battery fragment
 Dimensions (mm): L 60, W 63, weight 50g



Thought to be from: UC-92
 Battery fragment
 Dimensions (mm): L 110, W 50, weight 71g



Thought to be from: UC-92
 Bracket with multiple fixing holes
 Dimensions (mm): L 103, W 55, H 21, weight 556g



Thought to be from: UC-92
 Concreted brass valve
 Dimensions (mm): L 105, W 90, H 40, weight 768g



Thought to be from: UC-92
 Lever operated brass tap
 Dimensions (mm): L 68, W 60, H 50, weight 156g



Thought to be from: UC-92
 Slate object
 Dimensions (mm): L 175, W 161, H 20, weight 1155g



Thought to be from: UC-92
 Slate object
 Dimensions (mm): L 158, W 140, H 20, weight 860g



Thought to be from: UC-92
 Clay pipe stem
 Dimensions (mm): L 59, W 9-12, Weight 6g



Thought to be from: UC-92
 Clay pipe stem
 Dimensions (mm): L 57, Diameter 8, Weight 5g



Thought to be from: UC-92
 Brass stopper, ring top with threaded base.
 Dimensions (mm): L 63, W (handle) 45, weight 212g



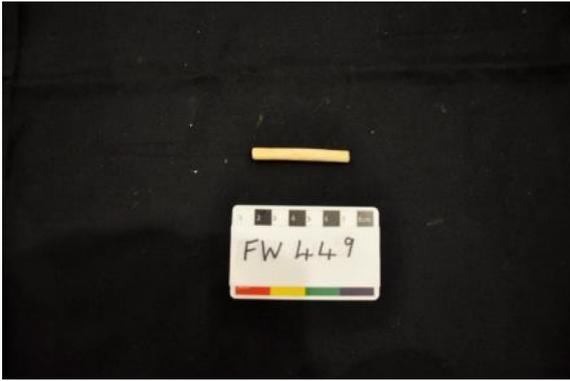
Thought to be from: UC-92
 Lead covered wire
 Dimensions (mm): L 490, Diameter 16, weight 272g



Thought to be from: UC-92
 Bearing case
 Dimensions (mm): L 39, Diameter 52, weight 206g



Thought to be from: UC-92
 Composite screw mechanism, possibly related to trimming of submarine
 Dimensions (mm): L 567, W 280, H 215



Thought to be from: UC-92
Clay pipe stem
Dimensions (mm): L 55, Diameter 5, Weight 4g



Thought to be from: UC-92
Brass pulley wheel
Dimensions (mm): Diameter 90, Thickness 20, Weight 269g



Thought to be from: UB-128
Battery fragment



Thought to be from: UC-92
Clay pipe fragment



Thought to be from: UB-106
Part of a battery case (see below for embossed text)



SR
Accumulatoren-Fabrik
Berlin
Hagen
Actiengesellschaft

Accumulatoren-Fabrik: established in 1888 and initially based in Hagen, Germany, were leading suppliers of batteries in Austria and Germany (Wikipedia.org).

Figure 56: Collection of recovered material from the Pendennis U-boats

6. Site Significance & Potential Further Research

The south west side of Pendennis Point is an unusual site of archaeological interest, comprising the remains of six First World War U-boats (UB-86, UB-97, UB-106, UB-112, UB-128, UC-92). *Strategic Assessment of Submarines in English Waters* identified 17 interwar German submarine losses within English Territorial Waters and the fact that “Parts of at least twelve German boats from this period of activity (one UBII, ten UBIIIs and one UCIII) have been found within the study area”. It makes specific reference to the Pendennis U-boats, describing them as the “largest group” of inter-war German submarine wrecks.

Since their deliberate beaching in 1920/21, the Pendennis U-boats have been subject to natural and human destructive processes, including numerous instances of salvage (see Section 3.5). As a result, the remains are broken and scattered. However, recent on-site investigation by Mark Milburn, combined with assessment of historical documents and newspapers as outlined in this report, has enabled a clearer picture of which U-boats are present at Pendennis, and approximate locations for where each U-boat ended up, as well as an explanation of why and how they came to be there.

The Strategic Assessment report recognised that “There may be some group value in these boats despite the condition and problems identifying specific parts of specific vessels” (Cotswold Archaeology 2014: 39). While the dispersed nature and regular kelp coverage of the wrecks limits their archaeological potential, further study of extant remains could provide valuable information about the UB III Type submarines, their construction, fixtures and fittings.

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8. Appendices

8.1 Online video relating to Pendennis U-boats

| | | | |
|---|---|--------------|--------------------------|
| Publishing date: | 3 July 2017 | Publisher: | Atlantic Scuba |
| URL: | https://youtu.be/US14u_FkAz4 | | |
| Last accessed: | | License: | Standard YouTube License |
| Length: | 2:01 mins | Description: | Dive footage |
| Notes: very clear conditions, close ups of wreck structure (camera not moving) hull structure and frames can be seen. | | | |

| | | | |
|---|---|--------------|--------------------------|
| Publishing date: | 2 February 2017 | Publisher: | Atlantic Scuba |
| URL: | https://youtu.be/gfFy6xdvUts | | |
| Last accessed: | 30 April 2018 | License: | Standard YouTube License |
| Length: | 2:13 mins | Description: | BBC Spotlight report |
| Notes: Includes historical photos, dive footage of UC-92 and reference to clay pipe stem found on UC-92 and Pathe news footage of U-boats at Harwich and ships. | | | |

| | | | |
|---|---|--------------|--------------------------|
| Publishing date: | 28/12/2011 | Publisher: | Atlantic Scuba |
| URL: | https://youtu.be/24IfAMz2ISY | | |
| Last accessed: | 30 April 2018 | License: | Standard YouTube License |
| Length: | 2:03 mins | Description: | Dive footage |
| Notes: Castle Beach U-boat wreck dive (UC-92), shore dive, max depth 8m, video shows extant wreck structure, largely overgrown with kelp. | | | |

| | | | |
|---|---|--------------|--------------------------|
| Publishing date: | 20 August 2013 | Publisher: | Ashley Hold |
| URL: | https://youtu.be/Ew6vXDszS5Y | | |
| Last accessed: | 30 April 2018 | License: | Standard YouTube License |
| Length: | 3:34 mins | Description: | Snorkelling footage |
| Notes: wreck structure can be see with much marine growth, wreck lies on sandy seabed | | | |

| | | | |
|--|---|--------------|--------------------------|
| Publishing date: | 20 March 2014 | Publisher: | Stu Last |
| URL: | https://youtu.be/NTNNaLPq0Qs | | |
| Last accessed: | 30 April 2018 | License: | Standard YouTube License |
| Length: | 1:37 mins | Description: | Dive footage |
| Notes: sections of riveted hull plating can be seen and frames, possible section of drive shaft, wreck is on sand & gravel seabed with kelp cover. | | | |