

CHAPTER ONE

INTRODUCTION

The materiality of warfare is a vast and diverse subject, from entire landscapes whose personalities bear traces of military activity or presence to specific places—sites, structures, buildings, monuments—where events occurred or where soldiers sat, waiting for invasions that in some cases never came (Schofield, et al. 2002: 4)

On 16 November 1924, a public auction held at South Wharf in the Australian city of Melbourne featured an unusual item for bid: the steel hull of a steam-powered vessel with remarkably fine lines and a sleek, narrow profile. Although stripped of the majority of its machinery and equipment, and exhibiting several rust streaks on what was once a flawless white paint scheme, it would have been apparent to those attending the auction that the vessel had once fulfilled a military role. Indeed, several participants likely recognised the unmistakable silhouette of the former HMVS (Her Majesty's Victorian Ship) *Countess of Hopetoun*, a British-built First Class torpedo boat that first steamed into Melbourne's Port Phillip Bay in 1893 and spent most of the next three decades constituting a major element of Australia's naval defences.

Countess of Hopetoun was the last vessel ordered for naval service in Australia and New Zealand while both nations were still colonial possessions of Great Britain. Initially, it operated as part of the naval defence force established by the Australian colony of Victoria, but following Australia's transition to nationhood in 1901, it also served in the Commonwealth Naval Forces and, ultimately, the Royal Australian Navy. Only four years prior to the auction at South Wharf, *Countess of Hopetoun* was liveried in an all-white ceremonial paint scheme as part of its last official engagement: to greet His Royal Highness Edward, the Prince of Wales during his visit to Australia and coinciding review of the new nation's naval capabilities.

Now, tied up alongside South Wharf, the torpedo boat's stripped hull must have appeared a forlorn shadow of its former self. History is silent as to whether or not *Countess of Hopetoun* found a buyer on that November day, but there is little doubt as to its ultimate fate. Within a very short time what remained of the vessel would be captured in a black and white photograph, partially submerged and abandoned in shallow waters off the eastern shoreline of Swan Island in Port Phillip Bay. In a strange twist of irony, its final resting place was only a short distance from its former duty station at the Swan Island Naval Depot. *Countess of Hopetoun's* abandonment not only signified the end of a singularly unique watercraft, but also the close of an intriguing and largely overlooked chapter in Australasian naval history.

Between 1883 and 1893, the colonial governments of Australia and New Zealand purchased a total of fourteen torpedo boats. The vast majority of these relatively small but incredibly swift and manoeuvrable vessels were constructed by British firms, and designed to attack much larger adversaries within the confines of harbours and inland waterways. They formed an integral component of the Australasian colonies' efforts to develop coastal defences for their most important ports, and were part of a larger response to regional threats and other defensive concerns. Foremost among these were perceived Russian military designs on British possessions in Australia, New Zealand, and the South Pacific islands, the withdrawal of the bulk of Imperial British forces from Australia in 1870, and subsequent rumours of potentially aggressive foreign naval deployments to the region.

By the time Australia made the transition from colonial possession to sovereign nation, five torpedo vessels were assigned to Victoria, four others operated in the waters of New South Wales and Queensland, and Tasmania's sole torpedo craft was only a few years away from becoming a South Australian naval asset. Across the Tasman Sea, New Zealand's colonial government deployed one torpedo boat each among its four largest ports, but all

were decommissioned before nationhood was attained in 1907. Of the total number of such vessels operating within Australasia, only two were First Class variants like *Countess of Hopetoun*; all others were significantly smaller Second Class models. None would ever see actual combat or fire their weapons in anger.

Each torpedo boat was assigned to a land-based facility that served as its base of operations. This ran counter to the practice adopted by the British Royal Navy, which typically deployed Second Class torpedo vessels from larger, purpose-built 'depot' or 'base' ships, and integrated its First Class craft with larger fleet assets such as cruisers and gunboats. In the Australasian colonies, the infrastructure necessary to house, equip, arm, and maintain torpedo boats was typically integrated within preexisting defensive installations known alternately as 'submarine mining stations' or 'torpedo stations'. The level of support provided the torpedo boat defensive system varied considerably from colony to colony, as did the manner in which individual stations were arranged and built. For example, most buildings constructed for submarine mining defences were simple wood-framed structures clad in corrugated iron sheeting, although some installations occasionally featured facilities (such as magazines) of more robust manufacture. In most cases, submarine mining stations were adapted to include purpose-built torpedo boat support facilities; however, a handful lacked some or all of this form of infrastructure. At a minimum, Australasia's British-built torpedo vessels required a boat shed and slipway to keep them out of seawater (which had a corrosive effect on their galvanised steel hulls) and under cover when not in use. On occasion, these structures operated individually and constituted a torpedo boat 'station' in their own right.

Like the vessels they supported, most torpedo stations established in Australia and New Zealand during the colonial era were later transferred to each country's Commonwealth

and/or national naval forces, where they served in an auxiliary capacity. However, by the second decade of the twentieth century, drastic changes in military technology, as well as defence policy and strategy, precipitated deactivation of Australasia's remaining torpedo boat assets. At the time of *Countess of Hopetoun's* auction, all other torpedo vessels purchased between 1883 and 1893 had already been put up for sale, but most failed to find buyers. Ultimately, all would share *Countess of Hopetoun's* fate and undergo extensive salvage for armament, equipment and machinery, before their stripped but largely intact hulls were discarded. Similarly, the vast majority of torpedo boat stations were decommissioned after the turn-of-the-century, salvaged of their reusable components, and the sites upon which they were located abandoned and never again used as primary defensive installations.

It is this final chapter in the service careers of Australasia's early torpedo boats and torpedo boat support facilities that is the subject of this thesis. Although a number of books, articles, and other secondary historical sources (e.g., Adlam 1981; Gillett 1982; Jones 1986; Nicholls 1988; Cahill 1992, 2009; Moffat 1996; Cooke 2000; Stevens 2001; Frame 2004; Oppenheim 2004; Webb 2008) have examined the colonial navies of Australia and New Zealand and focussed on (or, at the very least, included) their torpedo boat defences as a topic of discussion, the theme of abandonment is rarely—if ever—comprehensively addressed. This may in part be attributable to existing primary source material. For example, written archival documents consulted for this study almost universally record a vast and diverse array of details regarding the operational aspects of specific torpedo boat defensive assets, but are silent about the motivation(s) and method(s) resulting in their eventual disposal and/or abandonment. However, it should also be noted that an overall lack of historical accounting regarding abandonment behaviours and practices appears to be a relatively common phenomenon. As Nathan Richards (2008: 11) has observed, abandoned

watercraft (to cite an example) are 'usually less visible in documentary sources...not often newsworthy...and their [histories] rarely [perceived by the public to be] spectacular enough for reflection'.

Thankfully, where historiography and the archival record reveal little or nothing, archaeological investigation and the study of material culture can—and often does—prove particularly illuminating. Australia and New Zealand host a number of archaeological sites associated with their early torpedo boat defensive systems, including both the physical remnants of torpedo vessels and the land-based facilities that once supported them (Figure 1). While some of these sites are either partially or entirely obscured by the terrestrial, intertidal, or underwater environments in which they are located, most still exhibit obvious vestiges of their former existence. In fact, one example—Auckland, New Zealand's sole surviving Victorian-era submarine mining station at Torpedo Bay—retains so much of its nineteenth-century cultural fabric that it has recently been transformed into a living museum and heritage centre that showcases the history of the Royal New Zealand Navy. The Torpedo Bay station constitutes one of the sites examined in this thesis; it is complemented by the remnants of two additional New Zealand-based submarine mining facilities and another in South Australia. The abandoned hulls of four torpedo vessels—New Zealand's *Defender*, Queensland's HMQS (Her Majesty's Queensland Ship) *Mosquito*, and the Victorian vessels HMVS *Lonsdale* and, of course, *Countess of Hopetoun*—are also explored. These sites, their respective histories, and the scholarly and methodological approaches utilised to investigate and interpret them will be addressed in much greater detail in the chapters that follow.

This thesis, then, seeks to identify disposal and abandonment patterns that characterise Australasia's early torpedo boat defensive system, and illuminate historical and

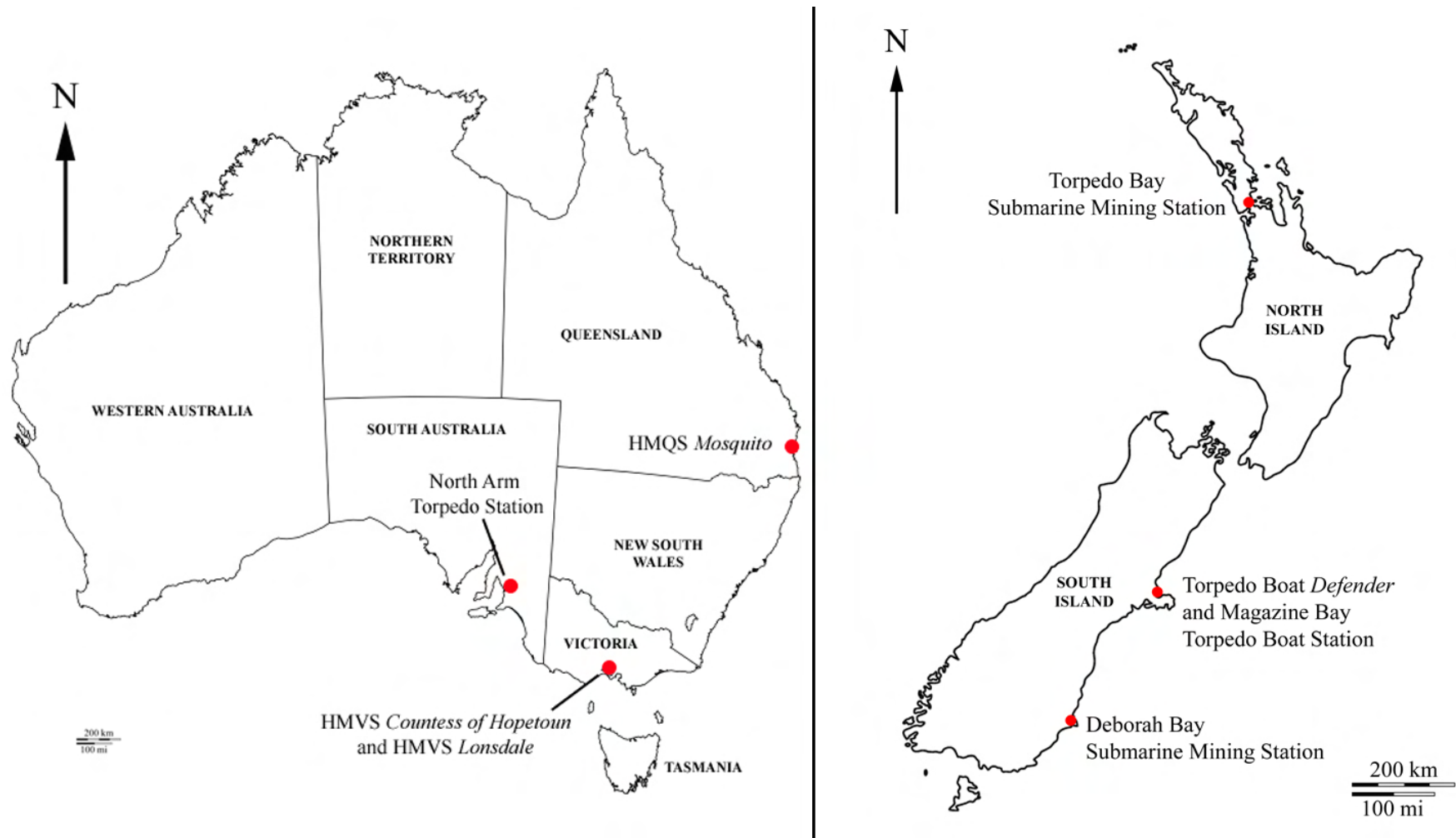


Figure 1. Australia (left) and New Zealand (right), showing the geographical locations of archaeological sites discussed in this study.

cultural factors that influenced these trends. Specifically, it will answer the following research questions:

- 1) What specific signatures of discard and abandonment characterise archaeological sites associated with the early torpedo boat defenses of Australia and New Zealand?
- 2) Are these signatures consistent with those observed at abandoned military sites, or are they better representative of discard and abandonment practices in non-military maritime contexts (i.e., commercial watercraft)?
- 3) What factors, ranging from large-scale historical processes to individual human agency, influenced the discard and abandonment of torpedo boat and torpedo station sites addressed in this thesis?
- 4) What do these influencing factors tell us about how Australasia's torpedo boat defensive system was perceived by those who developed and utilised it, and those it was meant to protect?

These questions will be answered through analysis and comparison of material culture assemblages and historic sources specific to the torpedo station and torpedo boat abandonment sites listed above. As will become evident, abandonment of torpedo vessels and their support infrastructure were relatively short-term events that took place over the course of months, weeks, days or even hours, and were often dictated or influenced by the decisions, behaviours, and actions of individuals in both military and post-military (i.e., civilian) contexts. By the same token, historical and social processes that were regional or global in scope and encompassed spans of time that lasted decades or even centuries also affected these disposal episodes.

Principles of cultural site formation will be applied to each highlighted site in an effort to identify its individual signatures of reuse, discard, and abandonment. These attributes will also be compared and contrasted among the complex of sites in its entirety. The data contained within these sites are critical, as they typically provide the only means for interpreting and understanding how and why the torpedo boat defences of Australia and

New Zealand effectively became 'throwaway' military assets in the waning phase of their existence. They also offer explanations as to why the vast majority of torpedo boats and stations were not utilised by either military or civilian interests once they were disposed of. The archaeological signatures that characterise the events surrounding each site's abandonment will in turn be connected to broader-based historical and social themes. This will be accomplished by complimenting the cultural site formation approach with an *Annales*-based framework of historical inquiry, placing particular emphasis on Mark Staniforth's (1997, 2003a, 2003b) concept of the 'archaeology of the event'.

Archaeological Events and Cultural Transformation Processes

This study's analysis and interpretation of the discard and abandonment of Australasian torpedo boat matériel¹ is not reliant on one particular theoretical construct or scholarly approach. Rather, it reflects the statement by Staniforth (2003: 21) that 'just as the world of the past fails to conform to simple and singular notions about it, so the modern world of archaeological theory needs to be accepted as diverse, complex, and ambiguous'. Although literally decades of published material has been generated by scholars and theorists conducting archaeological research in terrestrial contexts, maritime archaeology has suffered from a relative dearth of 'nonparticularist, anthropological, and behaviorally focused' studies (Richards 2008: 40). Similarly, the discipline has been heavily criticised for having no specific or unique formalised body of theory, and lacking 'theoretical sophistication', although this has started to change in recent years (Hocker 2000: 392; Staniforth 2000: 90; for examples of

¹ The term *matériel* (alternately spelled *materiel*) will feature prominently in this thesis and is defined by the [United States] *Department of Defense Dictionary of Military and Associated Terms* (2012: 203) as 'All items necessary to equip, operate, maintain and support military activities without distinction as to its application for administrative or combat purposes'.

the application of different theoretical perspectives in maritime archaeology, see Gould 1983a, 2000; Westerdahl 1992, 2011a, 2011b; Staniforth 1997, 2003b; Babits and Van Tilburg 1998; Veth and McCarthy 1999; Martin 2001; Flatman 2003, 2011; Richards 2008; Dolwick 2009; McKinnon 2010; Ford 2011).

Research presented in this thesis contributes not only to the methodological development of maritime archaeology, but also to the creation of a scholarly framework that is predominantly anthropological in scope and universally applicable to maritime-based studies in terrestrial, intertidal and underwater contexts. It integrates and applies both the 'archaeology of the event' and cultural transformation processes as a means to identify, analyse, and interpret the materiality of discard and abandonment of Australasia's early torpedo boat defences across a range of temporal and social scales. These range from centuries long, pan-geographic historical and social processes to isolated actions resulting from individual human agency.

Within the context of this research project, the 'archaeology of the event' is defined and applied as a multi-scalar scholarly approach that identifies maritime archaeological sites as tangible representations of unique events in time and space. The concept owes much to the *Annales* School of historiography, particularly the work of French historians Fernand Braudel, Emmanuel LeRoy Ladurie and Jacques Le Goff. A three-tiered model of temporal rhythm developed by Braudel (discussed at length in the following chapter) has been utilised to good effect by a handful of maritime archaeologists since the late 1990s (see Staniforth 1997, 2003a, 2003b; Dellino-Musgrave 2006; Rönnby 2007; Delgado 2006, 2009; Smith 2010; Horlings 2011; Pietruszka 2011); however, the majority of these studies have focussed on underwater remnants of individual shipwreck sites and events. This thesis will expand the utility of *Annales*-informed principles within the discipline of maritime archaeology by

applying the 'archaeology of the event' to the investigation and interpretation of naval sites and material culture deliberately abandoned in underwater, intertidal, and terrestrial locales.

In much the same way they signify varying degrees of temporal and cultural scale, archaeological sites in maritime contexts are also representative of a variety of natural- and human-influenced transformative processes that act upon material culture prior to, during, and after its integration within the archaeological record. These formation processes may encompass a range of scales, from the chemical interaction of individual artefacts with their surrounding environment to large-scale cultural processes that resulted in their manufacture, use, and ultimate discard and abandonment. Natural transformative mechanisms have almost certainly affected all the land-based, intertidal and underwater torpedo boat defensive sites addressed in the chapters that follow; however, cultural (i.e., human manifested) site formation processes will function as this study's primary analytical approach because it provides a framework by which human interaction with the material culture addressed in this thesis may be analysed and interpreted at all phases of its existence. A discussion of archaeological site formation and cultural transformation processes applicable to this research appears in Chapter Two.

Ultimately, by combining cultural site formation- and *Annales*-informed approaches to interpret the material culture of Australasia's early torpedo boat defences, this thesis will identify specific signatures and patterns of disposal and abandonment in both military and post-military contexts. It will simultaneously create a mechanism by which larger historical processes and themes of cultural continuity and change relevant to the military past of Australia and New Zealand may be explored. The research contained in the following chapters will also reveal evidence of human behaviour and decision-making in these discard and abandonment practices, thereby contributing to an overall understanding of the role and

significance of individual agency in Australasian military history. The importance of this type of holistic approach, and necessity of understanding various scales of historical process and human interaction that affect maritime archaeological sites cannot be overstated. As Colin Martin (1997: 12) eloquently observes, it is only through accurate interpretation of formation processes ‘tempered by intellectual rigour and more than a touch of humility...[that] life will be breathed back into...assemblages, turning them into the vibrant and very human realities which brought them into being’.

Military Discard and Abandonment in Maritime Archaeology

Discarded military watercraft have been addressed extensively in archaeological literature, and physical evidence of conflict-inspired vessel abandonment appears as early as the fourth century CE (Richards 2011: 867; for a discussion of abandonment attributes among the Nydam boats of Denmark, see Rieck 1991: 90-91, 1996, 1998; Delgado 1997: 300-301). Historically, both military and non-military vessels were abandoned for a variety of strategic purposes, the most common of which appears to have been to prevent the capture or transfer of useful items—be they the ships themselves or their associated armament, equipment and machinery—to an enemy. Other strategic forms of discard and abandonment associated with watercraft include a given navy’s intentional scuttling of its own vessels or fleet, and/or purposeful demolition of its unfinished warships, and the capture and destruction of armed craft by an opposing force (Richards 2011: 866-868).

Archaeologically, these trends are evident in vessel abandonment sites associated with past conflicts at a variety of locations worldwide. In addition to the Nydam boats, early case studies include the eleventh-century block ships at Skudelev, Skane and Jydedybet in Denmark, thirteenth-century vessels at Kalmar Harbour in Sweden, and the sixteenth-

century Mukran Wreck in Germany (see Christensen 1972: 162-164; Crumlin-Pedersen 1972: 69-70, 1991: 42-45; Bill 1997: 388-389; Einarsson 1997: 219-220; Springmann 1998: 120-123). Abandoned vessels of war associated with the modern era (i.e., post-sixteenth century) that have been the subject of archaeological investigation include several from the Seven Years War (1756-1763) in North America. These include the French frigates *Machault*, *Marquis de Malauze* and *Bienfaisant*, and the British-built sloop *Boscawen*, radeau *Land Tortoise*, and Wiawaka (Lake George) bateaux (Zacharchuk and Waddell 1984; Beattie and Pothier 1996; Crisman 1996, 1997; Stevens 1997: 250-251; Zarzynski 1997, 2007; Zarzynski and Benway 2011: 19-39).

Other archaeological examples of intentional warship discard and abandonment in the midst of conflict have been noted from the period of the American Revolution (1775-1781), War of 1812 (1812-1815), and American Civil War (1861-1865). Among these sites are the Massachusetts privateer *Defence* and another armed American vessel (possibly the Continental Navy brig *Diligent*), both of which participated in the Penobscot Expedition of 1779 and were purposefully destroyed by their crews as they retreated ahead of an advancing British naval force (see Switzer 1981, 1983, 1987, 1997, 1998; Smith 1986; Hunter 2004). A number of British warships scuttled during the Siege of Yorktown—including HMB *Betsey* and the Cornwallis Cave shipwreck—have been subjected to varying degrees of archaeological investigation, as have the remains of at least one Royal Navy vessel intentionally sunk at Newport, Rhode Island in August 1778 in an attempt to blockade that city's harbour against an invading French fleet (Broadwater 1995, 1997a, 1997b; 2011; Sands 1996: 160-168; Johnston 1997; Johnston, et al. 1978; Abbass 1999, 2003; Hosty and Hundley 2003).

Sites associated with the Barney Flotilla, a fleet of small, shallow-draught wooden vessels commanded by American Commodore Joshua Barney during the War of 1812, have been the focus of multiple archaeological projects since the late 1970s (Shomette 1981, 1995, 1997, 2009; Shomette and Hopkins 1983; Enright 1999; Eshelman 2005). The flotilla comprised two gunboats, 13 barges, a lookout boat, the row-galley *Vigilant*, and Barney's flagship *Scorpion*, a modified gunboat. Several merchant ships that intended to run a Royal Navy blockade of Chesapeake Bay while under the flotilla's protection accompanied the military vessels. Following multiple engagements with the British fleet, Barney ordered the two gunboats scuttled in St. Leonard's Creek in June 1814; the rest of the flotilla's vessels were intentionally destroyed by their crews in the Patuxent River two months later. Efforts to inventory and identify these sites are ongoing (see Langley and Nowak 2011; Langley, et al. 2011).

Similarly, warships purposely scuttled or otherwise abandoned during the American Civil War have been investigated archaeologically. These include the Confederate ironclad battery CSS *Georgia* and gunboat CSS *Chattahoochee*, as well as the Union gunboat USS *Dai Ching* and steamer USS *Boston* (Watts, et al. 1990; Anuskiewicz and Garrison 1992; Garrison 1997; Stephenson 1998; Amer, et al. 2004: 231-243; Watts and James 2007). In addition, archaeological surveys have been undertaken to locate vessels that comprised the Stone Fleet, a collection of ageing ships—primarily New England whaling vessels—intentionally sunk by the Union Navy at the entrance of Charleston Harbor, South Carolina in an attempt to prevent Confederate blockade runners from entering and leaving that port (Amer, et al. 2004: 85-93).

The largest recorded single incident in which a navy destroyed its own vessels as a consequence of conflict occurred in the immediate wake of the First World War at Scapa

Flow in the Orkney Islands (United Kingdom). Fifty-two warships of the Imperial German Navy, including several battle cruisers, battleships, and destroyers, were scuttled on 21 June 1919 while interned at the British Royal Navy base at Scapa Flow under terms of the Armistice that ended the conflict. The act was ordered by German naval commander Admiral Ludwig von Reuter, who feared the fleet's ships would be seized and divided among the Allied powers (Fine 2004; Van Der Vat 2007). Several sites associated with the lost fleet have been archaeologically surveyed in recent years (see Forbes 2003, 2007). Another World War I-era vessel sunk by its crew as a direct consequence of warfare—the Australian submarine *AE2*—has also been the subject of archaeological enquiry (see Smith 1998a, 1998b, 1999, 2000, 2008). Unlike the vessels at Scapa Flow, *AE2*'s scuttling event was attributable to damage sustained during an engagement with an Ottoman torpedo boat in the Dardanelles.

According to Richards (2011: 866), military watercraft are also commonly deposited in ships' graveyards, but more often than not as a strategic means of inhibiting 'enemy penetration of navigable waterways or strategic shorelines'. As with individual conflict-related scuttling events, warship graveyards are often created in an effort to prevent naval vessels from being captured and utilised by an enemy, in addition to serving as a defensive measure to inhibit or prevent an adversary's naval operations. Because they are generated over relatively short spans of time under conditions of duress, the watercraft that comprise these graveyards do not often undergo extensive salvage and as a consequence frequently contain 'rich artifact assemblages' (Richards 2011: 866).

Richards (2011: 868; see also Price and Richards 2009) notes other discard behaviors specific to military vessels, such as their intentional destruction for offensive or defensive tactical purposes. These include block ships such as the Stone Fleet mentioned above, or

strategic scuttling of one or more warships as part of defensive preparations for shore installations. An example of the latter is HMS *Vixen*, an ironclad ram intentionally sunk by the Royal Navy at Chubb Cut Channel in Bermuda in an effort to force enemy warships within preset ranges and arcs of fire of shore-based artillery (Gould 1989, 1990: 212-223, 1991, 2000: 281-289). Fire ships such as HMS *Firebrand* were intentionally filled with flammable material and either rammed against—or otherwise attached to—vessels of an enemy fleet in order to set them ablaze (see Sténuit 1976a, 1976b; Blackburn 1978: 142; Kemp 1988: 112; Camidge, et al. 2009).

Patterns of ship discard and abandonment may also be observed in non-combat contexts. For example, vanquished navies, such as those of Germany and Japan at the conclusion of the Second World War, were forced to scuttle or scrap their own vessels—some of which represented the technological pinnacle of warship development for their time (Delgado 1996: 18). In other instances, captured vessels are used as target practice, as occurred with German and Japanese warships utilised in the Operation Crossroads nuclear weapons tests in 1946, or the German submarine *U-1105*, destroyed during American explosives testing in Chesapeake Bay (Eliot 1992; Shomette 1994a; Weisgall 1994; Delgado, et al. 1991; Delgado 1996: 18, 21-22; Askins 1997; Lenihan 1998).

One theme that has received relatively little attention is the intentional disposal by navies of their own decommissioned warships in post-war contexts. A small number of notable exceptions, such as the archaeological investigation of the War of 1812-era United States Navy vessels *Jefferson*, *Eagle*, *Ticonderoga*, *Allen*, and *Linnet* in New York's Poughkeepsie River, have identified economic factors and post-war downsizing of military infrastructure as catalysts for abandonment (see Cassavoy and Crisman 1996: 177, 179, 183-186; Crisman 1983, 1987, 1989, 1991, 1995: 4-8, 1998; Emery 2003; Washburn 1998). Archaeologists have

also examined a vessel of war abandoned under similar circumstances in Bermuda. The site is believed to be that of HMS *Medway*, a steel-hulled *Medina*-class gunboat sold out of service in 1904 and eventually discarded as a derelict near the island's Royal Naval Dockyard two decades later (Richards, et al. 2008a, 2008b).

Finally, the 'Ghost Fleet of Malloys Bay'—comprising more than 150 steamships abandoned on the Potomac River near Washington, D.C. in the early 1920s—warrants mention here. Hastily built by the United States government to transport troops, arms, and equipment to Allied Europe during the First World War, these vessels quickly became obsolete following the cessation of hostilities and were sold *en masse* to a Virginia-based salvage firm. A large number of the original fleet were subsequently beached and abandoned; in the early 1990s the remnants of these ships were the focus of comprehensive historical and archaeological research (see Shomette 1994b, 1996). Although not technically warships, the watercraft abandoned at Malloys Bay were nonetheless utilised in a military capacity and are representative of discard practices resulting from governmental decision-making in post-war or peacetime contexts. Because this thesis aims to identify and assess discard and abandonment behaviours associated with torpedo boats decommissioned in peacetime, it too has the potential to build upon this largely unexplored aspect of deliberate watercraft disposal.

While themes associated with military vessel abandonment have gained considerable traction in maritime archaeology, discard and abandonment practices associated with land-based naval infrastructure are practically non-existent in available literature. Indeed, abandonment themes appear to feature little in the archaeology of military sites as a whole; these have traditionally placed more emphasis on such topics as the identification of material culture associated with warfare, the arrangement and construction of fortifications, forensic

analysis of human remains, remote-sensing methods for interpreting battlefields, management of conflict heritage sites, and tangible aspects (such as monuments) of remembrance and mourning (e.g., Darvill et al. 1993; Schofield 1999, 2002a, 2002b, 2005; Schofield, et al. 2002; Freeman and Pollard 2001; Saunders 2004; Scott, et al. 2009; Pollard and Banks 2008; Geier, et al. 2011; Starbuck 2011). With this in mind, the methodological framework and scholarly approaches outlined in this thesis have potential utility in the exploration and analysis of discard and abandonment behaviours and practices associated with military infrastructure in terrestrial contexts. It therefore has the potential to contribute not only to the discipline of maritime archaeology, but also archaeological studies of land-based military and conflict sites.

Torpedo Boats and Torpedo Stations in Archaeology

As stated previously, a number of written histories have examined the colonial and early national navies of Australia and New Zealand; most include torpedo boat defences as a topic of discussion. However, the latter have not been adequately addressed from an archaeological perspective. Until recently, few torpedo boat station and discard sites in Australasia were the subject of archaeological studies, and of the handful investigated (see Treloar and Treloar 2001; Corbett 2003; Watson 2004; Hewitt 2006; Plowman 2008, 2009; Hewitt and Tucker 2009) only technical reports, site notes, and other forms of unpublished particularistic 'grey literature' were generated as results. Indeed, only one project—an archaeological survey of the North Arm Torpedo Station site in South Australia (see Wimmer 2005, 2008)—tackled the topic of torpedo boat defence within a research-based thematic framework. It is curious that so few submarine mining station and torpedo boat discard sites have been systematically examined and interpreted archaeologically when

several other forms of early Australasian coastal defence have been addressed in this manner (e.g., Walton 1990; Mitchell 1995; Cooke 2000; Gojak 1985, 2002; Parks Victoria 2006).

Aside from those referenced above, no other torpedo boat and torpedo stations sites of this type and vintage have been archaeologically investigated anywhere else in the world to date. The research presented in this thesis therefore offers the first opportunity to examine these types of military sites in detail, both individually and as components of a much larger defensive system. Data acquired as a consequence of this research project, in addition to answering specific questions about processes and behaviours that characterised the abandonment of Australasia's early torpedo boat defences, have the potential to significantly contribute to our overall understanding and knowledge of late-nineteenth/early-twentieth century torpedo craft, submarine mining facilities, and torpedo warfare.

Chapter Outline

The chapter that follows (Chapter Two) communicates the theoretical underpinnings of this thesis. Specifically, it examines two scholarly approaches—the 'archaeology of the event' and archaeological site formation processes—and explains how they are utilised, both individually and in concert, to illuminate the discard and abandonment of Australasia's early torpedo boat defensive system. The former approach is rooted in the ideas of the *Annales* School of historiography and interpreted and applied within this study as a multi-disciplinary investigation of torpedo boat and torpedo station sites, each of which is perceived as a unique abandonment *événement* (or 'event') in time and space. The archaeological signatures representative of these short-term occurrences are explored within a multi-scalar framework encompassing both long- and medium-term historical processes (the *longue durée* and *conjonctures*).

These signatures are identified and analysed through the filter of archaeological site formation, a processual/behavioural method of interpreting material culture that focusses on the variety of cultural and environmental transformative processes that affect it before, during, and after its integration within the archaeological record. Site formation studies have traditionally served as a means of identifying and connecting short- and long-term cultural and environmental trends across a range of temporal and spatial scales, an attribute that makes it an especially complementary approach to *Annales*-based research. Of particular relevance to this thesis project are cultural transformation processes associated with reuse, discard, abandonment, and reclamation behaviours, as well as archaeological signatures of use and discard specific to historic watercraft. Because they are utilised as both an investigatory tool and a means of interpreting and understanding past human activities, these cultural site formation processes are applied within this study as both a methodological and analytical approach.

Chapter Three provides a detailed discussion of historical sources consulted for this study, including the identity of repositories where such information is archived, and the means by which historical data was accessed, analysed, interpreted, and applied within the research framework. Specific limitations associated with the use of historical material, including the potential effect(s) of bias, are also addressed. This chapter also illuminates the wide range of archaeological methodologies employed to collect, analyse, and interpret data obtained from the assemblage of torpedo station and torpedo boat abandonment sites investigated as part of this thesis project.

Long- and medium-term historical processes that influenced the creation and subsequent abandonment of Australasia's torpedo boat defences are described in Chapter Four. Foremost among these is the centuries-long presence of British naval forces in the

Pacific Ocean, a *longue durée* period sparked by European 'discovery' of trade markets in the Indo-Pacific and Asia-Pacific regions during the fifteenth and sixteenth centuries. Subsequent *conjonctures*, including Great Britain's colonisation of Australia and New Zealand, the outbreak of conflicts such as the Crimean War, American Civil War, and New Zealand Wars, and Europe's race for empire in the Pacific are addressed and explored. The discussion of these *conjonctures* is complemented by a general overview of the nineteenth century Industrial-era 'arms race' that facilitated and accompanied European imperial expansion, with specific emphasis placed on the international development of torpedo warfare and torpedo vessels that resulted from it. The chapter concludes with a discussion of the 'Russian Scares' that emerged in Australasia as a result of British and Russian imperial confrontation, and the role these *conjonctures* played in the decision by the governments of Australia and New Zealand to establish—and ultimately abandon—their respective torpedo boat defensive systems.

The specific histories, archaeological investigations, and material culture data sets associated with four torpedo stations in Australia and New Zealand are highlighted in Chapter Five. In particular, archival and archaeological evidence of each station's construction, deactivation, and ultimate abandonment are explored through the filter of cultural site formation processes. Similarly, Chapter Six assesses cultural site formation characteristics of four Australasian torpedo boat disposal sites in conjunction with data derived from their respective historical and archaeological backgrounds. As with the torpedo stations, specific attention is given to signatures of discard and abandonment, as well as those indicative of reuse behaviours.

The final chapter, Chapter Seven, provides a summarisation and discussion of the results of this thesis project. It highlights historically- and archaeologically-documented

discard and abandonment attributes specific to each site addressed in Chapters Five and Six, and assesses the short-term abandonment 'events' these data represent within the broader scales of history outlined in Chapter Four. The chapter concludes by addressing the efficacy of this research project's methodological and scholarly frameworks and includes suggestions for future research. Specific aspects of research methodologies employed in this thesis, including the results of analytical processes and other forms of data acquisition, are detailed in a number of appendices.