

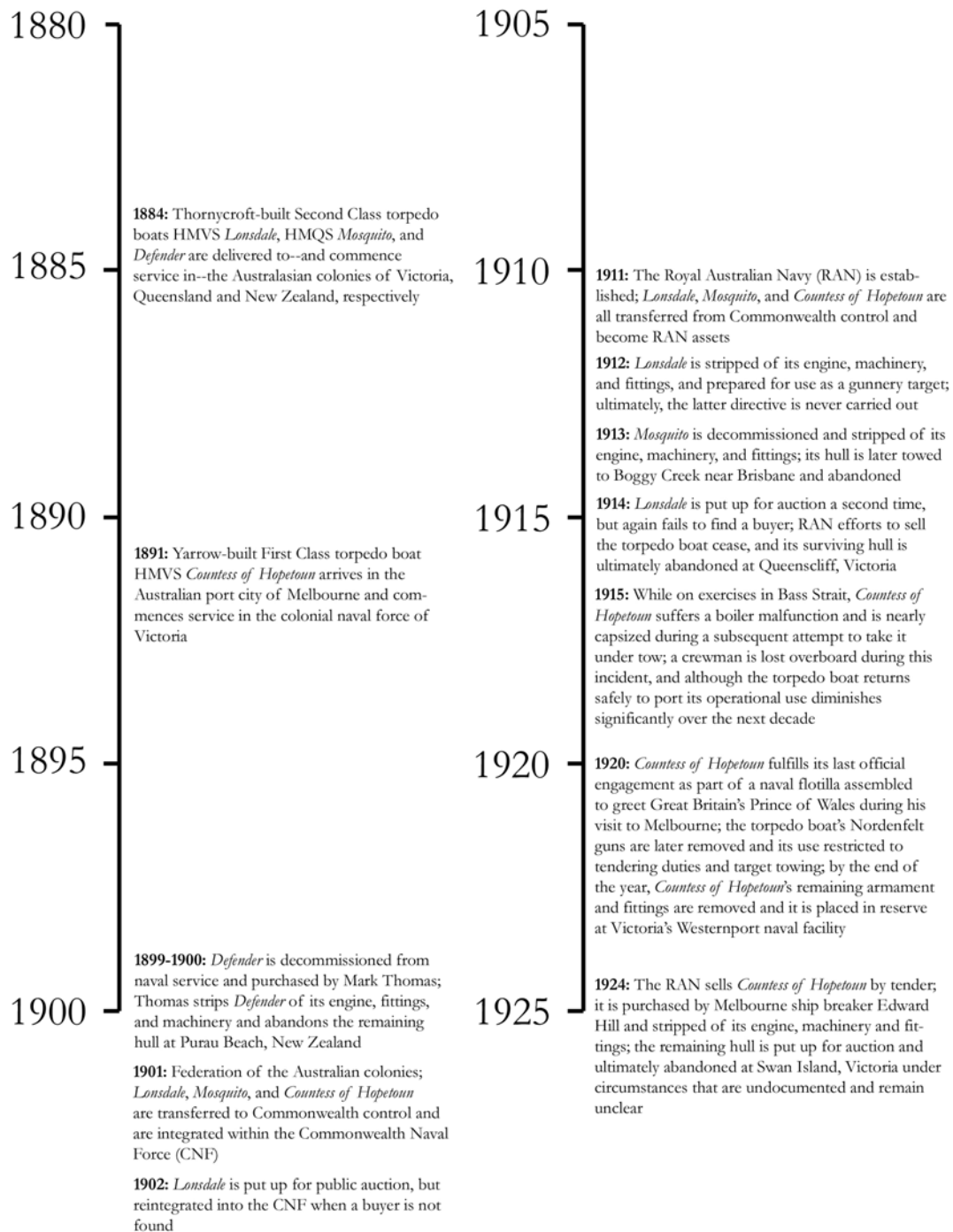
## CHAPTER SIX

### TORPEDO BOATS AND TORPEDO BOAT DISCARD AND ABANDONMENT IN AUSTRALASIA, 1884-1924

*The empty shells of the torpedo boats Lonsdale and Nepean, which at one time formed important factors in the navy of Victoria, are to be shattered by the guns of the H.M.A.S. Encounter. The date of destruction has not yet been fixed, but it is known that the tiny boats will soon be turned adrift and come to an honourable end by an overwhelming hail of live shell (The [Melbourne] Argus, 20 July 1912)*

#### Introduction

This chapter provides an historical and archaeological examination of four torpedo boats operated by the colonial navies of Australia and New Zealand between 1884 and 1924. Three of these craft, the Second Class variants HMVS *Lonsdale*, HMQS *Mosquito*, and *Defender*, served the colonies of Victoria, Queensland, and New Zealand, respectively. The fourth, Victoria's First Class torpedo boat HMVS *Countess of Hopetoun*, was the last and largest warship of its kind purchased for the Australasian colonies, and the final vessel from the former colonial fleets to be decommissioned. Each is addressed chronologically, based on the date it first entered service with its respective naval force, with particular emphasis placed on discard events that marked the conclusion of each boat's active duty career. The timeline in Figure 48 provides a summation of each vessel's respective history and a reference for the narrative that follows. All four torpedo craft have been the subject of varying degrees of archaeological investigation, including two field surveys conducted specifically as a result of this thesis project. Data compiled from these research efforts has been examined and analysed—in conjunction with pertinent archival sources—to highlight abandonment processes unique to each vessel, as well as discard trends shared among the assemblage in its entirety.



**Figure 48.** Timeline showing military service, post-military use, and abandonment of the Australasian torpedo boats HMVS *Lonsdale*, HMS *Mosquito*, New Zealand vessel *Defender*, and HMVS *Countess of Hopetoun*.

### HMVS *Lonsdale* and HMVS *Nepean*

On 6 January 1883, the colonial government of Victoria entered into an agreement with J. I. Thornycroft & Co. to purchase two identical Second Class torpedo boats at an individual cost of £3,300. Each was to be constructed of galvanised, high-tensile steel and follow a design 'similar in all respects' to Thornycroft torpedo vessels supplied to the British Royal Navy (Queenscliffe Maritime Museum [hereafter QMM]: MP 160/140-72/1053, 6/1/1883; Holmes 1897: 33). Although ordered and constructed around the same time as the Thornycroft boats produced for Queensland, Tasmania, and New Zealand, the Victorian boats featured a slightly different hull design and upperworks/casemate arrangement. They also exhibited dimensions subtly different from those of their Australasian contemporaries, including a maximum length and breadth of 67 feet (20.4 metres) and 7 feet, 6 inches (2.2 metres), respectively. The draught of the Victorian boats, at 1 foot, 1 inch (0.33 metres) forward and 3 feet, 3 inches (0.98 metres) aft, was slightly greater than that of the other colonial vessels, as was their 12.5-tonne displacement (QMM: MP 160/140-72/1053, 6/1/1883; *The Argus*, 8 July 1884; Breaks 1892; Gillett 1982: 117). Gillett (1982: 117) notes the inverted direct-acting compound engine that powered each vessel was capable of generating 150 indicated horsepower and a maximum speed of 17 knots (31.5 kilometres per hour); however, Jones (1986: 57) claims the power plant could attain much greater power (168 horsepower) and speed (17.6 knots, or 32.6 kilometres per hour).

As was common practice for torpedo craft constructed for the Royal Navy and its colonial auxiliaries, the Victorian boats were originally named for their respective building yard numbers. Upon completion of its speed trials in early 1884, *Torpedo Boat No. 189* was renamed HMVS *Nepean*, and *Torpedo Boat No. 190* became HMVS *Lonsdale*. Shortly thereafter, both vessels were loaded as deck cargo aboard the steamer *Port Darwin* and

transported to Melbourne, where they arrived on 7 July 1884. The presence of the Second Class boats augmented Victoria's existing torpedo boat asset (HMVS *Childers*) and brought the total number of vessels in the colony's fleet to seven (Gillett 1982: 115-117). In later years, two more torpedo craft would join the Victorian navy (Kerr and Kerr 1979: 49-50; Gillett 1982: 121, 126-128). The wooden-hulled 'turnabout' torpedo launch HMVS *Gordon* entered active service in 1886, followed in 1891 by a Yarrow-built First Class vessel, HMVS *Countess of Hopetoun* (discussed below). Victoria's five torpedo boats comprised the largest fleet of its type in the British colonies, and contributed to Melbourne's distinction as 'the most heavily defended city in Australia and possibly the Empire' (Straczek 1996: 13).

Some disagreement exists among historians as to the manner in which *Lonsdale* and *Nepean* were armed while engaged in active naval service. Gillett (1982: 117) claims both boats were only armed with 'electrical' dropping gear for two 14-inch Whitehead torpedoes, and lacked the spar torpedo and machine gun-carrying capabilities of the Thornycroft boats deployed in Tasmania, Queensland, and New Zealand. Jones (1986: 57) and Cahill (2009: 133-134) corroborate the use of Whitehead torpedoes aboard each vessel, but assert they were originally fired via compressed air through a bow-mounted launching 'trough'. Jones also posits that spar torpedoes were originally used aboard *Lonsdale* and *Nepean* as a supplemental form of armament, but later removed—along with the torpedo launching system in the bow—in an effort to improve the sea keeping qualities of both vessels (Jones 1986: 78, 90). Evans (1971: 158) offers a third alternative, in which the Victorian Second Class boats were armed with a pair each of side-mounted Whitehead and bow-mounted spar torpedoes for the entirety of their careers. Several archival photographs depict one or both boats carrying Whiteheads in side-mounted dropping gear (Figure 49), and at least one historic newspaper account specifically mentions an incident in which *Lonsdale* was damaged

‘while practising with [its] spar torpedoes’ (*The South Australian Advertiser*, 28 April 1885).

Aside from a stylised illustration of a ‘Victorian second-class torpedo boat’ that appeared in the *Australasian Sketcher* on 27 August 1883, none of the archival photographs consulted for this study depict either *Lonsdale* or *Nepean* with the bow-mounted torpedo launcher described by Jones.



**Figure 49.** *Lonsdale* underway in Port Phillip Bay ca. 1905, showing Whitehead torpedoes mounted on dropping gear amidships. Image courtesy of the Queenscliff Maritime Museum (no accession number).

*Lonsdale* and *Nepean* received their first operational assignment during the latter half of 1884, when they served as part of an escort flotilla for Victoria’s Governor. The voyage, undertaken in conjunction with the Victorian gunboats *Albert* and *Victoria*, as well as HMVS *Childers*, delivered the Governor from Port Phillip Heads to the training vessel HMVS *Nelson* and back to Port Melbourne. By July of the following year, both Second Class boats were slipped at the Williamstown Naval Depot undergoing maintenance. Following a brief torpedo exercise with *Childers* in November 1885, they were slipped once again, this time to have marine growth removed from their hulls. For reasons that are unspecified in the

historical record, *Lonsdale* and *Nepean* remained on their respective slipways until April 1886, when they participated in a series of mock naval attacks during Melbourne's annual Easter military manoeuvres. In the wake of the 1887 Easter training exercises, both boats were laid up for approximately one year, at which time their bows were reportedly modified for service in heavy seas and their torpedo dropping gear replaced with an improved 'electrical' version of the apparatus (Gillett 1982: 117-118; Jones 1986: 90).

Following Federation of the Australian colonies in 1901, *Lonsdale* and *Nepean* were transferred to Commonwealth control, but barely lasted a year in the new naval force before being put up for auction. All potential buyers, including a New Zealand-based munitions company that may have intended its purchases for use as ammunition storage hulks or targets, flatly rejected the asking price of £400 per boat (*The Argus*, 17 December 1902; Gillett 1982: 118). Both vessels were subsequently placed back into active service, but no longer expected to operate in a frontline capacity. For much of the next decade, *Lonsdale* and *Nepean* were intermittently engaged in training cruises or naval exercises with other ships of the former Victorian colonial fleet, and—in an ironic twist—often responsible for towing targets during torpedo practice demonstrations (*The Argus*, 22 July 1909; Gillett 1982: 118).

During the latter half of June 1912, Melbourne newspaper *The Argus* reported that *Lonsdale* and *Nepean* had been reduced to 'shells' devoid of their engines, internal fittings, and machinery, and were being prepared for transfer to Swan Island, there to be used as gunnery targets by the cruiser HMAS *Encounter* (*The Argus*, 20 June 1912 and 20 July 1912). On 16 and 17 July 1912, the Royal Australian Navy carried out its directive to transport the stripped hulls to Swan Island, where they were subsequently beached and secured. Inexplicably, it also reversed the decision to utilise them for target practice. *Lonsdale* and *Nepean* remained at Swan Island until June 1914, when Melbourne's other daily, *The Age*, announced they were

once again for sale and available for inspection (*The Age*, 4 June 1914). Neither vessel received a suitable tender, and following the outbreak of the First World War in July 1914, the RAN's efforts to sell them ceased (Gillett 1982: 119). The final disposition of both torpedo boats is unclear, although at least two overview histories claim they were broken up on the Yarra River during the 1920s (Gillett 1982: 119; Jones 1986: 165). One of these sources (Gillett 1982: 119) includes an archival photograph (Figure 50) that purports to show *Nepean* abandoned 'at Fisherman's Bend [in the] Port of Melbourne about 1929-30'.



**Figure 50.** Abandoned vessel purported to be the torpedo boat *Nepean* at Fisherman's Bend, Port of Melbourne ca. 1929-30. Image taken by Peter Williams and courtesy of Ross Gillett.

### **Archaeological Investigation of HMVS *Lonsdale***

Interest in the final whereabouts of *Lonsdale* and *Nepean* emerged in the late 1970s when members of the Maritime Archaeology Association of Victoria (MAAV) were informed that an 'old torpedo boat' was reportedly abandoned on the beach at Queenscliff,

Victoria around 1920 (Arnott 1999). MAAV subsequently embarked on a three-year search for the Queenscliff torpedo vessel in 1980, initially utilising a magnetometer and water probe at specific locations indicated by local lore and memory. A search for archival material was carried out in conjunction with the field surveys in an attempt to pinpoint the location of its hull; however, the documents derived from these efforts seemed to contradict the assertions of local informants, as they made no specific mention of either *Lonsdale* or *Nepean* being abandoned at Queenscliff.

Undeterred, MAAV altered its strategy and utilised hydrographic survey data to locate and follow the former 1920 shoreline, which had been buried in subsequent years by sediment accretion generated as a result of nearby channel dredging. MAAV volunteers located the torpedo boat's remnants in 1983 under nearly 1.5 metres of beach sand, a short time after adopting the revised survey methodology (Arnott 1999; Hewitt and Tucker 2009: 13, 23). In recognition of its significance, the site was listed on the Victorian Heritage Register, while a subsequent newspaper appeal to the public for information about the torpedo boat resulted in a handful of previously unpublished historic photographs featuring its beached hull (see Figures 52, 53 and 54).

Discovery of the vessel's conning tower in 1983 confirmed its identity as one of Victoria's Thornycroft Second Class torpedo boats; however, its distinction as either *Lonsdale* or *Nepean* remains in doubt to this day. According to Hewitt and Tucker (2009: 24) the site's tentative identification as *Lonsdale* is based on at least three different local oral testimonies, including that of a former naval officer who served on the vessel as a young man (Cahill 2009: 134). Local lore also provided some indication of the torpedo boat's intended or actual use following removal from active naval service. One story (Les Irving Dusting, as cited in Hewitt and Tucker 2009: 24) suggests the vessel was to be used as a barge for the



transportation of potatoes between the Bellarine Peninsula and Melbourne, but was abandoned at Queenscliff instead. Another related by fisherman Frank Ferrier in a letter to the Queenscliffe Maritime Centre (now the Queenscliffe Maritime Museum) states the boat may have been used during the early twentieth century to transport passengers and cargo around the Port Phillip Bay area (Ferrier 1989).

In November 1997, Heritage Victoria's Maritime Heritage Unit (HV-MHU), working with the assistance of MAAV volunteers and the Queenscliffe Maritime Museum (within whose property *Lonsdale* is buried), conducted follow-up investigations at the site. The vessel's conning tower was re-exposed and recorded, and also used as a point of reference for a geophysical survey intended to establish the hull's orientation and extent (Schwartz 1997). Information derived from both magnetic and electromagnetic readings taken directly above *Lonsdale's* projected location confirmed the presence of a subsurface 'elongated shallow conductor' indicative of extant hull remains, but also revealed the presence of numerous extraneous iron objects that gave the site the semblance of 'a [buried] junk yard' (Schwartz 1997: 2-3). Heritage Victoria reviewed the survey results, but did not find them compelling enough to warrant additional subsurface investigation at the site (Hewitt and Tucker 2009: 25).

Towards the end of 2004, an access road realignment proposed in conjunction with redevelopment of Queenscliff Harbour threatened to negatively impact the torpedo boat site. The solution—devised by HV-MHU, Parks Victoria and an independent engineering consultancy—called for construction of a ground-level road bridge that spanned *Lonsdale's* hull and its associated material culture. To ensure the footprint of the proposed bridge abutments would fall well outside the site's projected boundary, limited subsurface investigations were undertaken by archaeological consulting firm TerraCulture Heritage

Consultants (TCHC) to confirm the location and orientation of all hull remains and associated artefacts, whether extant or disarticulated (Hewitt and Tucker 2009: 16).

The first phase of the project commenced in November 2005, and comprised relocation and reevaluation of *Lonsdale's* conning tower. Measurements obtained during the survey allowed project archaeologists to confirm the hull's overall orientation, inclination fore-and-aft, and list from true vertical. An Electronic Distance Measurement survey was utilised to superimpose and scale the conning tower's recorded dimensions to *Lonsdale's* construction draughts, thereby projecting the probable locations of the bow and stern relative to the required positions of the proposed bridge abutments. In an effort to minimise impact to the vessel's remnants, the 2005 subsurface investigations did not extend beyond the conning tower (Hewitt and Tucker 2009: 25-26).

Shortly after the 2005 investigations concluded, project archaeologists were informed of a new piece of local historical information relevant to the location and condition of the torpedo boat site. In his 1989 letter to the Queenscliff Maritime Museum, Frank Ferrier indicated that *Lonsdale's* hull was 'cut in half' and moved during construction of a boundary fence at Queenscliff's former Buoy Depot around 1926 (Ferrier 1989). Comparison of the hull's archaeologically documented position with that shown in historic photographs (see below) appeared to support Ferrier's assertion. Concerned that the torpedo boat's forward section might be absent, or disarticulated from the hull and in a location other than that estimated from the 2005 investigations, representatives of HV-MHU and TCHC elected to conduct additional investigations at the site in an effort to locate the bow and validate the proposed bridge footprint (Hewitt and Tucker 2009: 26).

The effort to confirm the presence and location of *Lonsdale's* forward section commenced in March 2006. In a fortunate turn of events, the groundwater level was much

lower during this phase of the project than previous investigations, allowing archaeologists to uncover the conning tower to its junction with the vessel's casemate superstructure. Additionally, other hull features, including a portion of the engine compartment after bulkhead and lifting rings mounted just forward of the conning tower, were accessible for the first time and subsequently documented. As excavation proceeded forward from the conning tower, all recognisable contiguous hull structure disappeared, save for a 1.73-metre disarticulated section representing the extreme fore end of *Lonsdale's* distinctive 'ram' bow (Figure 51).



**Figure 51.** *Lonsdale's* conning tower and disarticulated bow section *in situ*, as they appeared during the 2006 excavation. Image courtesy of Geoff Hewitt and TerraCulture Heritage Consultants.

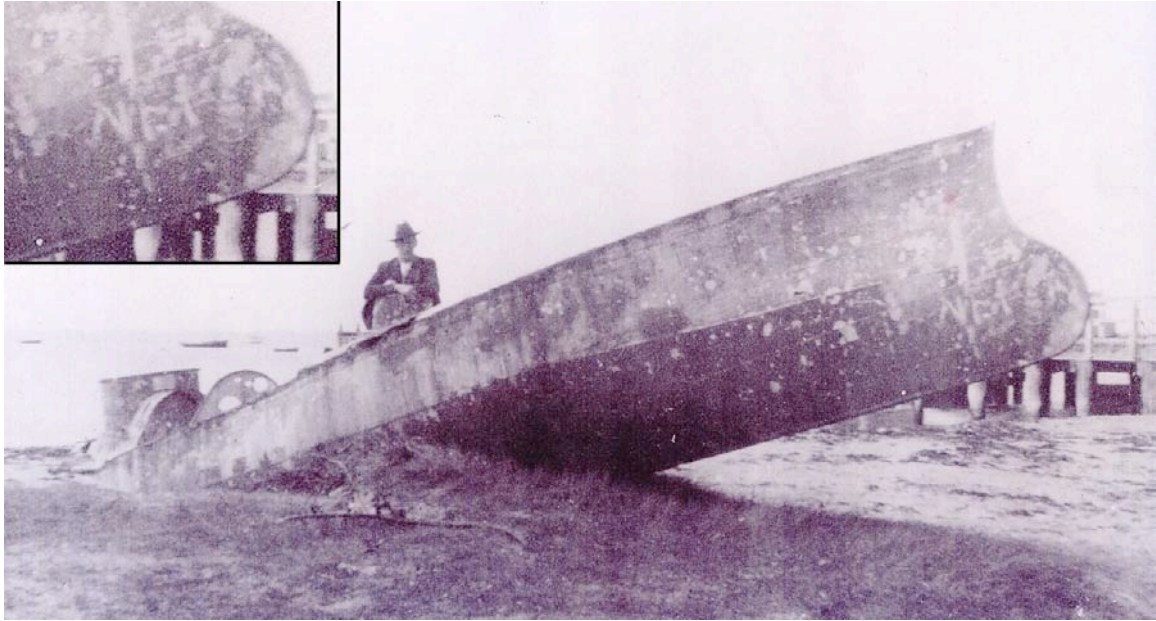
The bow section was discovered immediately forward of—and adjacent to—the conning tower, oriented 45-degrees to the run of the hull and with its keel facing upwards (Hewitt and Tucker 2009: 27). Attempts to locate additional structure closer to the projected forward extremity of the vessel only encountered a 'dark planar mass' and disarticulated framing components suggesting the torpedo boat's foreship had collapsed into 'incoherent

structure' (Hewitt and Tucker 2009: 30-32). The findings of the 2006 investigations cleared the way for construction of the access road, and also provided some substance to local oral histories that asserted *Lonsdale's* bow was cut away and moved elsewhere during the 1920s.

### **Discard and Abandonment Attributes of HMVS *Lonsdale***

Following disposal by the RAN in 1914, *Lonsdale* and *Nepean* effectively disappeared from official records, if not entirely from public memory. Folklore concerning the vessel and its association with Queenscliff originated from local residents and fishermen, the majority of whom were able to recollect its appearance and approximate location. Interestingly, the information shared by these individuals, and later confirmed by a handful of archival photographs and archaeological investigation, differed considerably from existing historical literature, which claimed both of Victoria's Second Class torpedo boats were stripped and broken up on the Yarra River near Williamstown (Gillett 1982: 119; Jones 1986: 165).

The three archival photographs known to exist that depict *Lonsdale* after it was decommissioned from naval service all show the vessel abandoned on the beach at Queenscliff (Figures 52, 53 and 54). Although the exact day, month, and even year that each was captured on film is currently a matter of some dispute, the sources from which they were acquired generally agree that all date to a ten-year span between 1915 and 1925. In each instance, the torpedo boat is shown with its hull exposed from the conning tower (just aft of midships) to the cutwater bow. Two images clearly reveal that the hull aft of the conning tower was completely buried at the time it was photographed. Given the presence of what appears to be live vegetation growing from the ground immediately adjacent to the embedded hull, this burial episode may have occurred some time prior to when it entered the visual archival record.



**Figure 52.** *Lonsdale's* abandoned hull at Queenscliff, Victoria ca. 1915; *inset*, apparent graffiti etched into surviving paint on the cutwater bow. Image courtesy of the Queenscliff Maritime Museum (no accession number).



**Figure 53.** Launch of a 'Couta' boat at Queenscliff, with the abandoned hull of *Lonsdale* (highlighted by arrow) in the background. Image courtesy of the Queenscliff Maritime Museum (no accession number).

In each photograph, *Lonsdale* is positioned with its bow angled upwards and facing away from Port Phillip Bay. The hull's stern-down orientation resulted in approximately the first quarter to one-third of the foreship standing completely proud of the beach. At the

intersection between the upper face of the bow weather deck and cutwater, the hull appears to have protruded nearly two metres above the ground, and where exposed the vessel's underside beneath the waterline is characterised by a distinct colour contrast that almost certainly represents *Lonsdale's* surviving coat of anti-fouling paint. The paint is chipped and pitted in several areas along the visible (starboard) bow, and even seems to have been marked with graffiti near the curve of the cutwater (see Figure 52, inset).



**Figure 54.** 1920s-era photograph of an unidentified girl standing in front of *Lonsdale's* abandoned hull. Note cut away deck plates, as well as lifting lug immediately to the right of the girl's parasol. Image courtesy of Des Williams.

Perhaps the most remarkable feature revealed by these photographs is the degree to which *Lonsdale's* hull still appears as it did when in operational service. Outwardly, the shell of the torpedo boat is clearly intact to the gunwales, and various hull components including internal framing, casemate support structure and the conning tower, are all still in their

original positions. The only obvious exception is the steel plating that comprised the weather deck and armoured casemate. These architectural elements appear to have been either removed entirely or cut open in an effort to facilitate removal of the torpedo boat's engine, boiler, internal fittings, and machinery. The conning tower hatch cover and majority of external fittings are also absent, although at least one deck-mounted lifting lug is visible immediately to the right of the girl's parasol in Figure 54.

Archaeological investigation of *Lonsdale's* abandonment site focussed almost exclusively on providing confirmation of the vessel's identity, as well as the overall extent and condition of its surviving hull. Nonetheless, data recovered as a result of these efforts has proved useful in the development of general hypotheses regarding the torpedo boat's discard. Factors such as *Lonsdale's* site location, abandonment environment, and the condition of its surviving hull were examined and assessed through the filter of watercraft discard signatures outlined by Richards (2008: 145-177). This information was then compared with the historical evidence discussed above to develop a more thorough picture of *Lonsdale's* abandonment and the cultural processes that may have influenced it.

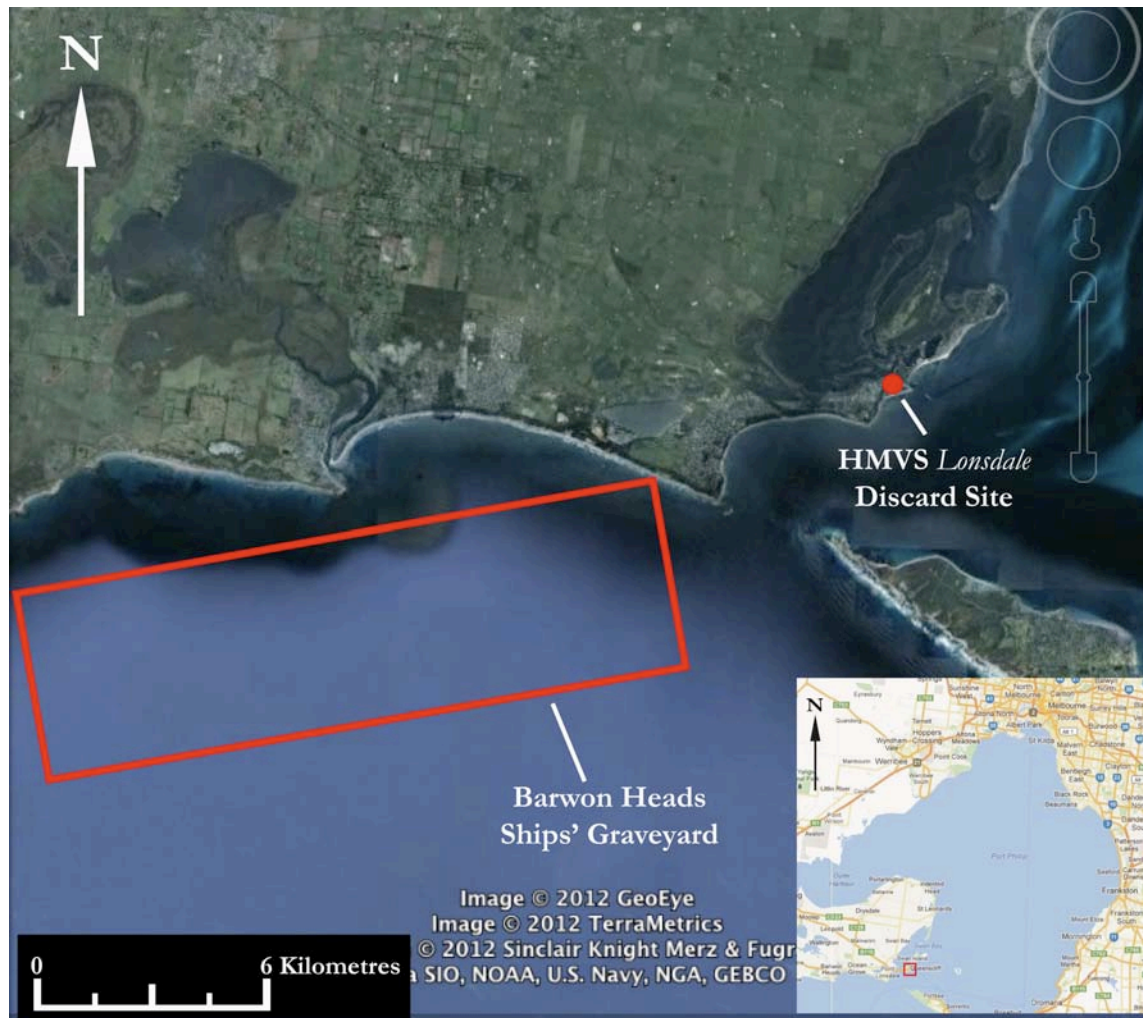
Whereas *Lonsdale's* hull was once partially exposed and located a very short distance from the waters of Port Phillip Bay, today it is buried in beach sand at a depth of between 1.3 and 2.1 metres below the modern land surface and more than 150 metres from the current shoreline. The vessel's burial was the result of gradual foreshore progradation at Queenscliff. The catalyst for this process was a combination of natural sediment deposition and silting associated with creation of an adjacent shipping channel and safe anchorage known as 'The Cut' during the 1930s (Hewitt and Tucker 2009: 4). Over several decades, the prograding shoreline migrated eastwards away from site and created land upon which the Queenscliffe Maritime Museum and former Queenscliff Buoy Depot were later constructed.

At the time of its discovery in 1983, the hull straddled the property boundary of these facilities.

*Lonsdale's* discard locale is situated a mere three kilometres southwest of the former submarine mining depot at Swan Island, and 3.6 kilometres southwest of the submarine mining depot wharves utilised by Victorian torpedo boats deployed to patrol Port Phillip Heads during naval manoeuvres. It is also a relatively short distance from the Barwon Heads Ships' Graveyard (Figure 55), which became the final resting place of a number of former Australian warships, including the colonial-era armed auxiliary vessels *Batman*, *Courier*, *Fawkner*, and *Lady Loch*, and World War I submarines *J1*, *J2*, *J4*, and *J5* (Ryan, et al. 2009).

The Barwon Heads graveyard is located off a 20-kilometre stretch of Victoria's coastline extending from the town of Torquay to Point Lonsdale at the entrance to Port Phillip Bay. All of the 46 obsolete vessels known to comprise the graveyard were intentionally sunk at distances ranging from 10 to 20 kilometres from shore. Its western extent is located approximately 29 kilometres from *Lonsdale's* discard site, and 32 kilometres from the submarine mining depot at Swan Island. Although none of the warships mentioned above were scuttled prior to *Lonsdale's* disposal, the stretch of Bass Strait that comprises the graveyard was recognised as a known—if not officially designated—ship abandonment site as early as 1910 (Ryan, et al. 2009).





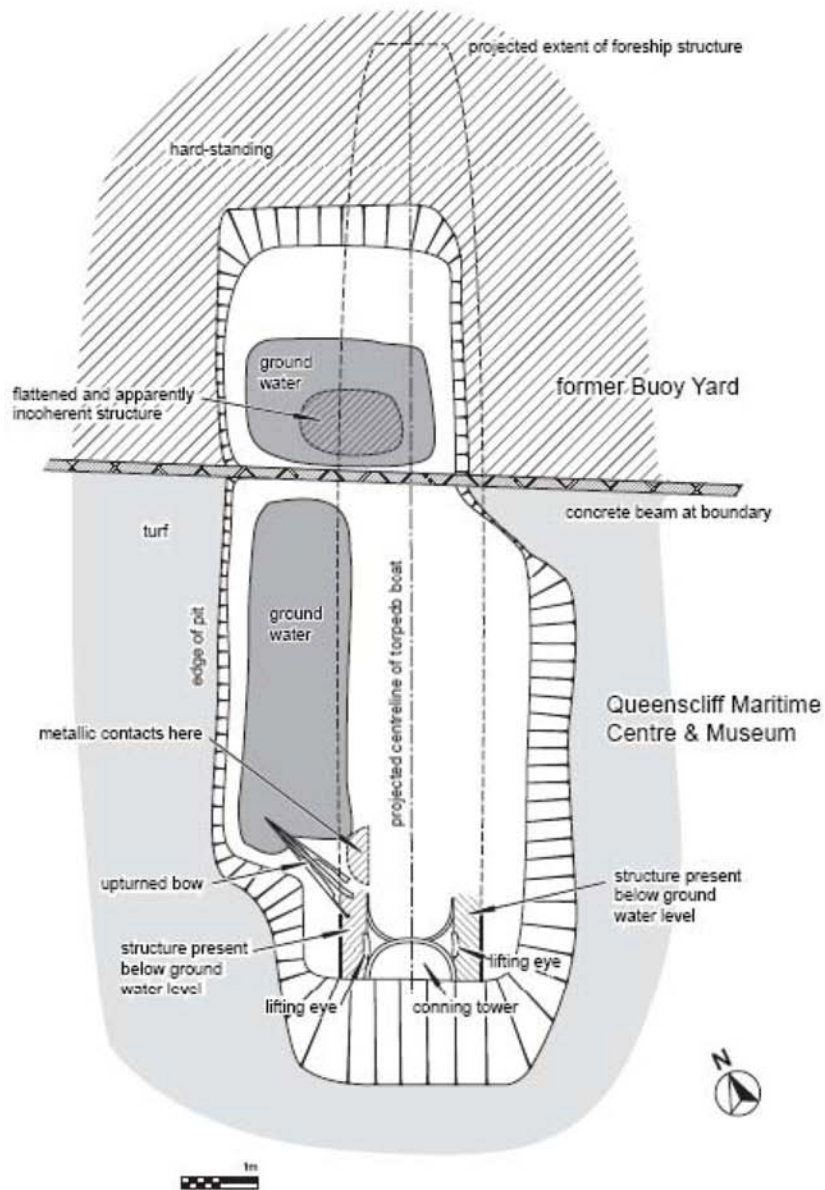
**Figure 55.** *Lonsdale's* discard locale and its proximity to the Barwon Heads Ships' Graveyard. Inset map shows the site's location relative to Melbourne. Base images courtesy of Google Maps and Google Earth.

Archaeological data acquired between 1983 and 2006 reveals that *Lonsdale's* conning tower and the hull beneath it were still largely intact and—with the exception of corrosion on most of their metallic surfaces—appeared much as they did when photographed during the early twentieth century. The same can be said of the hull aft of the conning tower, which remains deeply buried in the beach sand and appears to have retained its overall structural integrity (D. Cahill, as cited in Hewitt and Tucker 2009: 32). By contrast, the foreship and bow, once the preeminent features of the exposed hull, are no longer articulated with the remainder of the vessel (Figure 56). Indeed, as noted by Hewitt and Tucker (2009: 32), the

vast majority of *Lonsdale's* forward section disintegrated into largely incoherent structure as a consequence of 'gross corrosion' and collapse of the hull, as well as unspecified ground disturbance that occurred subsequent to its complete burial.

Discovery of *Lonsdale's* disarticulated prow in close proximity to the conning tower constitutes the only archaeological evidence of culturally induced alteration of the discarded hull. However, as it was ultimately re-deposited on site, its removal almost certainly did not constitute salvage activity. To the contrary, the bow section's presence lends credence to Frank Ferrier's assertion that it was intentionally cut away and moved aside in an effort to clear a footprint for boundary fence construction at Queenscliff's former Buoy Depot.

Based on available information, *Lonsdale* does not appear to have been subject to any form of placement assurance. Strategies to neutralise the hull's buoyancy and anchor it in place were not evident among its documented remains, nor was there an indication that tidal variation and/or orientation of the hull were carefully considered factors in its disposal process. Contrary to Richards' (1997: 89) observations at the Garden Island Ships' Graveyard in South Australia, in which the vast majority of vessels were beached 'between a forty five- and ninety-degree angle or parallel with the shore', *Lonsdale's* hull appears to have been discarded almost exactly perpendicular to the shoreline in a manner more common to larger watercraft. Further, its relatively extreme fore-and-aft rise of 7.5 degrees and deeply buried stern suggest the torpedo boat was originally abandoned with its midships positioned roughly at the interface between sea and land (Hewitt and Tucker 2009: 30). This would seem to contradict contemporary practice, which in some documented cases saw vessels beached at high tide in order to leave them as high and dry as possible when the water receded (Delgado 1981: 4; Richards 2008: 175-176).



**Figure 56.** Site plan of *Lonsdale*, showing close proximity between conning tower and disarticulated bow section, as well as ‘flattened and...incoherent structure’ representing remnants of the forward extent of the hull. Image courtesy of Geoff Hewitt and TerraCulture Heritage Consultants.

### **HMQS *Mosquito***

In August 1883, Queensland’s colonial government contracted with J. I. Thornycroft & Co. for construction and delivery of a Second Class torpedo boat. The vessel, initially designated *Torpedo Boat No. 193*, was purchased for £3,300 and constructed according to the

same design parameters as Thornycroft Second Class boats purchased by the colonial government of New Zealand in 1882. The hulls of these vessels were constructed of 1/16-inch (1.6 millimetre) galvanised steel plate, had an overall length of 63 feet (19.2 metres), maximum beam of 7 feet, 6 inches (2.3 metres), and displacement of 12 tonnes. Each boat's draught measured 13 inches (0.33 metres) forward and 3 feet, 2 inches (0.96 metres) aft, respectively. A Thornycroft-built inverted direct-acting compound engine capable of generating 166 indicated horsepower supplied motive power. *Torpedo Boat No. 193* was launched on 11 July 1884 and underwent trials two weeks later on 25 July, during which it attained a speed of 17 knots (31.5 kilometres per hour) over the measured mile (*The Brisbane Courier*, 10 October 1884; Gillett 1982: 33-5; Jones 1995: 187-91).

Upon completion of its builder's trials, *Torpedo Boat No. 193*—rechristened Her Majesty's Queensland Ship (HMQS) *Mosquito*—was loaded aboard the British India Company steamship *Duke of Sutherland*. The steamer departed Gravesend for Australia on 13 August 1884, and arrived in Brisbane's roadstead almost exactly eight weeks later on 9 October (Figure 57). *Mosquito*'s delivery heralded the arrival of the colony's first warship, since *Paluma* and *Gayundab*, which had been ordered earlier, would not arrive in Queensland for another year. On 11 October 1884 *Mosquito* was launched from *Duke of Sutherland*'s deck and piloted to the Post Office wharves in downtown Brisbane to receive an overhaul (*The Brisbane Courier*, 13 October 1884; *The Mercury*, 18 October 1884).

On 11 March 1885, shortly after entering into operational service, *Mosquito* was involved in an embarrassing incident that highlighted the need for skilled crew to operate the vessel safely. The boat, under the command of Lieutenant Drake, RN, engaged in a demonstration run on the Brisbane River with several dignitaries aboard, including the Colonial Secretary and Queensland Premier. The trial run, during which *Mosquito* acquired a

top speed of 14.5 knots moving against the tide, was reportedly ‘quite exhilarating’ and ‘considered very satisfactory’ by all present (*The Brisbane Courier*, 12 March 1885). However, shortly after the boat returned to Queen’s wharf and the dignitaries were dropped off, miscommunication between Drake and *Mosquito*’s engineer caused the latter to prematurely put the boat’s engine into gear. The resulting lurch caught another guest who had come aboard the torpedo boat off guard, and he was thrown into the river. Fortunately, a quick-thinking member of the *Brisbane Courier*’s staff—who was aboard *Mosquito* reporting on the demonstration—jumped into the water and rescued the victim (*The Argus*, 12 March 1885; *The Brisbane Courier*, 12 March 1885).



**Figure 57.** *Mosquito* (foreground) moored in the Brisbane River near the naval depot at Kangaroo Point, ca. 1889. The British Royal Navy sloop-of-war *Egeria* lies at anchor in the middle of the river. Image courtesy of the State Library of Queensland (Accession No. 102640).

For the remainder of the nineteenth century *Mosquito* was alternately engaged in naval exercises with other vessels in the Queensland Marine Defence Force, or inactive

within its boat shed. During this time, two 14-inch Whitehead torpedoes were added to its compliment of 'as-delivered' armament, which included spar-torpedoes and a single twin-barrelled 1-inch Nordenfelt machine gun. The new self-propelled weapons were carried aboard the vessel and launched via modified davits, tackle, and dropping gear (Gillett 1982: 34-6, 52-4). All Second Class torpedo boats used by the colonial navies of Australia and New Zealand participated in drills and exercises designed to familiarise crews with the boats and their armament, and to simulate the conditions under which they would engage enemy vessels in combat. However, *Mosquito* was one of only a handful of these vessels known to have conducted a 'live-fire' test with spar torpedoes. In one reported case, the torpedo boat's crew successfully 'attacked' a wooden pile in the Brisbane River by putting the engine full astern as *Mosquito* closed within a short distance of its target, thereby checking its forward momentum in such a manner that the spar torpedo 'neatly touched the target' and detonated (Adlam 1981: 29).

Occasionally, *Mosquito* served as a training platform for visiting members of the Townsville Naval Brigade based in northern Queensland. In May 1888 Captain H. T. Wright, RN, the senior naval officer of the Queensland Marine Defence Force, proposed that *Mosquito* embark on a voyage to Townsville with the gunboat *Gayundab* to participate in the settlement's annual encampment and provide members of its naval defence force an opportunity to engage in torpedo practice. Ultimately, Queensland's Premier scrapped the plan over well-founded concerns about *Mosquito's* seaworthiness in the open ocean (*The Brisbane Courier*, 10 and 14 May 1888).

With federation of the Australian colonies at the turn of the century, *Mosquito*, like several other colonial naval assets, was transferred to the newly established Commonwealth Naval Forces. Although 17 years old, the vessel's hull, engine, boilers, and other equipment

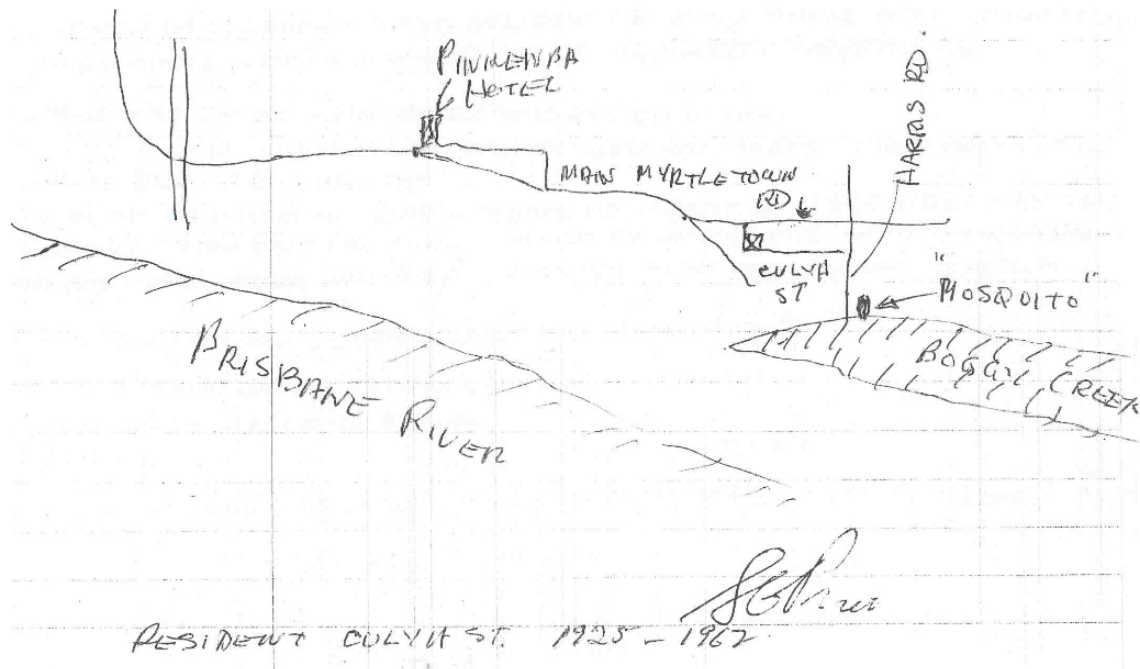
were reportedly in good order, and during a speed trial on 27 March 1900 the boat was able to attain 16.4 knots (30.4 kilometres per hour) travelling with the tide over the measured mile. With the exception of a lost Whitehead torpedo on 9 April 1901 during annual Easter exercises with the gunboats *Gayundab* and *Paluma*, the first decade of the twentieth century was relatively uneventful for the torpedo boat. Repairs to *Mosquito*'s boiler were carried out in January 1909; otherwise, it continued in its previous capacity in Queensland's maritime defence and actively participated in annual naval manoeuvres until 1911 (Gillett 1982: 36). Following the creation of the Royal Australian Navy in that year, all of Queensland's former colonial naval craft were transferred from Commonwealth control to the new naval force for active duty.

Although *Mosquito* was slated to serve as a training vessel for the torpedo corps, its career in the RAN would be intermittent at best and only last another two years. On 8 March 1913 it was docked at Brisbane for the last time and decommissioned. Stripped of its engines, machinery, and other valuable fittings, Queensland's first warship was then towed to Boggy Creek—a tributary of the Brisbane River—and ignominiously discarded in a mangrove swamp (Adlam 1981: 29; Gillett 1982: 31; 36; Foote 2001: 2).

### **Archaeological Investigation of HMQS *Mosquito***

In January 1966, S.G. Prior, a resident of the Brisbane suburb of Hendra, photographed surviving elements of *Mosquito*'s hull exposed above the mud line at low tide. During the 1980s, Prior donated these photographs to the Queensland Maritime Museum. An explanatory cover letter included with the photographs contained a sketch map showing the approximate location of the torpedo boat's discard site on Boggy Creek (Prior 1983; Figure 58). Although some of the roads depicted on the map were no longer listed on

modern Brisbane street directories, and Boggy Creek's flow was diverted northwards into a man-made causeway during the 1970s, enough geographic references existed in the document to enable the author and Queensland Maritime Museum's Assistant Librarian Mr. David Jones to conduct an archaeological survey for the site in October 2009. As it turned out, a systematic search for *Mosquito* proved unnecessary, as the accuracy of Prior's description of the site's location facilitated its almost immediate relocation.



**Figure 58.** S.G. Prior's 1983 sketch map showing the location of HMS *Mosquito*'s discard site. Image courtesy of the Queensland Maritime Museum (no accession number).

When relocated, the site was almost completely obscured by approximately 0.5 metres of murky, brackish swamp water. Only a small portion of what proved to be the remains of the conning tower protruded far enough above the waterline to be spotted during the search. Metallic features that appeared to represent additional structural remnants were located in a roughly linear scatter a short distance north of the conning tower. Because the



site is located within a tidal zone, the decision was made to revisit and document all visible hull remains and artefacts during a subsequent low tide event.

The next site visit coincided with extreme low water and led to the location of more of *Mosquito's* structural elements, all of which were either partially or completely exposed above the mud line. Visible features were documented via photography and baseline offset measurements, the latter of which were used to produce a site plan (Figure 59). The visible extent of the site covers an area measuring 19.25 metres (east to west) by 5.49 metres (north to south). Placement of chaining pins during the survey also revealed the presence of several hard, metallic subsurface contacts throughout the site, suggesting a sizable percentage of the vessel's articulated lower hull and/or collapsed upperworks remains buried beneath the mud.

Surviving elements of the torpedo boat's conning tower were recorded in detail to obtain baseline measurement data for comparison with surviving archival records of its manufacture and appearance. Since being photographed in 1966, the conning tower had deteriorated significantly, due in no small part to the combined effects of tidal action and corrosion on its highly reactive galvanised steel matrix. Over time, these processes invariably weakened portions of the tower wall that were exposed to alternating wet and dry conditions, causing the side that once stood proud of the swamp floor to fragment and collapse downwards. Ironically, the tidal fluctuations that destroyed exposed portions of the conning tower also likely fostered preservation of what remained via burial in silt and other fine sediments.

In a fortunate turn of events, the low tide event revealed a second structural element that solidified the site's identification as *Mosquito*. The feature, located at the eastern extremity of the linear scatter of hull components, was identified as the torpedo boat's stem—the hull element that gave *Mosquito's* bow its distinctive 'ram' shape when viewed in

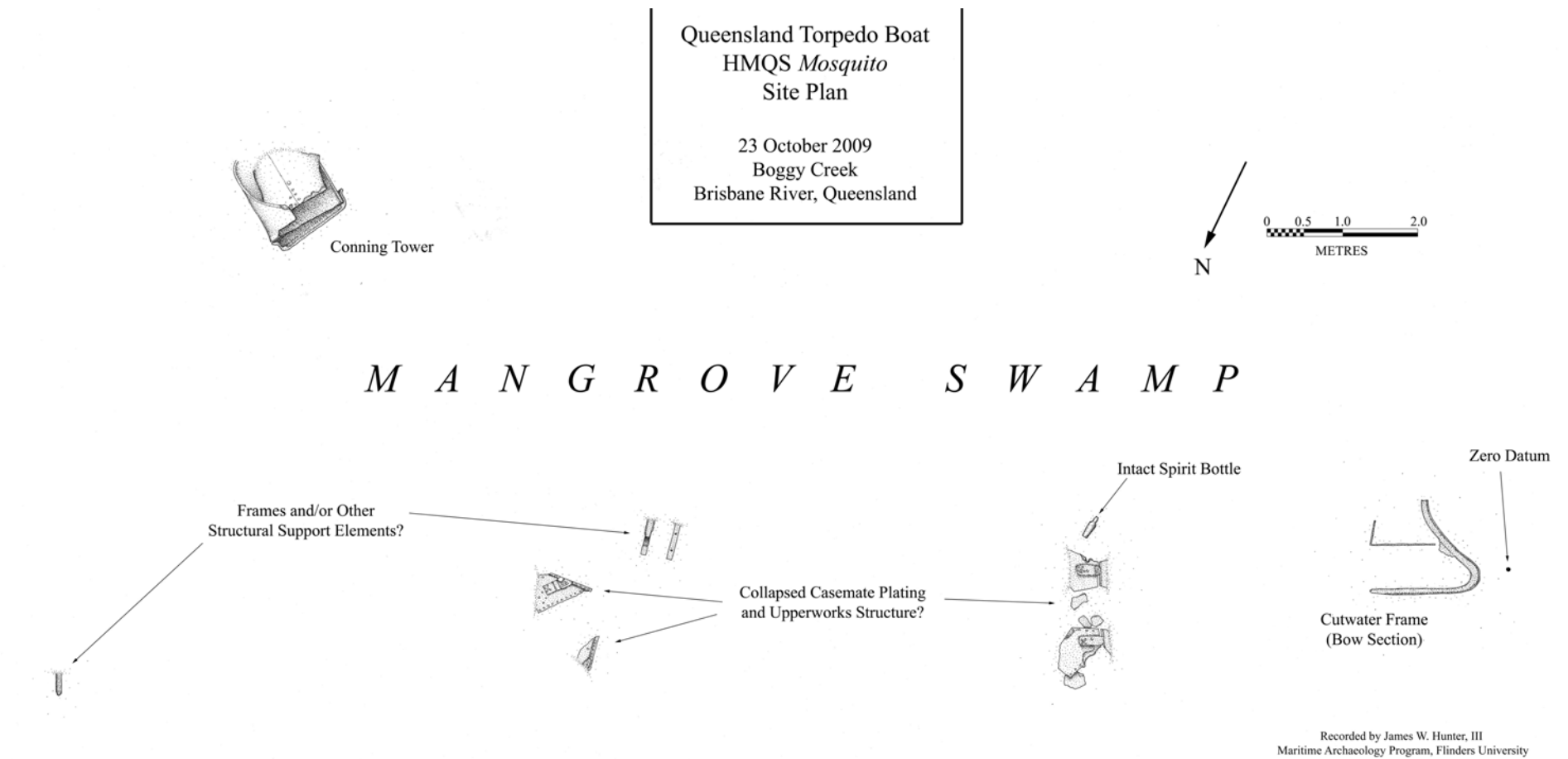
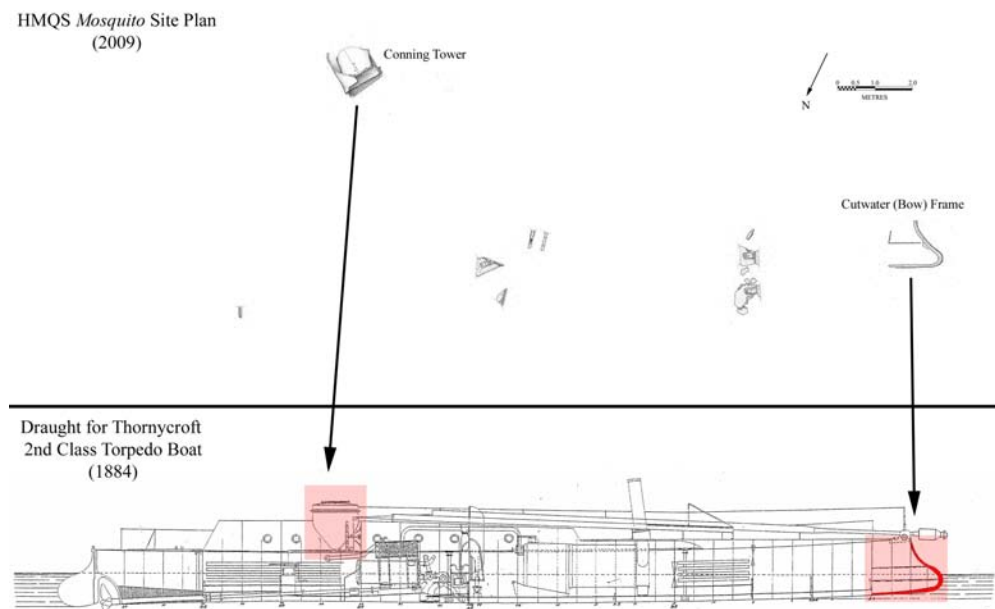


Figure 59. Site plan of HMQS *Mosquito*, as documented in October 2009.

profile. The stem was found lying on its side, with its starboard moulded face oriented upwards. Its average preserved moulded and sided dimensions and preserved height all proved to be a close match for *Mosquito's* historically documented depth of hold at the bow.

A small section of thin iron adhering to the exterior stem exhibited a preserved thickness in close approximation to the 1/16-inch galvanised steel plating that formed the shell of *Mosquito's* hull. Additionally, a surviving portion of deck plate and a partial bulkhead were positioned relative to one another in a manner that corresponded well to *Mosquito's* internal arrangement (Figure 60). Their association with the stem suggested at least a portion of the vessel's articulated port bow hull structure might still be buried beneath the mud. This hypothesis was later confirmed when archaeologists affiliated with the Queensland Museum (QM) and Queensland's Department of Environment and Resource Management (DERM) conducted a follow-up inspection and probe survey of the site's buried components (Valis 2010: 1).



**Figure 60.** Comparison of *Mosquito's* 2009 site plan and the Thornycroft draught for *Torpedo Boat Nos. 168-171, 191 and 193*, showing the relative positions of the conning tower and cutwater frame. Thornycroft draught courtesy of the Thornycroft Torpedo Boat Museum (Accession No. TTBM/FILE 3/30).

### Discard and Abandonment Attributes of HMQS *Mosquito*

Nothing is known of the process by which *Mosquito* was abandoned at Boggy Creek in 1913, nor is there any known record of post-discard activities—such as salvage—that may have occurred at the site for the next 53 years. S.G. Prior's subsequent photographs of the torpedo boat hull comprise the only known source of historical evidence with which to develop hypotheses about its abandonment. Thankfully, several site features were captured on film, and more than a few from multiple perspectives. A combination of these data and information derived from the 2009 archaeological survey provide a snapshot of *Mosquito's* site formation processes over a half-century after abandonment, as well as an indication of its disposition at the time of discard.

When Prior captured *Mosquito's* hull on film, it was still surprisingly intact. The bow and stern sections, in particular, were largely articulated, in an upright position, completely exposed above the mud line, and seemingly still retained paint on most of their visible surfaces (Figures 61 and 62). As with *Lonsdale*, elements of steel plating that comprised the weather deck appear to have remained in their original positions, but only in areas where they did not restrict access to the vessel's engines, machinery, or internal fittings. The degree to which some deck structure survived is perhaps best represented by *Mosquito's* intact smokestack aperture, which emerged from the stokehold just forward of the casemate and is clearly visible in a profile photograph of the vessel's starboard side (see Figure 61).

By contrast, the sides of the hull, all but one bulkhead, and the remaining upperworks—consisting primarily of the galvanised steel casemate that enshrouded the torpedo boat's engine room, boilers, and steering compartment—had collapsed either within



**Figure 61.** Mosaic produced from two photographs taken of *Mosquito*'s abandoned hull in 1966, showing the starboard bow section. Note the articulated ram bow (far right) and smokestack aperture (highlighted by arrow). Image courtesy of S. Prior and the Queensland Maritime Museum (no accession number).



**Figure 62.** 1966 photograph of *Mosquito*'s partially intact stern section. Note Bulkhead 5 in foreground and Bulkhead 7 in centre background. Image courtesy of S. Prior and the Queensland Maritime Museum (no accession number).

or outside the hull and become partially or completely buried in mud by 1966. One of these architectural elements, Bulkhead Number 5, was clearly visible above the swamp floor at the time Prior took his snapshots and still exhibited *Mosquito*'s trademark 'turtleback' casemate profile (see Figure 62). The single articulated bulkhead, Bulkhead Number 7, is a distinct background feature in Figure 62, and seems to have played a significant role in holding the torpedo boat's surviving stern structure together. Another diagnostic feature easily recognisable in the photographs is the vessel's conning tower, which by the 1960s was disarticulated from the rest of the hull and laying on its side, but almost completely intact as an architectural element (Figure 63). Attached to the conning tower was a surviving—but heavily corroded—section of its hatch cover.



**Figure 63.** *Mosquito*'s disarticulated but largely intact conning tower, as photographed in 1966. Arrow highlights remnants of articulated conning tower hatch cover. Image courtesy of S. Prior and the Queensland Maritime Museum (no accession number).

Prior's photographs also reveal that *Mosquito's* hull was oriented on a fairly level plane fore-and-aft, but may have exhibited a slight list to port when discarded. By 1966, the list was exacerbated at the bow, likely as a consequence of corrosion-generated separation between it and the vessel's midships section at Bulkhead Number 3 (Figure 64). The detrimental effects of corrosion on the hull's galvanised steel fabric, particularly in areas alternately exposed to the mangrove's tidally influenced wet and dry conditions, are evident in the majority of images. The mangrove trees themselves were clearly another critical factor in the torpedo boat's deterioration, penetrating or enshrouding the hull at multiple points along its length. Taken as a whole, the swamp's environment appears to have acted as the single most important catalyst for *Mosquito's* gradual disintegration during the next four decades, and eventually the last vestiges of the hull collapsed and disappeared beneath mud and mangrove.

*Mosquito's* discard site remains a relatively remote and challenging place to visit, albeit one that is now much more easily accessible from its landward approaches. Boggy Creek's flow was diverted into a manmade causeway during the 1970s, which reduced the mean tide levels at the site to such an extent that the swamp floor in which it is embedded is largely exposed at low water. Nonetheless, the average tidal cycle sees no less than 0.5 metres of water covering the site on a twice-daily basis, and the relatively dense mangrove vegetation currently growing among the torpedo boat's visible remnants is comparable to that visible in Prior's photographs. *Mosquito* is located 12.4 kilometres northeast of its former shed and slipway near Brisbane's Parliament House, and 11.6 kilometres northeast of the former Kangaroo Point Naval Depot. The necessity of the vessel's abandonment in an area well removed from its former duty stations and the river traffic of downtown Brisbane is certainly understandable. However, it is somewhat perplexing that those responsible for

getting rid of such an unwanted burden did not abandon it in one of two ship disposal areas then in use near the mouth of the Brisbane River.



**Figure 64.** 1966 bow-on photograph of *Mosquito's* forward section, showing corrosion-generated separation of the bow (at right centre) from the midships hull. Image courtesy of S. Prior and the Queensland Maritime Museum (no accession number).

Bishop Island Ships' Graveyard was Brisbane's 'official' ship abandonment site from approximately 1912 until it was buried beneath land reclamation and the city's modern port facilities during the 1970s and 1980s. Included among the many vessels discarded along the island's foreshore was the colonial government steamer *Miner*, which tended the submarine mine fields in Moreton Bay off Fort Lytton, and frequently participated in naval exercises with *Mosquito* and Queensland's other torpedo boat, *Midge* (McLeod 1973: 23-26). A short distance from Bishop's Island was another area of reclaimed land known as Bulwer Island. One post-Federation government vessel, the rock-drilling barge *Bremer*, was discarded there



between 1904 and 1910 and—along with two other government craft abandoned during the 1950s and 1960s—formed a miniature ships' graveyard that remains visible to this day (McLeod 1973: 23). Both graveyards are located a very short distance from *Mosquito's* discard locale (Figure 65). *Bremer's* final resting place at Bulwer Island is only 1.9 kilometres northeast of the site, while the Bishop Island Ships' Graveyard is a mere 6.3 kilometres away.



**Figure 65.** *Mosquito's* discard locale and its proximity to the Bulwer Island and Bishop Island Ships' Graveyards. Inset map shows the site's location relative to Brisbane. Base images courtesy of Google Maps and Google Earth.

Probing at various points around *Mosquito's* discard site has confirmed most of the exposed hull collapsed and subsequently settled into the mud and silt of the swamp floor. By

contrast, *Mosquito's* stern, already largely buried at the time of Prior's 1966 photographs, appears to have retained its structural integrity. This is best evidenced by results of the QM/DERM probe survey, which detected contiguous metal contacts along the hull's projected stern centreline for a distance of three metres and at depths approaching 1.5 metres. A similar series of contacts were encountered during an athwartships probe transect in the same area (Ed Slaughter, pers. comm., 25 November 2009).

Based on available evidence, human alteration of *Mosquito's* hull prior to 1966 seems to have been restricted to the conning tower, which was removed and re-deposited at some point between the boat's disposal at Boggy Creek and when Prior captured it on film. The other primary agent of cultural change at the site appears to have been Prior himself, who removed a portion of one of the torpedo boat's hull plates, part of its teak rub-rail, and the complete stern section of its armoured casemate (Figure 66). All were donated to the Queensland Museum in 1972, and later accessed and analysed as a component of this research project. A notable feature of these objects is their relatively good state of preservation. For example, the casemate section, which has never undergone conservation treatment, is intact, ductile, largely free of corrosion, and still retains paint over much of its exterior surface. If these attributes are indicative of the overall condition of *Mosquito's* hull at the time it was discarded, it is surprising the majority of its metal constituents were not targeted for primary, secondary, or tertiary salvage.

With the possible exception of the mud and silt substrate in which the hull was embedded, placement assurance strategies do not appear to have played a role in *Mosquito's* abandonment. Inspection of the site's visible components did not reveal evidence of treatments such as filling or induced perforation of the hull, nor are indicators of these techniques apparent in Prior's photographs. As happened with *Lonsdale*, *Mosquito* was

beached roughly perpendicular to the existing shoreline, with its bow facing away from Boggy Creek. Most of the hull appears to have rapidly settled into the swamp floor to the waterline, suggesting sufficient water movement around and beneath the hull to facilitate this process. The bow, by contrast, was largely exposed above the mud but still subject to tidal fluctuation, as evidenced by a line of corrosion visible along its starboard side in several of Prior's photographs (see Figures 61 and 64).



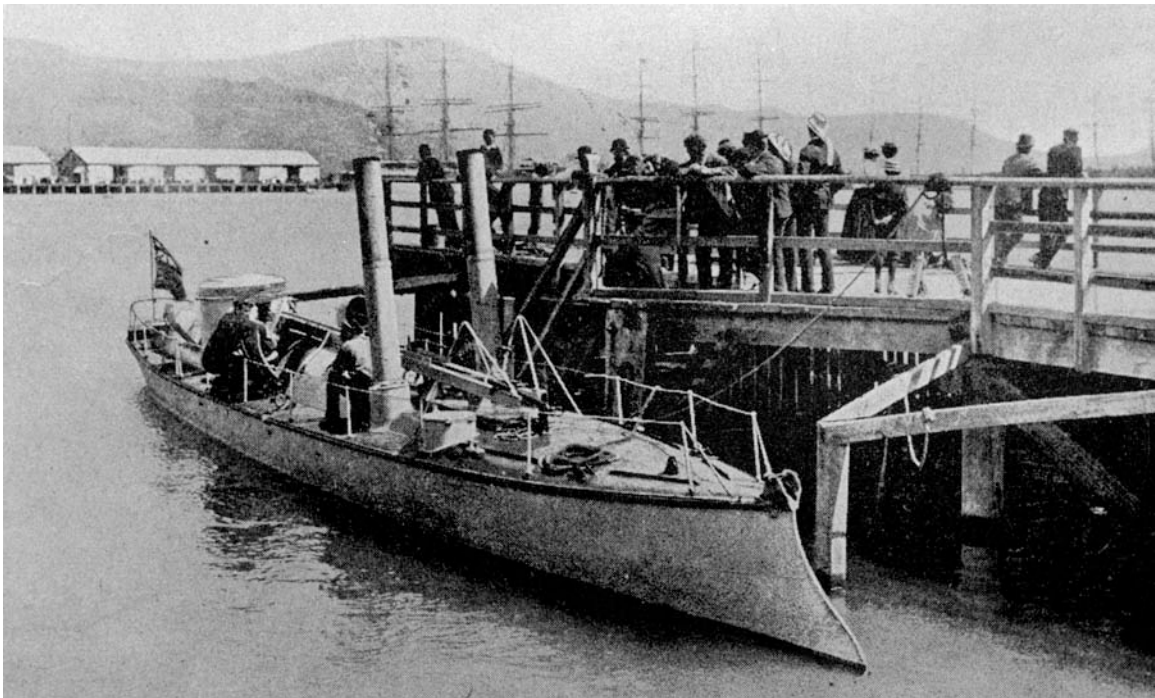
**Figure 66.** *Mosquito's* intact stern casemate, currently housed in the collection of the Queensland Museum, South Bank. Note the overall excellent condition of the casemate's painted galvanised steel fabric.

## New Zealand Torpedo Boat *Defender*

Within six weeks of the March 1880 release of Lieutenant Colonel Peter Scratchley's report on New Zealand's coastal defences, the colony's official representative in London, Agent General Sir Francis Dillon Bell, requested information about torpedo boat designs from the British Admiralty. However, two more years would pass before Bell received instructions to actually purchase vessels on the government's behalf (Moffat 1996: 5; Cooke 2000: 129). Ultimately, a total of four Second Class craft were ordered—at an individual cost of £3,150—from J.I. Thornycroft & Co. Bell informed the Colonial Secretary that the boats were not based on the most innovative and up-to-date designs then available, and questioned whether the purchase was a wise one, but also stated his confidence in the government's ability to make an informed decision (NANZ: AD 1, 1887/1855, 4/9/1882). By 21 September 1883 all four torpedo boats had been completed, launched and tested; however, delivery would be delayed by problems with the spar torpedo delivery system, which had apparently never undergone a 'live' test (Moffat 1996: 7-9).

Upon completion of builder's trials in the River Thames, the first vessel constructed as part of the New Zealand order, *Torpedo Boat No. 168*, was loaded aboard the steamer *Lyttelton* in October 1883, bound for its new role in the defence of Lyttelton, the port closest to the South Island city of Christchurch (NANZ: AD 6, 7/2/1884). It was not until February the following year that *Lyttelton* departed on its three-month passage from London to Port Chalmers, where it arrived on 9 May. Surprisingly, the arrival of the colony's newest element of coastal defence does not appear to have elicited much excitement among the public—nor within the government responsible for its purchase, deployment, and use (Moffat 1996: 11-12).

*Torpedo Boat No. 168* was placed on the submarine mining station mole at Deborah Bay shortly after arrival at Port Chalmers, and remained there eight months before finally being transferred to its duty station at Lyttelton. Official correspondence does not reveal the reason for the delay, although it was almost certainly associated with a lack of both facilities (such as a boat shed and slipway) and a trained crew for the boat when it arrived in New Zealand (Moffat 1996: 13). The vessel—rechristened *Defender*—arrived in Lyttelton Harbour on the evening of 24 December 1884, in tow of the Colonial Government Steam Ship *Stella* (*The Press*, 26 December 1884). From the date of its arrival in Lyttelton until it was decommissioned, the torpedo boat operated exclusively within Lyttelton Harbour. In the first years of deployment, *Defender* generated large crowds whenever it visited Lyttelton's waterfront, and was a prominent attraction at the town's annual regatta (Figure 67).



**Figure 67.** The New Zealand torpedo boat *Defender* moored at a wharf on Lyttelton's waterfront in January 1897. Image courtesy of the Thornycroft Torpedo Boat Museum (Accession No. TTBM/ILL/30).

Only five individuals were responsible for operating *Defender*, as well as maintaining the boat and its associated shed and slipway. All were members of the Torpedo Corps, an organisation of professional soldiers formed in 1886 to oversee maintenance and operation of all New Zealand-based submarine mining installations and matériel, as well as train volunteer recruits (Moffat 1996: 18). As time went on, the vast majority of men appointed to the Torpedo Corps shifted from experienced sailors and soldiers to individuals engaged in a variety of civilian trades. By 1892, the Corps comprised butchers, blacksmiths, boiler fitters, and painters, among others (Appendices to the Journals of the House of Representatives [hereafter AJHR]: H-47, 1891).

Unfortunately, the use of non-military personnel may have had a detrimental effect on the upkeep of the boat. A pamphlet produced for the New Zealand government by J.I. Thornycroft & Co. outlined procedures necessary to properly maintain the colony's torpedo craft. These included monthly inspections of the interior and exterior hull, to be followed by cleaning and painting of any exposed areas to prevent corrosion of the boat's galvanised steel hull plates. In the event the hull's zinc plating was removed through sudden or gradual wear, zinc blocks intended as sacrificial anodes were to be placed within the hull below the waterline (NANZ: AD 1, 1884/1855). Despite these directives, reports surfaced as early as 1886 that the individual responsible for *Defender's* upkeep, Robert Brown, had failed in his duties. Brown was a civilian contracted by the Army Department in Lyttelton to serve as the boat's engineer and chief maintenance officer, but was later discharged for leaving the boat 'much rusted and nearly spoiled...[and needing] to be taken to pieces and cleaned' (NANZ: AD 1, 1886/1046, 4/5/1886).

The boat's less-than-satisfactory condition was also noted by a reporter from the *Lyttelton Times*, aboard *Defender* to report on an official inspection of the vessel's performance by Rear Admiral R.A.E. Scott, honorary Commodore of the Naval Artillery Volunteers:

The boat went anything but well; in fact her performance was enough to make any marine engineer weep tears of gall. Her engines were so rusty that 12 knots was all that could be got out of her, and nothing worked smoothly. The priming was constant, and when the water was blown off it was the colour of brick-dust (*Lyttelton Times*, 30 March 1886).

In a continuation of the vessel's woes, *Defender* was involved in a collision with a wharf in the port of Lyttelton one year later. The accident, which appeared to be the result of miscommunication between the boat's commander and newly appointed chief engineer, resulted in damage to the vessel's sternpost, stern hull plates, woodwork, and propeller shaft, as well as the complete loss of the propeller. During the subsequent Court of Inquiry, it was revealed by four *Defender* crewmen that the chief engineer, Alexander Milne, was hard of hearing. Further, Milne admitted under questioning that he was nearsighted, could not read a newspaper, and had very limited vision in unlit areas (NANZ: AD 1, 1887/2572, 9/9/1887).

Milne's testimony also hints that the vessel's poor maintenance record may have contributed to the collision. Although *Defender's* commander, Petty Officer Charles Gray, reportedly signalled via telegraph for the engine room to put the engine 'full steam ahead', Milne stated the engine room's telegraph indicator was 'flying about and not resting at any point but vibrating' (NANZ: AD 1, 1887/2572, 9/9/1887). Ultimately, the Court of Inquiry overlooked Milne's disabilities and instead placed full blame for the incident on Gray, who was reduced in rank and ordered to relinquish command of the torpedo boat. *Defender* fared somewhat better,

and by the end of September 1887 had been repaired and restored to its pre-accident condition (NANZ: AD 1, 1887/1572, 29/9/1887).

*Defender's* service career with New Zealand's colonial forces appears to have ended in 1899, when Army Department records discontinue all mention of it. Similarly, no official correspondence relating to the boat's disposal is known to exist, although local histories state it was purchased around 1900 by Mark Thomas, a Lyttelton steam launch operator (Ogilvie 1970: 75; Moffat 1996: 35; David Bundy, pers. comm., 13 November 2008). Thomas reportedly salvaged most of *Defender's* machinery—including the engine, boiler, and propeller—before discarding the hull at Purau Beach on the southern shore of Lyttelton Harbour.

### **Archaeological Investigation of *Defender***

In 1996, Project Port Lyttelton, a community based non-profit heritage group, commenced efforts to restore Lyttelton's historic powder magazine at Magazine Bay. Because of the magazine's close proximity to the site of the former torpedo boat shed and slipway, Project Port Lyttelton suggested it might serve as a future venue for a torpedo boat-themed museum display and requested that committee member David Bundy mount a search for *Defender's* remains at Purau Beach. His work proved difficult, as what remained of the vessel was reportedly broken up and bulldozed into a number of shallow pits by the Mt. Herbert County Council in 1959 (David Bundy, pers. comm., 13 November 2008). Nonetheless, Bundy successfully utilised nineteenth century archival sources, oral histories compiled from older-generation Purau residents, mid-twentieth century aerial photography, and the assistance of New Zealand Army mine detecting specialists and local volunteers to locate and identify the torpedo boat's discard site in 1998 (Amodeo 1999: 3).



Although the site was not excavated archaeologically—a factor influenced by reportedly poor overall contextual integrity and its exemption from New Zealand's existing historic preservation laws—Project Port Lyttelton took particular care to thoroughly document recovery efforts. The largest extant hull components were scattered over a 30 by 10-metre area, with several smaller sections emerging from multiple shallow holes on its periphery (Figure 68). The bow formed the most complete, articulated section; by contrast, the stern had been broken, twisted, and crushed to fit into an 80-centimetre deep depression (Amodeo 1999: 3; Thornycroft Torpedo Boat Museum [hereafter TTBM] 2003: 5; David Bundy, pers. comm., 13 November 2008). All structural components and associated artefacts were systematically identified, catalogued, and conserved. Ultimately, the bow and stern sections were partially reconstructed from conserved hull material and placed on display within the historic magazine as part of a larger exhibit and data archive collectively known as the Thornycroft Torpedo Boat Museum (TTBM 2003: 5-6; David Bundy, pers. comm., 13 November 2008).

During the research trip to Lyttelton in November 2008, *Defender's* secondary abandonment site at Purau Beach was inspected and the location and appearance of specific hull recovery locales documented with the assistance of David Bundy. It was during this visit that Bundy related recent efforts by Project Port Lyttelton to locate and identify all remaining subsurface deposits associated with the site. He reported a large buried object had been detected with Ground Penetrating Radar at a depth of 1.2 metres below the modern land surface. The contact was subsequently investigated with a steel probe and tentatively identified as a missing articulated section of *Defender's* midships hull. While the data from the GPR survey was reportedly lost, and consequently unavailable for independent examination, Bundy recalled the contact's location and was able to point it out during the site inspection.



**Figure 68.** Royal New Zealand Army personnel uncover portions of *Defender's* hull at Purau Beach during 1998 efforts to locate and recover the torpedo boat's surviving remnants. Image courtesy of David Bundy.

The Lyttelton trip also permitted a visit to the Thornycroft Torpedo Boat Museum, where the torpedo boat's reconstructed bow and stern sections, as well as miscellaneous crushed and disarticulated hull components and associated artefacts that were not considered suitable for display, were photographically documented. In addition to assessing the hull's overall surviving condition, particular emphasis was placed on discerning physical evidence of *Defender's* discard process—such as holes intentionally created below the waterline as a form of placement assurance—as well as its level of upkeep while in active service. These

indicators comprised obvious signs of damage and/or repair, including unorthodox modifications to the hull. Similarly, clues were sought that might suggest acute wear or complete degradation of *Defender's* hull fabric prior to disposal at Purau Bay, and thereby provide potential explanation(s) for its wholesale abandonment at the hands of Mark Thomas.

In 2009, the Christchurch City Council announced plans to upgrade a large section of foreshore along the southern reach of Purau Bay, and contracted with consulting firm Archaeology Solutions Ltd. (ASL) to conduct a geomagnetic survey of the area in an effort to locate and identify potential archaeological sites (Bader 2009: 4). ASL's remote sensing specialist, Dr. Hans-Dieter Bader, utilised a fluxgate gradiometer with a two-probe configuration to search for small, subsurface magnetic anomalies generated either by human-induced soil changes (caused, for example, by burning associated with hearths or fire pits) or the presence of manufactured iron objects (Bader 2009: 8-10). Due to its close proximity to the area slated for development, *Defender's* discard site was investigated in conjunction with the existing gradiometer survey. The search revealed several 'very strong' magnetic anomalies within an isolated area approximating 40 by 5 metres. These anomalies were reportedly indicative of buried 'cast iron pieces' that may have comprised one or more sections of the torpedo boat's buried hull (Bader 2009: 12). ASL's preliminary results seem to verify Project Port Lyttelton's earlier GPR survey of the same locale.

### **Discard and Abandonment Attributes of *Defender***

Following abandonment, *Defender's* intact hull was a permanent feature of the Purau Beach foreshore for nearly three decades. During the 1930s, tidal scour around the vessel undercut an adjacent road to such an extent that the Mt. Herbert County Council used heavy

machinery in an attempt to move it further away from the water, with the result that it broke amidships into two sections (Ogilvie 1970: 75). Following this incident, *Defender's* remnants continued to be a distinct landmark at Purau for several years afterwards until broken up and buried. The secondary discard site was the subject of one painting and at least two photographs produced during the first half of the twentieth century. Specific signatures of abandonment are evident in these historical sources, and have been complemented to a certain degree by subsequent examination of the torpedo boat's recovered and reconstructed components.

Among the torpedo boat discard sites investigated as part of this research project, *Defender's* is unique because it is the only known example to have been documented in a painting. Jesse Hollobon's *Purau Beach* is a ca. 1930 oil-on-canvas landscape of Purau Bay that features the two halves of *Defender's* broken hull as a foreground element of the overall composition (Figure 69). A certain degree of artistic license is evident in Hollobon's rendering of the surviving hull; however, specific architectural features such as the conning tower and stern casemate are easily identifiable, and it is safe to assume that the hull's overall appearance and condition is a relatively accurate reflection of the artist's observations at the time.

*Purau Beach* depicts *Defender* in a secondary discard context, after its largely intact hull was split into two sections and subsequently removed from the Purau Bay foreshore. As revealed in the painting, these halves were dragged some distance from the shoreline and placed atop an elevated area overlooking the beach. When re-deposited, they were positioned immediately adjacent and parallel to one another, and oriented on an approximate north-south axis. Both hull sections exhibit a noticeable list to starboard, with the result that they heel away from each other. The stem and sternpost, once located at opposite ends of

the vessel, were now roughly adjacent and parallel to one another, and pointed away from Purau Bay in the same approximate (southerly) direction.



**Figure 69.** Watercolour painting *Purau Beach*, showing *Defender's* abandoned and broken hull, ca. 1930. Image courtesy of David Bundy.

One particularly noteworthy aspect of *Defender's* hull, as captured by Hollobon, is the degree to which it was still largely intact approximately 30 years after being abandoned. Aside from the obvious break amidships, and flash rusting at various points along both surviving sections, the visible hull and deck plates at both the bow and stern are complete and in their original positions. The same can be said for the vessel's conning tower and adjacent casemate structures fore and aft. What appears to be reflected light in one of the stern casemate's port side viewport apertures suggests that it—and possibly others—may still have retained a glass pane insert at the time the painting was rendered.

Elements missing from *Defender's* formerly intact hull include the conning tower hatch cover and deck fittings such as the steel cable handrails, bow bollards and chain locker hatch cover. Similarly, deck plates and casemate superstructure at the after end of the bow section appear to have either been removed or cut away, almost certainly as a result of Mark

Thomas' efforts to salvage the torpedo boat's engine, boiler, internal machinery, and fittings. Also notable for their absence are forms of placement assurance, which could have been employed to prevent the broken hull from moving once it had been dragged away from the foreshore. It is possible that such details may not have been visible and were consequently overlooked; alternatively, the Mt. Herbert County Council could have considered the hull's condition and distance from the water sufficient to keep it in place.

By 1941, when *Defender's* remains were documented in the first of only two known close-up photographs of the secondary discard site, their appearance and orientation had changed drastically (Figure 70). The site still comprised two distinct hull sections positioned adjacent and parallel to one another, but both were rotated approximately 180 degrees so that the stem and sternpost now pointed towards Purau Bay. The surviving bow, formerly upright and largely intact, was now heeled well over on its port side and missing the vast majority of its deck plating. The stern appears to have fared slightly better, but was now absent the intact casemate structure visible in Hollobon's painting. Surviving deck plating aft was clearly in an advanced state of degradation and collapse, and the entire site was overgrown with vegetation.

Roughly a decade later, 10-year-old Clive Goodenough was photographed in *Defender's* conning tower in what would be the last known visual record of the torpedo boat's remnants before they were bulldozed and buried in the late 1950s (see Chapter Three, Figure 3). Aside from the conning tower, very little of the hull is visible in the image; however, Goodenough's recollection of the site provides some indication of its overall appearance:

Well, its condition was pretty bad. I mean, it was half-buried in the sand dunes—just the drifting sand had covered up a lot of it. It was pretty badly corroded; parts of it had rusted [and broken] away, of course, in the process of it being hauled high...it had obviously been stripped of a lot of its componentry [sic]. There was just the bare shell left (Appendix B, page 1-3).

He also noted that the site by this time had become 'an eyesore' to the local community. In the immediate aftermath of the Second World War the citizens of Purau and Lyttelton were understandably more focussed on 'getting the world back on its feet again' and less inclined to preserve objects of historical interest, particularly one so overtly representative of warfare (Appendix B, page 3-4).



**Figure 70.** Remnants of the torpedo boat *Defender* at Purau Beach, ca. 1941. The stern and midships section (with intact conning tower) are in the foreground. The bow section behind it is lying on its side. Image courtesy of the Alexander Turnbull Library, National Library of New Zealand (Accession No. F-66786-1/4).

Although *Defender's* surviving hull elements were not archaeologically documented when exposed and recovered during the late 1990s, several photographs and a significant amount of video footage obtained during the recovery effort provide some indication of their overall disposition and condition. When buried, the site appears to have comprised three distinct articulated hull sections, including remnants of the bow, lower midships, and stern. Each section was buried in one of three pits scattered over a 30 by 10-metre area, at

depths ranging from 80 centimetres to 1.5 metres. Several smaller depressions scattered along the site's periphery contained isolated components of hull architecture.

The bow and midships were the largest, most intact sections and were buried deepest; by contrast, the stern appears to have been repeatedly run over and crushed with heavy machinery, and was ultimately deposited at the shallowest observed depth of any of the site's excavated burial pits (Figures 71 and 72). According to David Bundy (pers. comm., 13 November 2008) the bow section comprised 11 metres of contiguous hull structure, retained most of its keel, and was positioned with the stem facing southwest. The surviving midships section was located a short distance away to the east, and was oriented approximately parallel to the bow. The mangled remains of the stern were discovered in an area between and slightly south of the other sections, but crushed and twisted to such an extent that the run of the hull was impossible to determine.

*Defender's* discard locale is situated 4.9 kilometres southeast of its former boat shed and slipway at Magazine Bay, and 4.7 kilometres southeast of the inner harbour mooring it utilised during its final years of service. An even closer landmark of particular interest is Wreck Bay, a small, shallow embayment within Purau Bay located 1.1 kilometers northeast of the site (Figure 73). Wreck Bay functioned as a ships' graveyard during the late nineteenth century, and reportedly contained the remnants of at least two—and possibly more—abandoned wooden vessels during its active phase. Portions of their hulls were visible above water for several years, but subsequently disappeared and have never been relocated (David Bundy, pers. comm., 13 November 2008). Although it is unclear whether the ships' graveyard was inactive by the time Mark Thomas discarded *Defender's* hull in 1900, it is

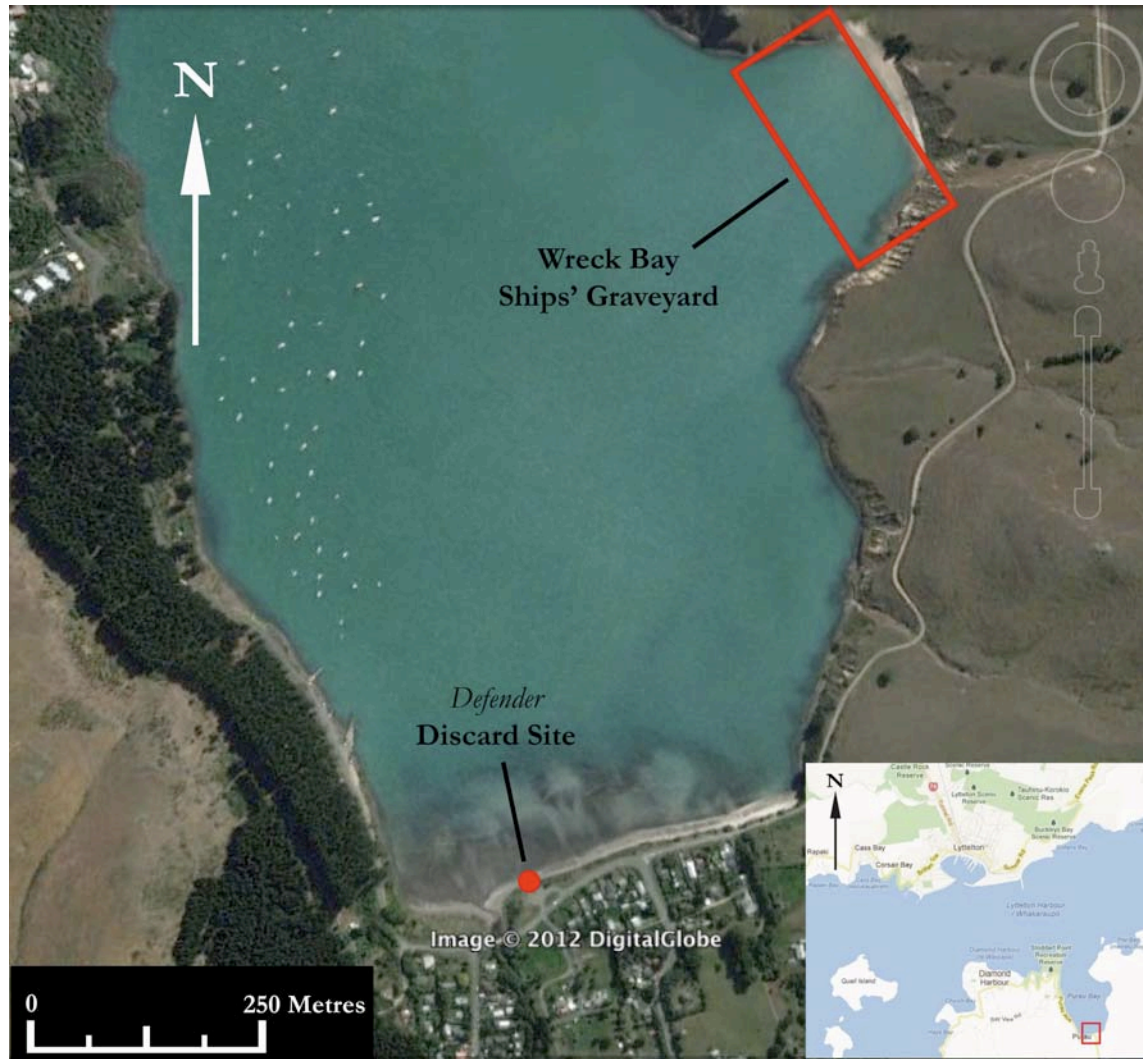




**Figure 71.** *Defender's* bow section *in situ* during the 1998 recovery project. The ram bow is located immediately to the right of the Royal New Zealand Army personnel in the left foreground. Image courtesy of David Bundy.



**Figure 72.** *Left*, *Defender's* crushed stern section. Circle highlights wooden plug embedded in exterior screw aperture at the time of recovery; *right*, *Defender's* midships section *in situ*; *inset*, wooden plug removed from the interior propeller shaft bushing. Images courtesy of David Bundy.



**Figure 73.** *Defender's* discard locale and its proximity to the Wreck Bay Ships' Graveyard. Inset map shows the site's location relative to Lyttelton. Base images courtesy of Google Maps and Google Earth.

surprising he would eschew a known discard area for what appears to be a randomly chosen abandonment site in such relatively close proximity to it.

Examination of the torpedo boat's recovered architectural elements has confirmed a significant portion of the discarded hull still existed up to its burial in 1959. This is particularly true of the bow and stern sections, which in their reconstructed form are approximately 65 to 75 percent intact (Figure 74). Hull elements visible in historic renderings of *Defender's* abandoned remnants—particularly articulated sections of deck and hull

plating—have survived to the present day, as have internal components such as the vessel's framing and bulkheads. Even the bow deck plating notably absent in the 1941 photograph was located, recovered, and ultimately reinstated to its original position on the hull during reconstruction efforts. Areas devoid of structure are evident throughout all recovered hull sections, but appear to have resulted primarily from corrosion, or damage associated with the County Council's efforts to remove the last vestiges of *Defender's* remnants from Purau Beach.



**Figure 74.** The bow section of the torpedo boat *Defender*, as reconstructed and exhibited at the Thornycroft Torpedo Boat Museum, Lyttelton.

*Defender's* conning tower was not located among the site's buried hull features, and its current whereabouts remain an open question. Some local lore claims it was removed in its entirety during the early 1950s and used as a watering trough in a nearby farm paddock, while at least one other source reports its use by a 'Purau market gardener...to enclose a

well' (Amodeo 1999: 1; New Zealand National Maritime Museum 2002). By far the most detailed—and verifiable—description of the conning tower's recent disposition comes from a 1976 article in a Christchurch newspaper, which states it was acquired by the Lyttelton Museum in the early 1970s (*Christchurch Star*, 15 June 1976). A photograph included with the article depicts part of a damaged metal object described as the conning tower, although the poor quality of the image makes positive identification difficult. The item is apparently no longer in the museum's collections, and reportedly was either sold or thrown away, although the veracity of these claims is a matter of some dispute (David Bundy, pers. comm., 15 November 2008). Aside from the *Christchurch Star* photograph, physical remnants of *Defender's* most prominent architectural feature do not appear to have ever been documented.

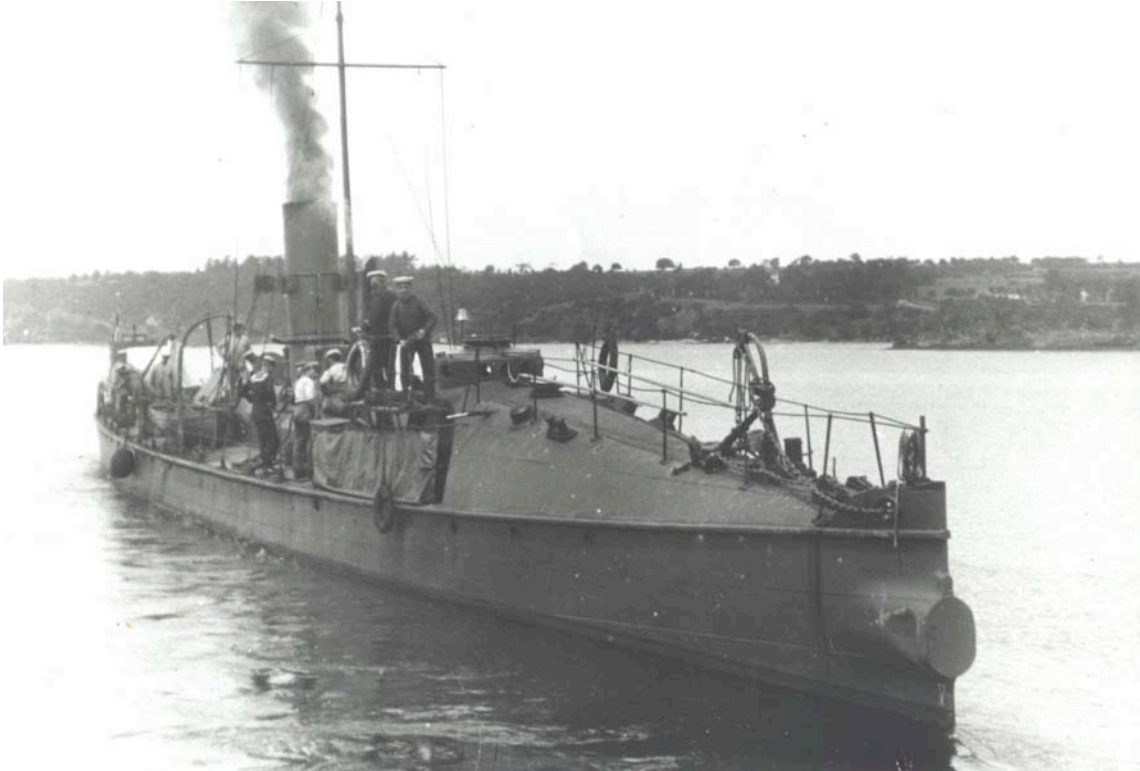
Surface corrosion and damage generated from hull minimisation and removal have had a detrimental affect on several of the torpedo boat's architectural elements; otherwise, its surviving metal fabric is still in surprisingly good condition. A number of components exhibit very little evidence of corrosion, and even retain light gray paint on some of their interior and/or exterior surfaces. These include a hull plate fragment analysed with Scanning Electron Microscope-Energy Dispersive Spectroscopy (SEM-EDS). It features very little visible rust, and is notable instead for the surviving paint on its exterior surface. Both attributes were confirmed by SEM-EDS, which revealed trace amounts of arsenic and lead indicative of anti-fouling paint, as well as a very low (0.80-1.49 percent weight) return for chlorine, a primary constituent in corrosive salts (Appendix H, page 469).

Photographs of *Defender's* surviving hull sections reveal their exposed interior surfaces were devoid of stone, gravel or other heavy fill material. Further, these and other forms of placement assurance were not observed during the excavation, suggesting they

were not utilised when the hull was initially abandoned. A review of excavation images, coupled with inspection of all recovered hull components failed to detect damage consistent with intentional hull breaching methods. To the contrary, it appears Mark Thomas gave little or no consideration to scuttling the hull, based on the discovery of a pair of wooden bungs in association with its screw aperture and propeller shaft bushing (see Figure 72). The plug located at the forward end of the propeller shaft bushing was reportedly lost during—or subsequent to—*Defender's* recovery; however, the other example was photographed *in situ* (see Figure 72, inset) and subsequently recovered (David Bundy, pers. comm., 13 November 2008). It was hammered into the screw aperture from outside the hull in an attempt to keep the torpedo boat watertight and afloat during transport to the Purau Beach disposal site. Had Thomas wished to ensure *Defender* would not float away and become a potential hazard to navigation, it seems only logical that he would have made an effort to remove the bungs before abandoning the hull to its fate.

### **HMVS *Countess of Hopetoun***

As Victoria entered its final decade as a British colony, the government in Melbourne placed an order with shipbuilding firm A. Yarrow & Co. to further augment its navy's existing torpedo boat fleet. The vessel that resulted from the request—originally identified as *Torpedo Boat No. 905* at Yarrow's Poplar (London) shipyard—cost £12,500 and was the first frontline warship purchased by any Australasian colonial navies in nearly a decade (Figure 75). It was also the only Yarrow-built torpedo craft acquired by the colonies and the last vessel ordered for naval service in Australia and New Zealand prior to creation of the Commonwealth Naval Forces in 1901 (Gillett 1982: 79, 126; Swinden 2000: 15; Webb 2008: 5).



**Figure 75.** *Countess of Hopetoun* at Swan Island, ca. 1900. Image courtesy of the Museum of HMAS Cerberus (no accession number).

*Torpedo Boat No. 905* was constructed according to a popular Yarrow torpedo boat design developed for the British Admiralty in 1889 (Unknown author, 1892). It comprised an overall length of 130 feet (39.6 metres), a 13-foot, 6-inch (4.2-metre) beam, and depth of 3 feet, 4 inches (1.0 metres) forward and 3 feet, 8 inches (1.1 metres) aft (Breaks 1892; Gillett 1982: 129). With the propeller shipped, the draught in the stern increased to 6 feet, 2 inches (1.9 metres). A three-stage compound engine generated 1,100 indicated horsepower and propelled the vessel at a rate of 24.5 knots (45.4 kilometres per hour) during its initial speed trials. *Torpedo Boat No. 905*'s armament included a bow-mounted torpedo tube and a pair of torpedo 'guns' attached to a turntable in the vessel's stern (Unknown author 1892). Both forms of launcher fired their respective projectiles by compressed air, and in the case of the turntable-mounted system, the torpedoes could be launched simultaneously. Gillett (1982:

129) notes that four sets of dropping gear for 14-inch Whitehead torpedoes complemented the launch tubes. Two 1-inch Nordenfelt rapid-firing guns served as the vessel's defensive armament, but were fitted after it arrived in Australia. The hull was built entirely of galvanised Siemens steel and featured a series of watertight bulkheads that allowed the torpedo boat to remain afloat in the event any two of its ten compartments were breached and flooded (Unknown author 1892).

This latter feature of the hull's design prevented *Torpedo Boat No. 905*'s loss during one of its sea trials when, as a consequence of a failure in the steering apparatus, it collided bow-on with a large, anchored sailing barge while moving at a rate of 18 knots (33.3 kilometres per hour). The impact of the collision 'twisted [the] stem completely around to port, at right angles, [tore the] plates open as far as the second bulkhead', and resulted in the loss of the barge (Unknown author 1893). Initially, the torpedo boat's bow was embedded in its unintended victim to such an extent that it began to submerge as the latter vessel took on water; however, the two became separated when the sinking barge suddenly heeled over on its port side and dislodged *Torpedo Boat No. 905*'s mangled stem. Although damage to the extreme forepart of the torpedo boat was extensive, the third bulkhead remained watertight, enabling the crew to get underway and return safely to the Poplar works. The steering failure that led to the accident was later identified as a 'clutch that had worked back' and gone unnoticed by the steersman (Unknown author 1893).

Unlike the Second Class torpedo craft purchased for Australasia's colonial navies, *Torpedo Boat No. 905* was not delivered to the Antipodes as deck cargo. To the contrary, the vessel's propeller was temporarily removed and three schooner-rigged masts stepped at intervals along its deck so that it could make the journey on its own (Unknown author 1892; Gillett 1982: 126, 129). The voyage to Australia via the Cape of Good Hope commenced on

12 December 1892 and ended without incident 154 days later at Melbourne's Williamstown Naval Depot. This effort later earned distinction as the longest delivery voyage on record for a First Class torpedo craft (Jones 1986: 91-92). On 25 July 1892, *Torpedo Boat No. 905* was christened within Williamstown's Alfred Graving Dock and officially renamed HMVS *Countess of Hopetoun* after Hersey Eveleigh-de Moleyns, the wife of Victoria's then-Governor John Adrian Louis Hope, the 7<sup>th</sup> Earl of Hopetoun (Gillett 1982: 128; Carroll 2004: 30-31).

Less than a month later, *Countess of Hopetoun* was damaged again, this time while being slipped at Williamstown Naval Depot. The accident buckled the vessel's keel, with the result that its speed was significantly—and permanently—impaired (Webb 2008: 5). Within a very short time the damage was mitigated as much as practicable, and the torpedo boat resumed its role in the defence of Port Phillip Bay. For the remainder of the 1890s, *Countess of Hopetoun* engaged in training sorties with other ships in the Victorian fleet, but exercised most frequently with *Childers*, *Lonsdale*, and *Nepean* during temporary deployments to the naval depot at Swan Island. In 1905 and again in 1907, *Countess of Hopetoun* and *Childers* accompanied one another across Bass Strait on a tour of Tasmanian ports. During the latter trip, both vessels encountered heavy seas and shipped a considerable quantity of water, but ultimately demonstrated their seaworthiness and returned safely to Williamstown (Gillett 1991: 11).

With the creation of the Royal Australian Navy in 1911, Victoria's existing naval assets were transferred from Commonwealth control to the new national maritime defence force. Although *Lonsdale* and *Nepean* were removed from active service the following year, *Countess of Hopetoun* and *Childers* continued to operate much as they had before, exercising not only with one another, but also with surviving interstate warships from the colonial era, including HMAS (formerly HMCS) *Protector* and HMAS (formerly HMQS) *Paluma* (Gillett



1982: 130-132). Ultimately, the surviving torpedo boat fleet began to show its age, and on 10 August 1914, *Countess of Hopetoun* was slipped at Williamstown and inspected by marine engineers in an effort to determine whether it was still suitable for active service (Gillett 1991: 11). The vessel passed muster, but its involvement in an incident at sea in December of the following year would earn it yet another unique distinction and tragically demonstrate the potentially catastrophic shortcomings of antiquated military hardware.

On 13 December 1915, *Countess of Hopetoun* underwent scheduled maintenance, during which the boiler was cleaned and its mountings overhauled (Gillett 1982: 132). The following afternoon, during a routine training cruise in Bass Strait with *Childers*, one of the tubes in *Countess of Hopetoun's* boiler burst, causing the vessel to lose motive power. The crew of *Childers* made several attempts to take the disabled craft in tow, but these proved unsuccessful due to heavy seas that had by this time developed in the Strait. The flotilla's commander, Lieutenant Commander George Innes, directed *Childers* to depart for Queenscliff and request assistance, and ordered a sea anchor deployed from *Countess of Hopetoun* in an attempt to maintain its offshore position (Gillett 1991: 11; Swinden 2000: 12).

On the morning of 15 December, the tug *Nyora* arrived to assist the stricken torpedo boat, but was forced to wrap its towline around *Countess of Hopetoun's* conning tower, as both of the latter vessel's bollards had been ripped from its bow during earlier towing attempts with *Childers*. As *Nyora* began to tow *Countess of Hopetoun*, the towline slipped on the torpedo boat's conning tower, with the result that it was briefly pulled sideways through the water. As a consequence, the hull heeled over into oncoming seas, waves swept its deck and a crewman, Signalman Sydney Percy Baker, was washed overboard. Despite efforts by *Countess of Hopetoun's* crew to locate and retrieve Signalman Baker, he was never seen again and

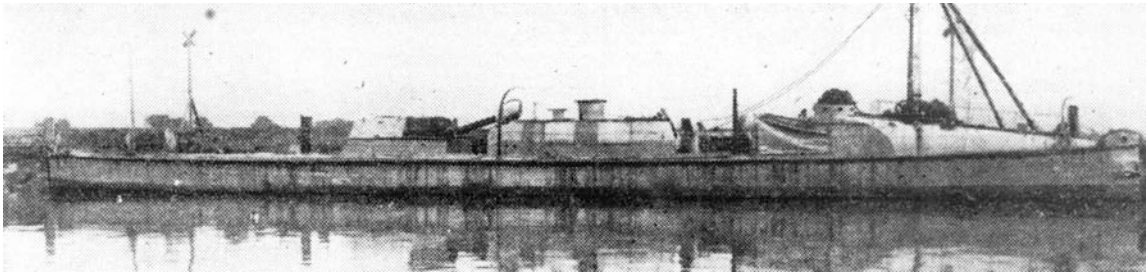
presumed drowned. The loss constituted the only documented fatality associated with an Australasian torpedo boat between the years 1884 and 1924 (Swinden 2000: 12).

Eventually, *Nyora* was able to resume its tow, and both vessels arrived safely at Williamstown Naval Depot on the night of 15 December. A subsequent Court of Enquiry determined the ruptured boiler tube was over five years old, but had deteriorated due to 'fair wear and tear' and was not scheduled for retesting until May 1916 (Swinden 2000: 12). For *Countess of Hopetoun*, the incident resulted in a somewhat scathing indictment from RAN Commander Rear Admiral William Creswell. On account of the 'unreliability' of its boilers and 'unsuitability' of its hull in heavy weather, an official directive was issued that limited the torpedo boat's area of operation to Port Phillip Bay in all but the most urgent of circumstances (Gillett 1991: 11; Swinden 2000: 12-13).

Signalman Baker's loss marked a significant turning point in *Countess of Hopetoun's* active duty career, and over the course of the next two years it spent progressively less time in an operational capacity. Its last official assignment was as part of the naval flotilla assembled to greet His Royal Highness Edward, the Prince of Wales during his visit to Melbourne on 28 May 1920. By November of that year *Countess of Hopetoun's* complement of Nordenfelt guns had been removed and its use restricted almost entirely to tendering duties or towing torpedo and gunnery targets for the benefit of other warships. As 1920 drew to a close, Australasia's last remaining colonial-era torpedo boat was completely stripped of its armament and fittings and placed in reserve at the naval facility at Westernport (Gillett 1982: 132).

*Countess of Hopetoun* appears to have languished at Westernport until March 1924, when the RAN announced it was to be sold by tender (*The Argus*, 17 March 1924). Within a few weeks, Edward Hill, a ship breaker from North Melbourne purchased the torpedo boat

and fittings from the recently decommissioned WWI-era submarine *J3* for a combined total of £1,500 (*The Argus*, 5 April 1924; *The Argus*, 28 January 1926). Hill moved *Countess of Hopetoun* to Coode Island shortly thereafter and commenced removing fittings and machinery, as well as dismantling elements of the hull (Figure 76). These items were put up for sale at public auction on 5 November 1924; the stripped hull and its remaining equipment followed suit at Melbourne's South Wharf 11 days later (*The Argus*, 16 October 1924; *The Age*, 1 November 1924). Archival sources do not reveal whether what remained of *Countess of Hopetoun* found a new owner, nor do they explain how or why the vessel was ultimately discarded in Port Phillip Bay a short distance from its former duty station at Swan Island.



**Figure 76.** *Countess of Hopetoun's* stripped hull at Coode Island in 1924. Image courtesy of Heritage Victoria's Maritime Heritage Unit (Archaeological Site File No. 154).

### **Archaeological Investigation of HMVS *Countess of Hopetoun***

The initial effort to document *Countess of Hopetoun* was led by Terry Arnott and conducted in association with MAAV and the Victorian Archaeological Survey. During the inaugural investigation of the site in 1982, Arnott noted that the hull was relatively intact—so much so, in fact, that all of the deck plates were reportedly still *in situ* with the exception of those covering the engine compartment, which appeared to have been ‘cut open’ to allow removal of the torpedo boat's engines in 1924 (Heritage Victoria: Archaeological Site File

No. 154). He originally postulated that the site represented the remnants of HMVS *Childers*, but this is not surprising, as existing historical literature asserted that both vessels were abandoned at Swan Island (Gillett 1982: 113; Gillett 1991: 11).

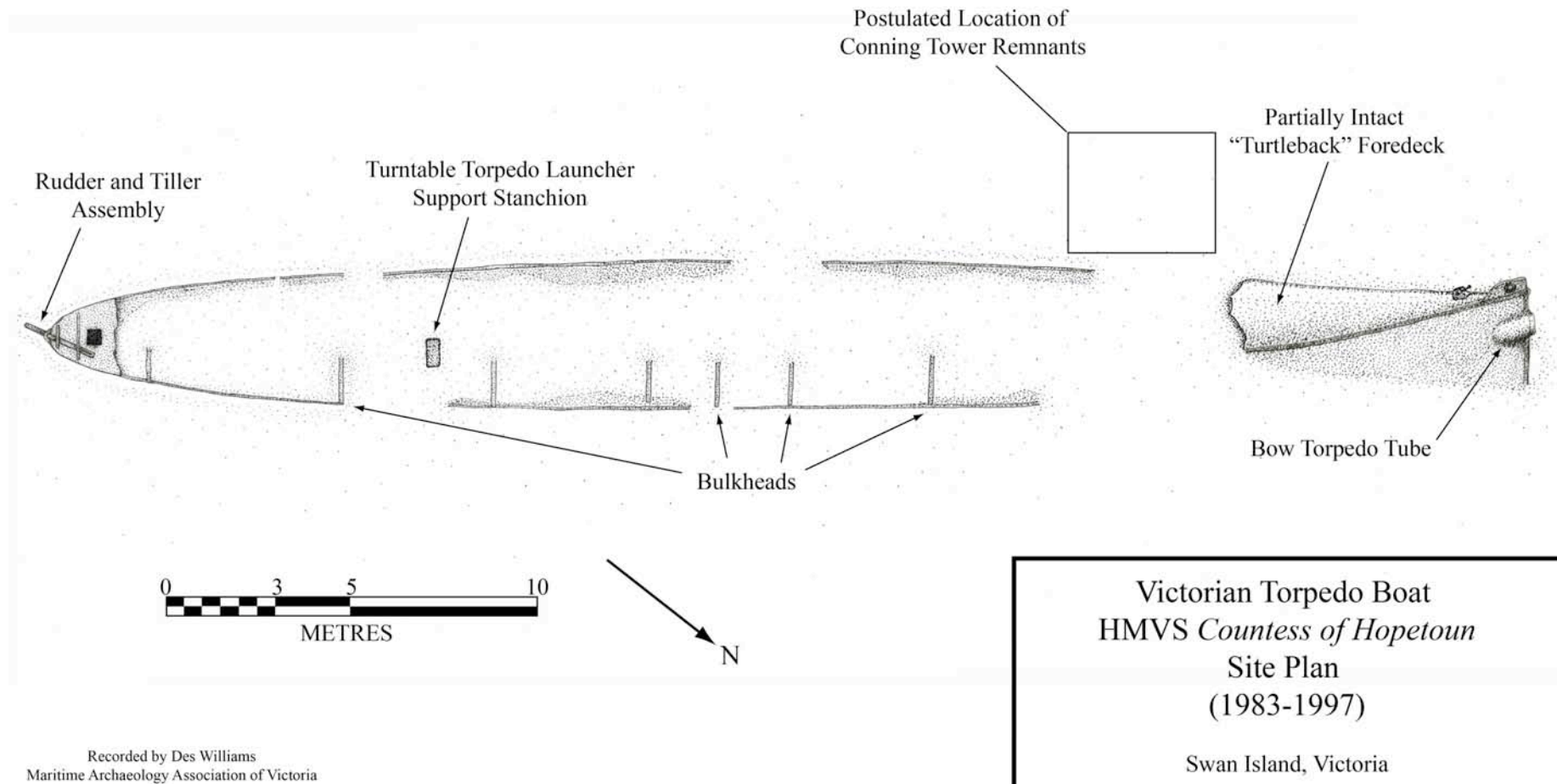
By July of the following year, MAAV volunteers exposed and surveyed additional sections of the hull in an attempt to confirm the site's identity. These efforts progressed slowly as a consequence of the site's shallow water depth and 'tonnes of sand' covering the hull, but MAAV nonetheless expressed confidence the vessel would soon be identified (Williams 1983). Subsequent documentation and analysis of a number of diagnostic hull features prompted a shift away from Terry Arnett's initial hypothesis, and by 1986 the site was consistently referred to as *Countess of Hopetoun* in official correspondence and articles generated by MAAV members (Williams 1986; Cahill 1992; Cahill n.d.). In the wake of their own inspections of the site in 1986 and 1987, maritime archaeologists affiliated with the Victorian Archaeological Survey echoed MAAV's conclusion(s) regarding its identity (Mark Staniforth, pers. comm., 12 January 2011).

While the site's identity was no longer in question, MAAV's ability to access it gradually became more challenging during the latter half of the 1980s. Since the colonial era, Swan Island has served as a defence installation and currently hosts training facilities for Australian Special Forces and the nation's Secret Intelligence Service, as well as an Australian Army demolition range. Due to the confidential nature of activities carried out on the island, the majority of its adjacent waters are designated a 'no boating zone' that extends offshore for a distance of 500 metres (Central Coastal Board of Victoria 2007: 62, 64). *Countess of Hopetoun* falls within this excluded area; consequently, from 1985 onwards, MAAV was required to obtain special permits from the Australian Defence Department to conduct visits to the site (Williams 1986). The formality of the permitting process was mitigated somewhat

by Swan Island's military commander at the time, who frequently informed Arnott of visible changes in the site's appearance and allowed MAAV volunteers to access it via shore dives from the adjacent beach (Des Williams, pers. comm., 11-12 January 2011).

Despite this assistance, the Defence Department's permitting regime significantly restricted the amount of time available to conduct subsequent investigative work at the site, with the result that only a handful of brief inspection and documentation dives were carried out during the 1990s. In each instance, a series of photographs were taken to document the condition of exposed hull elements and artefacts. During a site visit in November 1992, MAAV volunteer Des Williams observed that much of the torpedo boat's bow structure was exposed as a result of seabed scouring, and produced sketches of extant features that enabled generation of a composite plan of the site (Figure 77). Williams also noted the hull forward of the conning tower appeared to have broken away from the rest of the vessel and exhibited a list of approximately 30 degrees to port. Certain timber components, most notably the rubbing strakes near the bow, were exposed to the elements but 'still in good condition' (Williams 1992).

Heritage Victoria's last official inspection of *Countess of Hopetoun*, in November 1996, occurred in response to a MAAV volunteer's report of a large, intact ceramic vessel emerging from sediment beneath the vessel's port side. The object was identified as a nineteenth century hanging basket/urn of Chinese origin, and subsequently recovered from the site for conservation and display. Despite its nineteenth century vintage, the urn was classified an intrusive item with no direct association with the torpedo boat (Anderson, 1996). Additionally, the inspection revealed the presence of previously unseen architectural components—including iron hull frames and the vessel's aftermost bulkhead—exposed and protruding as much as two metres above the seabed (Anderson 1996). Several of these



Recorded by Des Williams  
Maritime Archaeology Association of Victoria

Figure 77. Site plan of *Countess of Hopetoun*, generated from archaeological data collected between 1983 and 1997.

features are visible in photographs produced during a site inspection the following year by MAAV volunteer John Hargreaves.

In the wake of the terrorist attacks of 11 September 2001 in the United States, the Australian Defence Department rescinded access to the majority of Swan Island to all but those with a direct association with military activities. This limited-access directive included the 'no boating zone', effectively eliminating MAAV's ability to inspect and investigate *Countess of Hopetoun*, as well as a number of other historic shipwrecks located in close proximity to the island's eastern shore. Surprisingly, the Defence Department's 'no access' policy has also been unofficially expanded to include government agencies such as Heritage Victoria's Maritime Heritage Unit, which—in spite of repeated requests—has been unable to obtain the military's permission to visit *Countess of Hopetoun* and other historic Swan Island wreck sites under its purview since 2001 (Peter Harvey, pers. comm., 7 February 2012).

### **Discard and Abandonment Attributes of *Countess of Hopetoun***

In the years immediately following its disposal, *Countess of Hopetoun's* partially awash hull was an easily identifiable feature embedded in the shallows immediately off Swan Island's eastern foreshore. An archival photograph attributed to Norma Bloomfield shows the forward section of the torpedo boat protruding from the water a short distance from the shoreline (Figure 78). This image, analysed in conjunction with archaeological data recovered from the site between 1982 and 1996, provides an indication of *Countess of Hopetoun's* condition at the time of abandonment, as well as some of its general discard characteristics.



**Figure 78.** *Countess of Hopetoun*'s abandoned hull at Swan Island, ca. 1925. *Inset*, painted Roman Numeral "V" (highlighted by arrow) denoting the bow load line. Image courtesy of the Queenscliff Historical Museum (Accession No. DOC 2367/13917).

Bloomfield was the daughter of Swan Island's Naval Depot commander and lived on the island with her family between 1922 and 1932. Her photograph of *Countess of Hopetoun* constitutes the only known historical evidence of its abandonment. Although but one image, it contains a vast amount of detail and is a useful tool in interpreting the discard site. For example, it shows that approximately the first one-third of the torpedo boat's hull was originally above water, from the forward end of the bow torpedo tube to a point just off camera abaft the conning tower. Like *Lonsdale*, *Countess of Hopetoun* was oriented stern-down; consequently, most of its bow structure was visible above water, including the entire stem to the curve immediately above its junction with the keel. The hull had evidently heeled over to port, although the degree of list is unclear from the photograph.

*Countess of Hopetoun* was still largely intact at the time it was captured on film. Architectural elements of the vessel visible above the waters of Port Phillip Bay included all hull plating between the gunwale and the water, the entire 'turtleback' deck structure forward



of the conning tower, and the conning tower itself. Although certain deck fittings such as the bow bollards were removed at some point prior to the torpedo boat's abandonment, the vast majority—including the fairleads, hawse pipes, anchor chain riding bitts and stoppers, steel cable handrails atop the turtleback deck, and ventilator aperture covers—remained untouched and in their original positions. Other portable fittings notable for their presence in the image include the steel covers for the bow torpedo tube and conning tower, and what appear to be a number of intact viewports and/or scuttles associated with the vessel's conning tower, turtleback deck, and port bow hull.

Based on its visible attributes, *Countess of Hopetoun* appears to have been in relatively good condition at the time of, and in the years immediately following, its abandonment. Save for isolated, streaky stains that likely resulted from flash rusting of their steel fabric, the hull's surviving architectural elements do not exhibit significant signs of corrosion or damage, and appear to have been structurally sound. Similarly, the white paint scheme applied to the hull for the Prince of Wales' 1920 visit to Melbourne, although stained or faded in some areas, is still clearly evident and appears largely unmarred where exposed above water. Indeed, the overall condition of the vessel's painted surfaces at the time of discard is perhaps best illustrated by the Roman numeral "V" that denoted the torpedo boat's maximum load line. This hand-painted feature, located immediately abaft the stem and a short distance below the bow torpedo tube, was still very much apparent when captured on film (see Figure 78, inset).

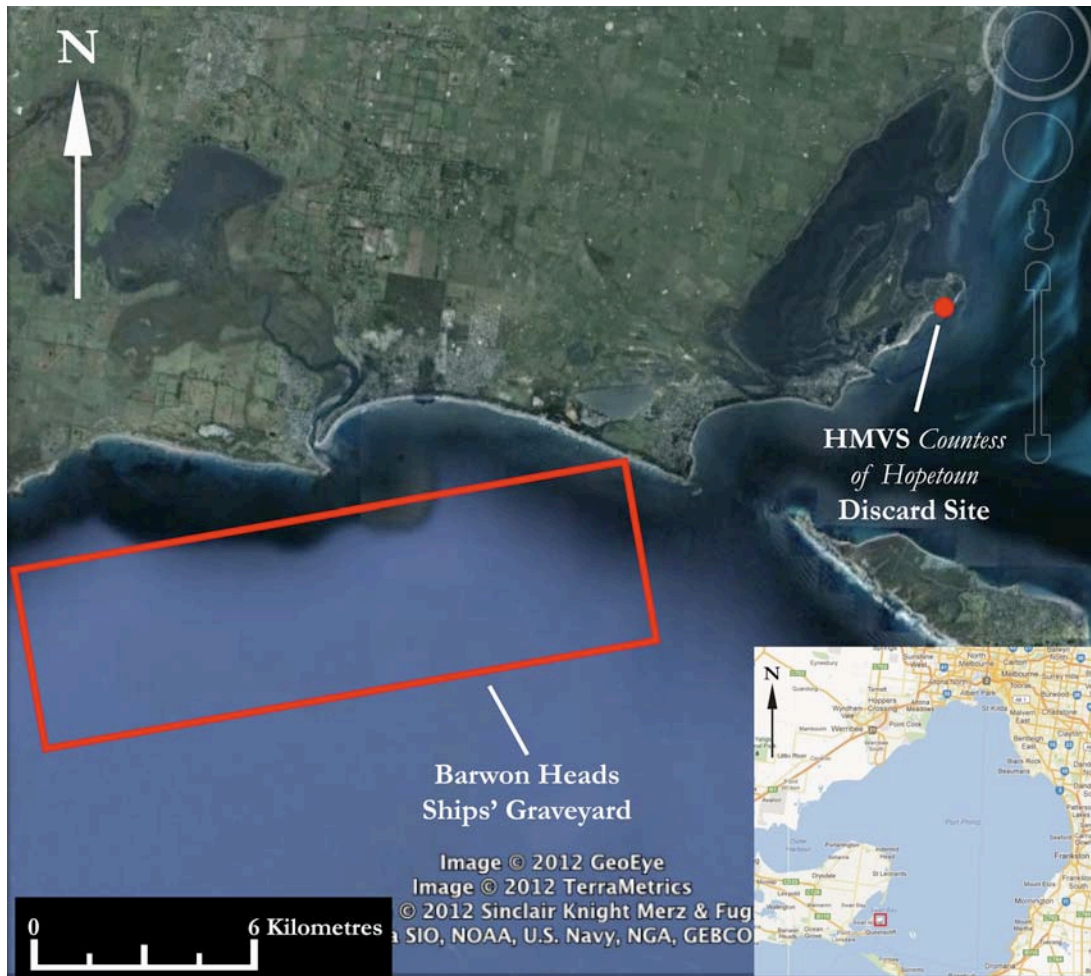
Among archival images of torpedo boat discard sites consulted for this thesis, Bloomfield's is unique because it is the only one that depicts a form of placement assurance in direct association with the subject vessel. A crude mooring line comprising a length of narrow-gauge cable or rope is shown extending shoreward from *Countess of Hopetoun*'s bow to an unknown area outside the photograph's frame of reference. At a point approximately two

metres away from the bow, the mooring line appears to have been crudely 'spliced' with another extending towards the hull from shore. A number of trees are present along the shoreline in the image foreground, and it is possible that the mooring line was attached to one or more of these in an attempt to prevent—or at least inhibit—*Countess of Hopetoun's* movement after it was abandoned.

In addition to capturing *Countess of Hopetoun's* abandoned hull on film, Norma Bloomfield noted years later in an unpublished memoir that the sand around it 'eventually built up until only the little wheel house [conning tower] was visible' (Queenscliff Historical Museum: DOC 2367/13917, p. 4). From the early 1930s onwards, the shoreline in *Countess of Hopetoun's* immediate vicinity underwent significant deflation and recession, as the sand that once covered most of the hull was removed and ultimately replaced by the waters of Port Phillip Bay. By 1982, when the vessel's remnants were first reported as an archaeological site, they were situated nearly 50 metres from shore and submerged beneath two metres of water. Today, the site is located approximately the same distance from shore, although some fluctuation in the depth of sand and water covering it has occurred as a result of significant weather and tidal events.

*Countess of Hopetoun* was abandoned within view of the submarine mining depot at Swan Island. Its discard site is located only 0.4 kilometres southwest of the former torpedo station, and 0.7 kilometres southwest of its former wharf complex at the island's northern end. The eastern extent of Barwon Heads Ships' Graveyard is situated approximately 12 kilometres southwest of the torpedo boat's discarded remnants, outside Port Phillip Heads and roughly in line with Point Lonsdale (Figure 79). Given the graveyard's relatively close proximity to Swan Island, it is curious that *Countess of Hopetoun* did not join the increasing number of watercraft abandoned there during the early twentieth century. By 1924, five

vessels had 'officially' been scuttled in its waters, and within three years it would become the final resting place for seven more watercraft, including four decommissioned J-Class submarines (Smith 1990; Beringer-Pooley 2005: 48; McCarthy 2009: 143; Ryan, et al. 2009).



**Figure 79.** *Countess of Hopetoun's* discard locale and its proximity to the Barwon Heads Ships' Graveyard. Inset map shows the site's location relative to Melbourne. Base images courtesy Google Maps and Google Earth.

Archaeological investigations have revealed *Countess of Hopetoun's* hull is largely intact, and retains much of its articulated bow and stern structure. When documented between 1986 and 1996, the forward turtleback deck was complete for much of its original length. Bow fittings, including the fairleads, hawse pipes, riding bitts, and torpedo tube cover, were all present and bore no indication of attempted salvage. The stern was also largely unaltered,

and featured enough original deck plating that the outline of a hatch leading to one of the aft compartments was still easily identifiable (see Figure 77). Although *Countess of Hopetoun's* engines and boilers were removed prior to the vessel's abandonment, the steel propeller and propeller shaft that comprised the remainder of the propulsion system clearly did not share the same fate (Figure 80). Curiously, neither exhibited outward signs of wear or damage that would have precluded their removal and reuse.



**Figure 80.** *Left*, *Countess of Hopetoun's* propeller, as it appeared in 1987. The vessel's articulated rudder is visible in the background; *right*, profile view of *Countess of Hopetoun's* rudder in 1987. Images courtesy of Heritage Victoria's Maritime Heritage Unit (Archaeological Site File No. 154).

Perhaps the most unexpected architectural feature discovered in association with *Countess of Hopetoun* was its balanced rudder and associated tiller assembly (see Figure 80). As noted with the torpedo boat's propeller and propeller shaft, the rudder and the tiller assembly were in their original positions and appeared largely intact and undamaged, save for degradation resulting from the site's surrounding marine environment. Richards (2008: 149) observes that the rudder is the structural element most frequently missing from beached and abandoned watercraft, not only because of the ease with which it can be unshipped and

transported, but also its potentially lucrative resale value. He goes on to note that 'it is even more common to find [beached and abandoned] vessels without *in situ* boilers, engines, prop shafts, or propellers' (Richards 2008: 149). Given the extent to which Edward Hill reportedly stripped *Countess of Hopetoun* prior to putting its hull up for sale, it is surprising that he did not bother salvaging these components for their reusability. Equally perplexing is that he or someone else did not remove them later for their scrap value.

In stark contrast to the surviving bow and stern sections, most of *Countess of Hopetoun's* midships deck structure and upperworks were reportedly either disarticulated or missing altogether. The deck plates, in particular, were absent or cut open to such an extent that the hull appeared 'wide open, like a sardine tin' for the majority of its exposed length (Des Williams, pers. comm., 24 January 2011). Such alteration almost certainly constitutes the results of Hill's efforts to salvage the torpedo boat's engine, boiler, and other internal machinery at Coode Island in 1924. Whereas the deck plates have clearly been altered or removed, underlying hull structure comprising several lateral bulheads, deck beams or framing stations, does not appear to have been affected by salvage activities (see Figure 77).

Another of the torpedo boat's architectural elements notable for its absence is the conning tower. This feature was easily recognisable and still articulated with the hull when Norma Bloomfield photographed *Countess of Hopetoun* in the 1920s, but clearly missing during efforts to document its visible remains during the 1980s and 1990s. In the conning tower's former location, the surviving hull is broken to such an extent that the entire section extending from the stem to the after edge of the turtleback has heeled over to port between 30 and 45 degrees. By contrast, the remainder of the hull—comprising the complete midships and stern—has remained largely upright, with a very slight port list.

One possible explanation for the damage could be a combination of the conning tower's robust construction and the hull's structurally compromised condition and list to port. As *Countess of Hopetoun's* hull gradually weakened and disintegrated due to corrosion and other environmental factors, the conning tower's sheer weight may have caused it to catastrophically disarticulate from the rest of the vessel, collapse to port, and fall into the sea. Assuming the conning tower was still relatively well attached to the turtleback and/or other structural elements of the foreship, it could have pulled the bow over as it collapsed, thereby resulting in an accentuated list. An aerial photograph of the site taken in 1992 (Figure 81) shows what appears to be substantial hull structure protruding from the vessel's side in the approximate location of the conning tower. Williams (pers. comm., 24 January 2011) has noted no evidence of the conning tower was visible during subsequent MAAV site inspections, but added that sand had filled in several exposed hull sections visible in the image, including the area referred to above.

During the 1987 and 1992 site inspections, a length of steel cable was photographed in association with *Countess of Hopetoun's* stern structure (Figure 82). It was discovered draped over exposed portions of the propeller, from which point one end extended towards the bow before being buried in sand. The other end snaked away towards the port side of the rudder where it too disappeared into the seabed. Williams tentatively identified this feature as the remnants of a towline; however, its diameter appears to approximate that of the mooring cable visible in Bloomfield's photograph, suggesting it may represent a tangible remnant of *Countess of Hopetoun's* single documented form of placement assurance. Other methods of anchoring the discarded hull in place, such as an attempt to breach it below the waterline or



**Figure 81.** 1992 aerial photograph of *Countess of Hopetoun's* abandonment site. Arrow indicates location of possible conning tower remnants. Image courtesy of Heritage Victoria's Maritime Heritage Unit (Archaeological Site File No. 154).



**Figure 82.** Steel cable discovered in association with *Countess of Hopetoun's* propeller. Image courtesy of Heritage Victoria's Maritime Heritage Unit (Archaeological Site File No. 154).

fill it with heavy foreign material, were not observed archaeologically and do not appear to have been utilised. This is curious, given the coarse sand substrate that characterises the beach and seabed where *Countess of Hopetoun* was abandoned, and the hull's partially awash condition and near perpendicular orientation to the shoreline. All of these attributes run counter to Richards' discussion of what constitutes a logical vessel abandonment scenario in a beach environment (see Chapter Two, page 74).