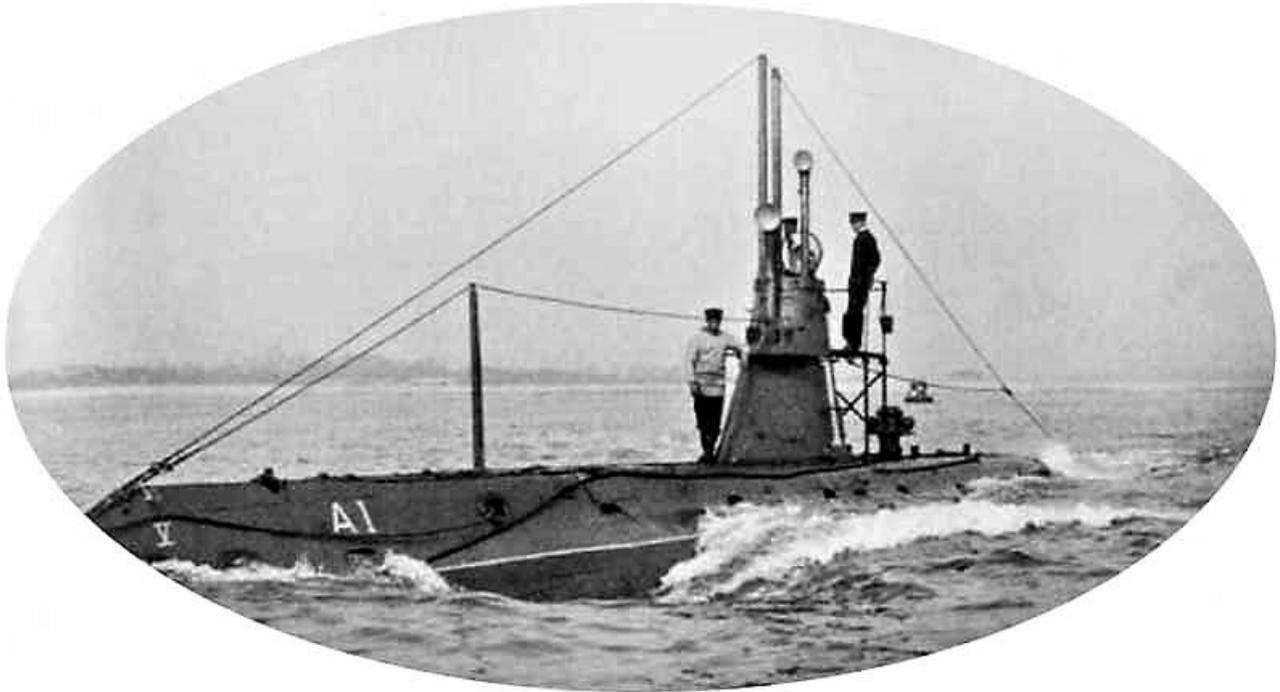




BRITISH SUBMARINE HMS *A-1*



First experiments in underwater “vessels” are recorded in the 17th century but it was John Holland, born in Ireland in 1841, who emigrated to America in 1872 and started work on submarine design, initial designs for which were dismissed by the US Naval Department. But he persevered, acquiring funding for successive models, which led to the success of his “Holland” prototypes. While the American authorities remained partly sceptical, Holland sold his designs to America, France, Japan and Britain, each of whom pursued their own design based on the early Holland vessels. Germany’s own experiments had not been successful, and they decided to experiment with a Holland vessel. France pioneered the periscope.

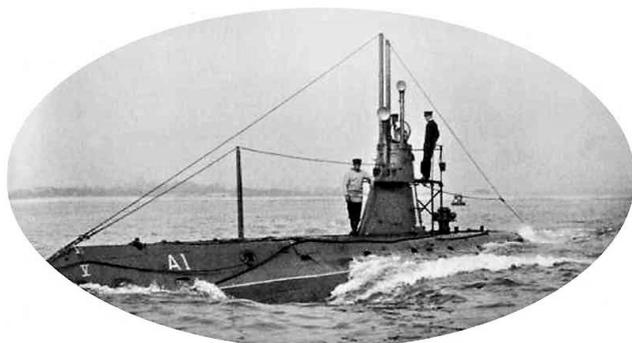


Figure 1: HMS A-1 (Undated)

Source: http://haslarheritagegroup.co.uk/index.php?option=com_content&view=article&id=49:clayhall-cemetery&catid=20:the-buildings-of-haslar&Itemid=109

With Kind Permission of the Haslar Heritage Group

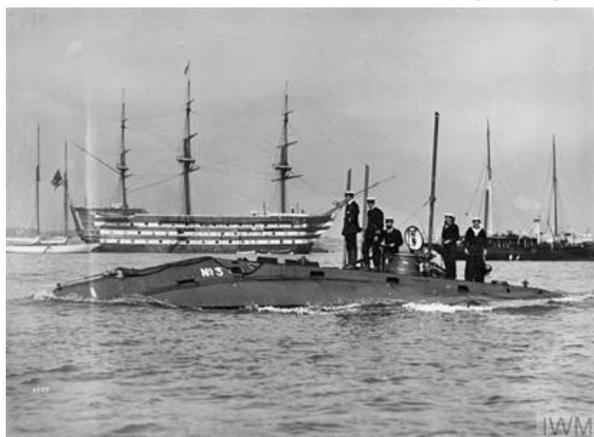


Figure 2: HMS Holland 3

Source: <https://www.iwm.org.uk/collections/item/object/205024652>

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with the help of Sir Howard Grubb, an authority on optics, an improved periscope by now seen as a vital part of the submarine. Figure 2 including HMS *Victory* in the background, is the third of the five similar but smaller experimental submarines, preceding HMS *A-1* and shows the previous smaller shape of the conning tower. *A-1*'s armament comprised two 450mm torpedoes, fired through a single bow tube and the vessel's design crew complement was two officers and nine ratings.

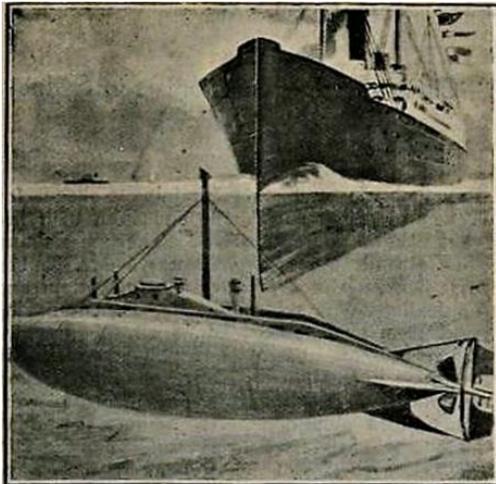
HMS *A-1* created unwanted history, being the first British submarine to be sunk together with the first eleven casualties of the submarine service. Prior to that event, there was an explosion on board, caused by hydrogen when still at Vickers's yard and later, being towed to Portsmouth to join the Fleet, seawater reached its batteries, causing evacuation from the vessel.

On 18 March 1904, an exercise went very wrong. As *A-1* was practicing an attack against HMS *Juno*, a protected cruiser, SS *Berwick Castle* struck the *A-1*'s conning tower on its starboard side. The *A-1* sank near the Nab Tower off the Isle of Wight in shallow water only about 12m deep, but flooded internally, drowning all 11 on board. The *Berwick Castle*, ON114822, was a much larger Glasgow built ship of 5,883

The Admiralty had been dismissive at first of submarines but the American and French work persuaded them to follow suit. A batch of five submarines for testing tactical suitability were ordered in early 1901, built under licence from America by Vickers at Barrow-in-Furness, named *Holland 1* to 5. Captain Reginald Bacon, the first Inspecting Captain of Submarines, concluded that these vessels were too small, resulting in a larger *Holland 6* being built. Reflecting the decision to identify the vessel type as “A” Class, *Holland 6* was renamed *A-1*, becoming the first submarine for the Royal Navy, Figure 1.

HMS *A-1* was launched on 9 July 1902 by Vickers, Sons & Maxim Ltd. at Barrow-in-Furness but not completed until 23 July 1903. Displacing 190 tons, it was steel hulled, 31.47m long and 3.58m wide, propelled by a single screw from one 16-cylinder 450hp petrol engine or from one 150hp battery driven electric motor. This motive power gave service speeds of 11 knots for a range of 325 miles surfaced, and submerged, 7 knots for 20 miles. It included a higher, improved conning tower, and

gross registered tonnage en route from Southampton to Hamburg and although the pilot was still onboard, he and the *Berwick Castle's* captain had not been informed about the presence of submarines – they did however report that they thought that they had struck a dummy torpedo. The significance of the report was realised later when A-1 failed to surface, and about a month later, the A-1 was recovered by the Neptun Salvage Company of Stockholm. Figures 3 and 4 give illustrations of the possible loss and recovery.



By courtesy of "Illustrazione Italiana."
How the Submarine "A1" may have been run down.

Figure 3: How HMS A-1 may have been sunk

Source: https://commons.wikimedia.org/wiki/File:Demise_of_the_A1.jpg

Unknown author. Public Domain



Figure 4: Raising a Submarine, Circa 1904 (William Lionel Wyllie, Public domain, via Wikimedia Commons)

Source: <https://commons.wikimedia.org/w/index.php?search=Berwick+castle&title=Special:MediaSearch&type=image>

Figure 4's catalogue description includes: *Inscribed by the artist, as Raising a Submarine. Although not specifically identified, this may be the A1. On 18 March 1904 the submarine 'A1' (1902) was sunk in collision with the merchant ship 'Berwick Castle' off the Nab lightship, off the Isle of Wight. On 18 April the boat was raised off the bottom in great secrecy, towed inshore to St Helen's Roads, lifted to just below the surface and then brought into Portsmouth, still in this almost completely submerged state. It was dry-docked well after dark and the bodies of the crew removed. 'A1' was subsequently repaired and put back into service, being paid off and sunk as a target in 1911. No photographs of this salvage operation have yet been found and if this drawing records it, it shows the boat already at the surface rather than being held submerged as was the case. However, the heavy-lift barges appear to be wooden and the tugs appropriate for that date. (The National Maritime Museum, Greenwich, London).*

The 11 casualties are buried at Haslar, in the Clayhall Royal Navy Cemetery, Gosport commemorated by a memorial obelisk and headstone which bears all 11 names, Figure 5 overleaf. The four-sided inscribed obelisk is Grade II listed and was erected for HMS A-1, each of the other three sides being subsequently



Figure 5: HMS A-1 Memorial Obelisk & Headstone
 Source: See Figure 1.
 With Kind Permission of the Haslar Heritage Group.

inscribed as memorial for tragic losses between 1904 and 1912 to the crews of HMS A-5 (1905 - 6 killed), HMS A-8 (1905-15) and HMS A-3 (1912-14).

An undated photograph depicting A-1 alongside a ship, with three of the other five experimental submarines, *Holland 1-3*, is shown in Figure 6, again illustrating the differences in sizes.

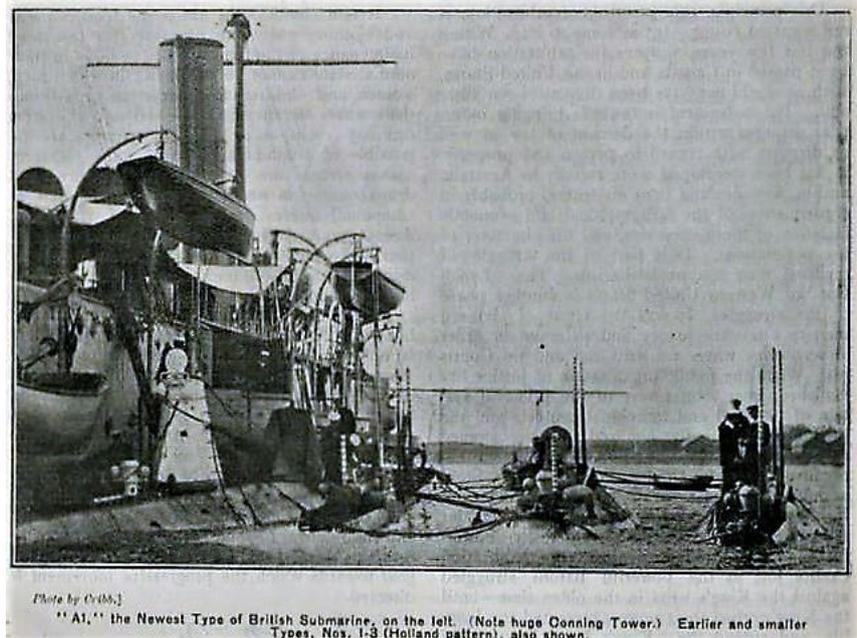


Photo by OMB.
 "A1," the Newest Type of British Submarine, on the left. (Note huge Conning Tower.) Earlier and smaller Types, Nos. 1-3 (Holland pattern), also shown.

Figure 6: HMS A-1 alongside three predecessor Holland Submarines

Source: https://en.wikipedia.org/wiki/HMS_A1#/media/File:A1_Submarine_-_May_1904.jpg
 Public Domain. Review of Reviewers for Australasia, 1904 issue.

Following repairs, the A-1 was returned to service but in 1910, an onboard explosion caused by a build-up of gases injured seven crew. In 1911, The unmanned A-1 was operating as a submerged target but was lost off Selsey Bill. Recovery was started the next day, but although the location had been marked with a buoy, the wreck could not be found, and it was not until 1989 when it was found by a fisherman, snagged in his nets, some five miles distant in Brackelsham Bay, near East Wittering, West Sussex. It is surmised that when lost, it had retained some buoyancy and had been carried by the tidal currents. The wreck still lies there, in about 11m of water.

The Ministry of Defence sold the wreck in 1994 to Martin Woodward, owner of the Shipwreck Centre and Maritime Museum, Isle of Wight. An artefact collection project followed and now the Maritime Museum is the only location where artefacts from HMS A-1, numbering over 50, are on display. The wreck lies mostly intact but was partially buried in a fine sandy soft seabed, sloping at about 10 degrees to the stern when inspected initially in August 1997 by the Archaeology Diving Unit which reported that the hull was badly corroded in areas, some sections missing, but the pressure hull was apparently intact. However, there was evidence of interference by either other divers or boat anchors. A year later, remote bathymetry and side scan surveys were carried out, the wreck still upright and generally as before, and observing that the bow hatches were closed, and with a large piece of casing some 14m away on the port side.

On 26 November 1998, the wreck was designated under the Protection of Wrecks Act (1973) and redesignated to extend the area covered on 5 October 2004.

Another survey, in September 1999, one year later, showed that vandalism had increased; *“both forward torpedo loading hatches, previously secured by divers from Chichester BSAC, have been forcibly opened, allowing access to the hull interior. An internal inspection revealed that wooden fittings like stowage lockers were in an excellent condition, but a number of fittings had been removed. The small circular deadlights have been removed”*. In 2000, clearance divers from the Southern Diving Unit Two successfully sealed access to the wreck. Further dives were undertaken in 2005 for more recording, which noted that many of the external fittings had, illegally, been forcibly removed. The wreck of HMS A-1 is protected by the Ministry of Defence, the Department for Culture Media and Sport and is supported by the owner Martin Woodward.

The Nautical Archaeology Society (NAS), with funding from Historic England, established a diver visitor trail for the A-1 wreck and this can be visited by arrangement for suitably experienced divers with the NAS and the Southsea branch of the British Sub-Aqua Club. For the non-diver there is a virtual dive trail where you can view how the remains look on the seabed alongside a range of information photographs and video, this can be accessed here: <https://www.nauticalarchaeologysociety.org/a1-submarine-dive-trail>

The bathymetry survey is shown in Figure 7, depicting the conning tower, torpedo loading hatches, scour around the bow and partly buried stern.

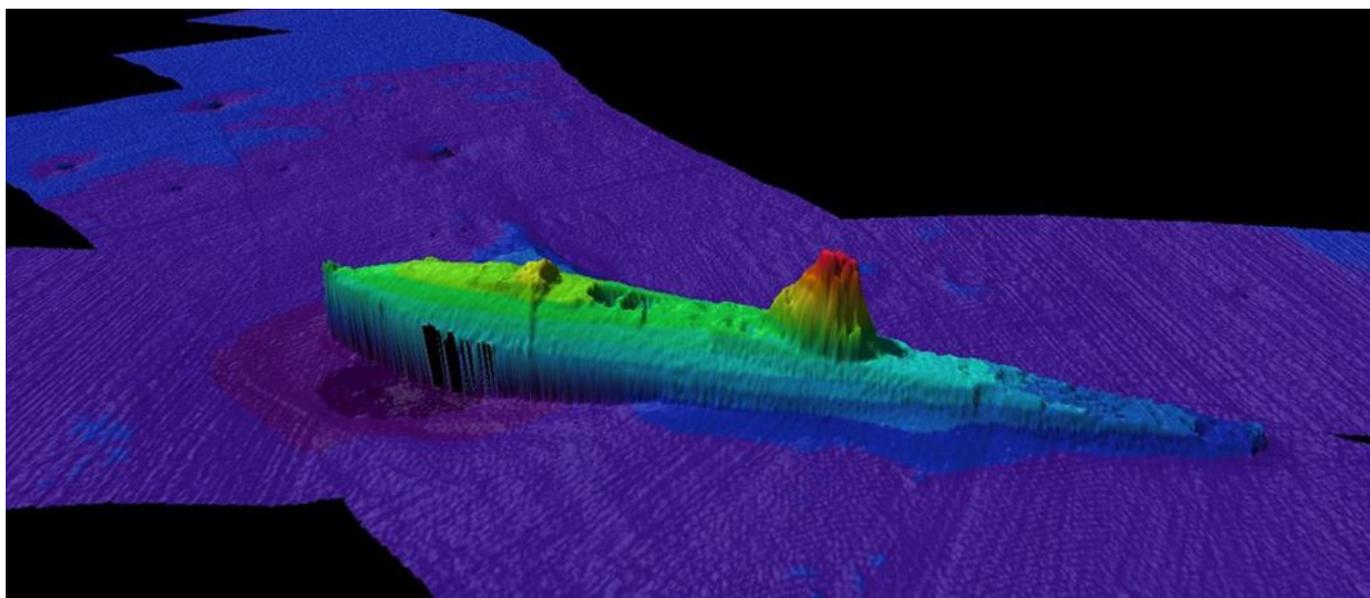


Figure 7: HMS A-1 Bathymetry

Source: With the Kind Permission of the Nautical Archaeology Society & MSDS Marine