Chapter One: Introduction

1) Introduction

Queenscliff is a small Australian coastal town, where for 150 years people have engaged in a tempestuous relationship with one of the most dangerous stretches of water in the world. The town is perched on a peninsula at the head of Port Phillip Bay, accessible only via an isthmus or by sea, and from this position the community sits at the maritime gateway to the largest city in Victoria (Melbourne), located 50 km northwards at the inner extremity of The Bay. Despite this proximity, Queenscliff has remained distinct from the capital and the surrounding communities, developing distinctively strong connections with the surrounding waters of Port Phillip Bay and the Southern Ocean beyond it. Since its foundation in the mid-nineteenth century, many people within the community have worked these marine areas and the settlement was (and still is) home to an array of maritime industries and services. Indeed, many of its members have formed stronger relationships with the ocean than they have with the land, and they perceive the sea in many different ways.

This thesis will use the community of Queenscliff to explore archaeology of non-indigenous communities living and working across the land/sea divide. It will be argued that such apparently maritime communities do not necessarily perceive a discontinuity between the marine and terrestrial realm, even though each region may be differently experienced. Consequently, to fully understand how a maritime community operates, it is necessary to investigate the complex relationships that exist between mariners and other community members, and in particular to define how each group occupies and utilizes both the water and land. To this end, this thesis uses a particular cultural landscapes approach to overcome the problem of working within the restrictive disciplinary and environmental boundaries of historical archaeology (terrestrial) and maritime archaeology (marine). It uses a variety of methods for collecting and integrating disparate documentary, oral and archaeological data sets available to the researcher from the Australian colonial period. In particular it seeks a broader understanding of the archaeological expressions of maritime activities in this community, whether those expressions are situated above or below the waterline.

2) Background: The Maritime and Historical Archaeological Divide

This thesis is best described as a ‘maritime’ archaeological investigation, following Delgado’s recent re-assertion of the field as the ‘study of human interaction with the sea, lakes, and river

through the archaeological study of manifestations of maritime culture' (Delgado 1997:259). However, in this sense it departs from the traditional disciplinary structure for maritime archaeology as created and practiced within Australia. From its initial origins in the late 1960s, Australian maritime archaeology adopted an historical particularist paradigm that focused predominantly on underwater shipwreck sites (and their associated relics), with occasional studies of such sites as survivor camps, and those associated with maritime industries (e.g. Green 1977; MacIlroy and Meredith 1984; Stanbury 1985, 1986, 2000). As many State heritage programs developed shipwreck databases, their archaeological work, constrained by specific legislation, concentrated predominantly on recording and assessment of individual shipwrecks (Duncan 2000:3-4). At an international level, maritime archaeology has until recently worked under a similarly restricted definition.

For nearly 20 years researchers in Australia and elsewhere have recognized that maritime archaeology needs to expand its normal scope, integrating its area of interest above the shoreline to also consider land-based maritime sites (Gould 1983; 2000; Effenburger 1987; Hosty and Stuart 1994; McCarthy 1998a; Veth 1998; Cederlund 1999; 2002; Flatman 2003). These critiques have suggested a move away from current simple site-based archaeology to embrace broader regional investigation, which integrates social behaviour and cultural practices, and the linkages between underwater and terrestrial archaeological sites (see Ruppé and Barstad 2002 for examples). Similarly, terrestrial archaeologists (of both the pre-historic and historic periods) could be criticized for not incorporating maritime sites in regional investigations. Australian historical archaeological studies have rarely proceeded beyond the intertidal zone, and therefore underwater sites which demonstrate the continuation of maritime activities beyond the tidal interface were not normally addressed (Duncan 2003a). While there have been attempts to address these criticisms by incorporating behavioural and social aspects into Australian regional maritime archaeological studies (Kenderdine 1995a, 1995b; Foster 1987-1990; McCarthy 1998b; Duncan 2000; Richards 2002), this thesis is intended to add another contribution to developing a more integrated approaches maritime societies.

These exhortations to integration suggest that a cultural landscapes approach might be the most useful way to approach such an aim. This is despite the theoretical ambiguity of what constitutes a cultural landscape or the methodological uncertainties of how they might be investigated.

3) Aims of the Thesis:

Using Queenscliff as a case study, this thesis will:

- Develop a methodology for investigating maritime cultural landscapes of the Australian Colonial period that allows for the proper consideration of behavioural and social aspects in maritime archaeology through the incorporation of many often disparate data sources.
- Explore how maritime activities are expressed in the archaeological record, and the spatial distribution of physical attributes of maritime communities which are critical to understanding how maritime communities operate.
- Investigate the spatial distribution of archaeological sites to analyse community relationships and behavior.
- Explore the relationship between archaeological signatures, extant historic structures and community behaviours and dynamics.
- Identify new types of maritime archaeological sites that are representative of thematic maritime subcultures and are essential for this type of approach.
- Develop methodologies which effectively integrate the archaeological, documentary and oral historical data sets available for the investigations of historic-period maritime communities.
- Investigate the application of this methodology to a case study area, and analyse the success of this technique.
- Demonstrate and investigate the complex web of social relations in a nineteenth century Australian town using a cultural landscapes approach
- Critically review the success of this application.

4) Structure of the Thesis.

Chapter Two critically reviews the principle structures behind cultural landscapes approaches as they have been constructed and applied by archaeologists as well as historians, geographers and anthropologists. It attempts to extract and synthesise the key understandings about landscape which have emerged from these studies, with a particular emphasis on how these might be extended and applied within the current investigation.

Chapter Three explores the methodological basis of cultural landscape investigations, with particular emphasis on the data sets available for the exploration of maritime cultural landscapes in the historic period. This section also outlines the general methodologies which have been previously employed or might be used productively in studies to identify archaeological sites

and their associations to known activities, behaviours and belief systems. The second half of the chapter establishes the data sets available for more detailed cultural landscapes investigations within the study area and describes the specific methodologies employed for the Queenscliff research.

Chapter Four introduces the Queenscliff case study, by outlining the environmental background for the area and exploring the emergence, nature and diversity of the maritime community through a series of short thematic histories. This overview sets the scene against which subsequent thematic landscapes will be introduced.

Chapters Five to Six provide specific and detailed studies of the cultural landscapes associated with two of the industries and services that played key roles in the development of the Queenscliff maritime landscapes. The role of defence in shaping the Port Phillip landscape will be examined in Chapter Five, where it will be shown that military influences have played a significant role in the determining and constraining of maritime use of this area, and has also influenced the development of many cognitive landscapes through exclusion of many other members of the community. Fishing community landscapes will be examined in much greater detail in Chapter Six to demonstrate the potential depth of different social, hierarchical, gender, ethnic and age landscapes that are evident within this cultural subgroup alone. Each chapter has been loosely similarly structured in its exploration of the relevant archaeological, ethnographic and documentary data sets (where possible), in order to identify and tease out the similarities and/or differences between the mechanisms that drove landscape evolution.

Chapter Seven represents a different approach by examining the implications of *events* on landscape construction. In this section the impact of shipwrecks on the coastal community will be explored beyond their catastrophic repercussions, examining their initial role as a uniting catalyst that crosscut the social hierarchy and their continuing significance as social or economic resources. This chapter is structured slightly differently to the previous two, as it presents a series of multiple (and often conflicting) perspectives of these occurrences, their different responses to them, and the resulting (often unexpected) archaeological signatures. The effects of these events on the social structuring and behaviour within the township are also analysed.

Chapter Eight examines the interrelationships between a range of social groups within the community, exploring the complementary and/or conflicting nature and overlap of the thematic landscapes and community subgroups detailed in the Chapter Five to Seven. These observations will be used to argue that although these groups were often in conflict, they were

also heavily reliant on each other. The effects of an imposed cohabitation of diverse social groups within an unusually confined region are further explored in relation to the generation of an alternative social hierarchy based on one's ability to demonstrate their ancestral background and attachment to the area.

Finally, Chapter Nine evaluates the methodology employed in the case study, and offers insights for future research in this area. The role of cultural landscapes approaches in the analysis of maritime coastal communities is further critiqued with regards to the current approaches, and recommendations are made regarding the adoption of a seascapes approach to maritime archaeological research.

5) Limitations of the Study

The focus of this thesis is on the relationships and archaeological evidence associated with the maritime cultural landscapes of Queenscliff during the 'historic period', that is, from the mid-19th century onwards after the arrival of European settlers. However, it is recognized that, especially in the early period. there was a the complex interplay between Indigenous and non-Indigenous groups in Australia, including the adoption or modification of existing environmental and landscape knowledge and practice, as well as continuing Indigenous participation in the workforce and community. Pre-Contact Indigenous landscapes present a whole new suite of ideologies, belief systems and cultural practices that are unfortunately beyond the scope and capability of this current study to explore in detail, although it is intended that these will be a subject for future study.

This thesis draws on a number of large scale surveys of maritime infrastructure conducted by the author in Port Phillip Bay, both as part of this thesis research and whilst as a consultant employed by Heritage Victoria. Most of the substantive data for these surveys are more fully documented elsewhere (see Duncan 2002, 2003a, 2004a, 2006) and for the sake of brevity specific site details are often not included here except where key examples reinforce a line of discussion. Summaries of potential and actual archaeological sites identified are included in the appendices.

6) Conclusion

This study opens with an introduction to the cultural landscapes concept, and examines its evolution and diverse applications. The next chapter will show that although the ambiguity of

the approach is a major advantage of the concept, it has developed into an all encompassing broad notion that requires further refinement before it can effectively be used for analysis. Numerous different adaptations of the concept will be explored in greater detail to tease out the essence of what defines and underpins the concept, and a number of key elements will be highlighted which will form the theoretical approach that will be used throughout this thesis.

> The land as shaped by people in turn helps structure their patterns of action. Every action we perform is contained within a network of actions stretching across time and space. We can think of this network as a system of reference, because every act implicitly refers to many others. This cyclical process shapes the cultural landscape, one feeding into the other. If we can link social processes to the physical transformation of the landscape, we have a means of understanding social processes over the long term. (Gosden and Head 1994:114)

Chapter Two: Cultural Landscapes Studies - An Overview

1) Introduction

The term Cultural Landscape refers to the general concept that cultural identities and communal histories are anchored to physical landscape features and contained within cognitive perceptions for any given area. This unifying notion provides a mechanism for contrasting perspectives of individuals and groups to structure and analyse the complexity of people's social inter-relationships with their environment over space and time, and its utility lies in "its ability to amalgamate disparate groups of loosely related approaches under a single heading". Therefore, the landscape paradigm potentially facilitates the identification of underlying complex patterns which connects different observations of the extent of contrasting/conflicting community interaction within their environments (Anschuetz et al. 2001:163).

The cultural landscapes approach has been extensively used in archaeological and anthropological discourse to investigate the physical expressions of cultural presence and the generation of cognitive meaning attached to them. Landscapes provide an arena within which a group's cultural interaction with the environment, other individuals and communities define and redefine cultural identity and practices and vice versa. There is a duality of interaction between landscapes and human activities, where human action/culture creates landscape, and landscape then shapes human action (Gosden and Head 1994:114). The study of landscapes therefore provides an opportunity to access new understandings of past cultural behaviour within any given environment and the subsequent physical signatures of those activities within the archaeological record.

Most of the earliest landscapes studies were confined to terrestrially based economies and settlements, and often did not consider activities that occurred offshore. However, in many regions social expansion and economic activities have been inextricably related to maritime economies and the use of the bodies of water (e.g. sea, lakes, rivers etc). Although research had been undertaken of the marine environment, it had been largely restricted to studies of shipwrecks and maritime routes, and these specifically examined the sea as a separate entity to

the land, and often stopped at the intertidal zone. The division of landscapes based on environmental parameters is questionable, as culture and practice does not stop at the waterline, but crosses and recrosses the shoreline to continue offshore. Mariners regularly inhabit and make use of the shores and areas further inland, and conversely terrestrially based communities sometimes also exploited and/or travelled on the sea. Therefore, any academically imposed notional boundary between the maritime and terrestrial worlds (of land and sea) is problematic, as it does not necessarily reflect actual use and subsequent perceptions of these environments as interlinked components of cultural landscapes.

This chapter will critically review a range of cultural landscape studies to look for concepts and approaches that span the land/water divide. The interplay between the utilisation of the marine and terrestrial environments requires further investigation, as different members of a maritime community may (or may not) operate in both these regions, but may use and/or perceive them differently. Recent investigations of maritime infrastructure in the littoral zone have begun to address this problem, but there is still a long way to go. One objective of this section is therefore to examine how the concept of landscapes can be applied to examine cultural practices and beliefs undertaken both on the land and sea, and what their archaeological signatures might be.

This chapter will also explore many of the popular approaches utilised to examine cultural landscapes, and will extract what are considered to be the main strengths of the concept, along with the most pertinent methods to derive a methodology for further investigation of a case study area. A variety of studies are examined to extract the essence of what constitutes a cultural landscape, and how to access them. This section will critique the various approaches, and draw parallels echoed in other research to provide an overview of my working definition of what constitutes a cultural landscape for the purposes of this thesis.

2) What Constitutes a Cultural Landscape? The Fundamentals

The term “cultural landscape” was first coined by Carl Sauer (1925:49), who used it in a specific way to interpret regional settlement patterns associated with cultural and social organisation (Craig 1998:15). By the 1950s, Hoskins (1955) had undertaken studies of the British landscape which were grounded in historical studies, where the emphasis was on the recording of archaeological sites which were categorised to given time periods. The focus was on the evolution of function, form and place, and the relationship of the physical landscape and archaeological remains against the observed underlying cultural traits of the inhabitants. The

essence of these two approaches was a distinction between whether areas were "natural" countryside and humanly impacted environments, where the results of cultural activities were seen to detract from the natural or aesthetic landscape. This contrasted to contemporary approaches in America by Jackson (1951), which were based in geography. Whilst also investigating evolution of landscape over time, his analyses were centred on understanding the landscape from the perspective of the inhabitants (Meinig 1979a: 212-216).

The 1960s onwards saw an expansion of the perspectives of landscape studies. Several geographers (e.g. Cosgrove 1984; Cosgrove and Daniels 1988; Penning-Rowsell and Lowenthal 1986) began to interpret landscapes through the adoption of social and cultural theory to explore cultural practices and beliefs, socio-political processes, and non-physical landscape aspects. This period of development has already been succinctly described by Anschuetz (et al. 2001). In particular, Meinig (1979b) made considerable advances to the field when he explored the concept of multivalent views of the same landscape arena. This period also saw the rise of landscape archaeological studies, where the spatial patterning of sites scattered over large regions were interpreted against their environmental setting in an attempt to analyse cultural behaviour (e.g. Hodder and Orton 1976; Clarke 1977: Judge and Sebastian 1988; Ebert 1992).

With the widespread introduction of phenomenology and cognitive approaches to cultural landscape studies in the 1990s (e.g. Ingold 1993, 2000; Tilley 1994), the focus turned firmly to the investigation of social relationships which incorporated landscape perceptions of both individuals and groups.

By the 1980s, innovative archaeological studies of maritime cultural landscapes that spanned the land/sea divide were being undertaken by Westerdahl (1991) in Scandinavia. He used the term to specify the unity between terrestrial and underwater material cultural remnants observed during a regional survey in Sweden, later advocated that: "The maritime cultural landscape signifies human utilization (economy) of maritime space by boat, settlement, fishing, hunting, shipping, and its attendant subcultures, such as pilotage, lighthouse and seamark maintenance" Westerdahl (1992:5-6). He stated that maritime cultural landscapes should be compared to their terrestrial counterparts, but <u>not</u> <u>only</u> as extensions of them. Westerdahl (1994: 266) later modified his definition of landscapes (which was focused purely on material cultural remains), to include cognitive, cultural and social activities and/or aspects of the study area. He further developed the concept over ensuing years (Westerdahl, 1991, 1992, 1994, 1995, 1998a, 1998b, 1999, 2000, 2002a, 2002b, 2003a, 2003b) and his lead was soon followed by others (e.g. Hunter 1994; Kenderdine 1994, 1995a; Kelleher, 1998; Rönnby 1998; Parker 1999, 2001; Jasinski 1994, 1999; O'Sullivan 2001; Ragan 2001; McErlean et al. 2002).

Although Westerdahl was the first to use the term, it is important to recognize that other (often earlier) studies of maritime cultural landscapes have taken place that did not use this phrase. A number of ethnographic, archaeological and anthropological investigations of indigenous Pacific Island maritime communities (Malinowski 1961; Gladwin 1970; Finney 1976; Lewis 1980, 1994; Johannes 1992; Roe et al. 1994; Hviding 1996; Roe and Taki 1999) have examined a wider range of cultural landscape components, including archaeological sites, belief systems, ethno-history, environmental aspects and documentary sources. Significantly, these studies recognised the importance of non-physical components, such as myths, folklore, toponymy and their associated stories, and specialized local knowledge (all of which were often used to validate territorial ownership, community identity and belonging to place) to understand the functionality of those societies within the context of their given belief systems. These cognitive aspects have often been divorced from many modern European cultural landscape studies until recent years, and will be explored in much greater detail in this thesis.

A) Ambiguity of Landscape – Confusing the Terms

The multiplicity of research directions in cultural landscape studies has often led to many different interpretations of the concept. Indeed, the ambiguity of the cultural landscapes approach has been one of its main strengths, as it has allowed for recognition of diversity between cultures, and incorporated concurrent examination of various aspects using methodologies drawn from different disciplines:

> …it is the very fullness and ambiguity of the concept of landscape that makes it so useful and helps span the gaps that might otherwise exist between a number of disciplines. The thread that binds geography, archaeology, and anthropology together around the theme of landscape is the notion of history that can be derived from it. The concept of landscape stretches between the physical shape and properties of the land, to the human use and conceptions of that land, bringing together themes that are vital to an understanding of human history and which normally remain separated. (Gosden and Head 1994:115)

However, when Barker and Darvill (1997:1) observed that "cultural landscapes are not what they used to be", they implied that the utility of the phrase had been weakened because the people who used it rarely defined the specific meaning in their work, or the method they employed to explore the notion. In this statement, they commented both on the changing nature of cultural landscapes over time, and also the bastardization of the concept to become an all-encompassing term used to describe anything from the physical to the intangible, and not the amalgamation of many different perspectives as had been originally intended. The usefully ambiguous concept as defined by Gosden and Head (1994:115) may now be losing its strength because its meaning can be taken to constitute anything and everything (see Anschuetz et al.

2001). The paradox is that although the approach allows an all-inclusive view, at the same time the concept loses focus through lack of definition.

Over time the cultural landscape concept has taken a central place in many archaeological studies and been manipulated in different directions of study (e.g. Wagstaff 1987; Tilley 1994; Everson and Williamson 1998; Pattison 1998; Ucko and Layton 1999; Bradley 2000; Ashmore and Knapp 2000; Mayne and Murray 2001; Scarre 2002). Additionally, many regional landscape GIS analyses of landscapes have been undertaken which examine archaeological spatial patterning (e.g. Johnson 1993; Allen et al. 1990; Lock and Stančič 1995; Gillings et al. 1999). However, these investigations may not necessarily constitute landscape analysis as landscape is not a term that is synonymous with spatial archaeology, and this approach tends to only examine positive regional archaeological signatures, whereas (as will be further discussed below), landscapes analysis also examines the meaning of negative (empty) signatures in the physical environment.

Similarly, maritime cultural landscape studies have adopted multiple directions of investigation, approaches and definitions to examine coastal and marine regional settings, from investigations of maritime culture (Westerdahl 1992, 1993, 1994, 1995, 1998a, 1998b, 1999, 2000, 2002a, 2002b, 2003a, 2003b); maritime specialisation (Hunter 1994; Parker 1995; 2001); and geomorphological processes within archaeological landscapes (Fischer 1995; Wickler 1999; Indruszewski and Gluzniewicz 1998; Indruszewski 2002). Some maritime cultural landscapes studies have focused on the use of the concept for cultural and environmental heritage management (e.g. Maarleveld 1997, 2003; Larsen 1997; Esser 1999; US Dept Commerce et al. 1999; Claris 2000; Bauer et al. 2001; Vrana and Vander Stoep 2003) and compiling archaeological inventories (Williams and McErlean 2002). Other enquiries have included the examination of riverine and estuarine archaeological sites (e.g. Graham-Campbell 1997; Aberg and Lewis 2000); the use of visual computer generations of landscape to aid the analysis of ethnographic accounts and archaeological data to illuminate the cultural and social relationships between communities and the environment (e.g. Vatenen 2002) or combinations of archaeological, palaeo-environmental and ethno-archaeological approaches (e.g. Howitt-Marshall 2003:4).

Although many excellent studies sought to incorporate utilitarian and perceptive aspects of the maritime environment (e.g. Westerdahl 1994, 2000, 2002a, 2002b; Parker 1999, 2001), in many cases an environmental deterministic approach was adopted (e.g. Allen 1995:30). Alternatively they concentrated predominantly on material and archaeological aspects of the maritime landscape at the expense of cognitive investigations that could have been accessed through

folklore and oral histories (Kelleher 1998; Aberg and Lewis 2000; Ragan 2001; McErlan et al. 2002). Other investigations have focussed on individual landscape features (e.g. fish traps – Bannerman and Jones, 1999) or maritime infrastructure (e.g. Breen 1998a, 1998b, 1999; Breen and Callaghan 2001). As such, these works might more correctly be termed maritime archaeological landscape studies, as their cultural investigations were usually confined to examination of economic practices and their consequent archaeological signatures.

B) Developing a Consistent Methodological Approach

A major problem underpinning current approaches to cultural landscapes studies is a lack of methodological definition. Not only are there a range of directions common in archaeological research, but the concept is also extensively used in cultural heritage literature which further confuses the issue (e.g. Feliu 1995; von Droste et al. 1995). As such it is not clear exactly how one might utilise a cultural landscapes approach in terms of data source types, method and analysis. An explicit method is required to enable insights into what data types and directions of research are appropriate in any given situation.

We also need to be able to find a reporting style that is usefully ambiguous in the same way, but currently this is not well defined. Many current approaches follow a chronological framework that does not allow for changes in direction either temporally and/or spatially. Alternative approaches have been suggested by Bender (1992:5), who presented her discussion in a non-chronological format that revisits the landscape several times over to highlight different aspects or themes, although this is still cumbersome and unwieldy.

With these problems in mind, a range of cultural landscape studies were reviewed to identify the essence of what underpins the cultural landscape concept, and to analyse the diversity of concepts and approaches to extract a suitable methodology for application of this notion. Such an approach needs to recognise the diversity of cultures within the landscape, and also that people utilise their environment in a way that collectively exploits land and sea areas, but often in different ways, and does not always necessarily recognise a discontinuity between terrestrial and oceanic areas. It should be noted that in the discussion below, the importance of some landscape factors which have not previously been widely addressed are given greater attention than other aspects have already been more widely adopted in this approach (and which have been dealt with in more sufficient detail elsewhere).

3) Landscape Approaches

A) Landscapes are Physical and Cognitive

Not surprisingly, many archaeologists who investigated landscapes predominantly focused on physical archaeological remains and other structural aspects, rather than social and metaphysical dimensions. Even in early studies, Jackson (e.g.1951, 1979, 1994) repeatedly and effectively demonstrated that cultural landscapes consist of more than physical remains, and that a whole suite of cognitive perceptions were intrinsically tied to landscape construction and expression. Furthermore, Darvill (1999:104) argued that rather than being a synonym for countryside (cf Hoskins 1955), landscape was a terminology for particular ways of seeing the world based on specialised experiences of space and time. His concept of landscape embraced themes of relationships between individuals and communities, the range of belief system and values, and how these translate into the cultural world which they have created. Therefore landscapes exist on two primary levels being expressed and experienced both physically and cognitively.

B) What Landscape is Not – False Dichotomies

It is useful at this stage to define what a cultural landscape is not. In his groundbreaking work, "The Temporality of Landscape", Ingold (1993) examined how cognition and belief systems were physically expressed in the landscape. Landscape is not synonymous with land, and as Ingold (1993:153) demonstrated there is a difference between the actual physical landscape (land) and the physical use and intangible perceptions of it (cultural landscape):

> Thus at any particular moment, you can ask of a landscape what it is like, but not how much of it there is. For landscape is a plenum, there are no holes in it that remain to be filled in, so that every infill must be a reworking (Ingold 1993:153)

If Ingold's stance that landscape can not be measured is accepted, then by definition landscape also can not be divided, and therefore requires that any notion of binary opposition (e.g. land/sea; natural/ cultural; past/present) be set aside as there can be no distinction between where the data comes from. This stance is supported by numerous researchers (e.g. Lewis 1980, 1994; Johannes 1992; Hviding 1996).

However this presents a further problem in that even though many physically different regions form the totality of individuals/groups worlds, these environmental/perceptual settings are usually divided according to how people use/perceive them, with each used in different ways. The land and sea demonstrate just one way in which people see the landscape. In trying to disentangle what cultural landscape is for individuals/groups, the paradox of the approach is that

in order to access the totality of landscape(s), you first have to divide it up and establish analytical units/categories to understand its multi-vocality. This approach may initially seem antithetical to the purpose of the notion, and was very difficult to implement as it placed divisions on holistic representation (that underpinned landscape studies).

However, the target of the approach is to examine landscapes that do not have any holes in them, and to get to this point requires the use of analytical categories. By definition the landscape is a plenum, and there are multiple interpretations/perceptions of it, and it therefore does not matter if they conflict or overlap, as it is the multivalency of notions that is significant, and therefore all interpretations of landscape are correct.

What this means is that we need to question any (academically imposed) simplistic notions of landscape which are based on binary oppositions such as land/sea, natural/cultural, and static/ dynamism (which differentiate between sources of data based on physical location and/or historical analytical research notions/directions), whilst still recognising the perceptive differences between landscape components as recognised by the actual landscape participants themselves.

I) Natural vs. Cultural Landscapes

Although the field owes much to Hoskins' (1955) approach, current academic views do not accept his division between the (natural) countryside and the (developed) town. Jackson's (1951) study of the American southwest argued that the dichotomy between natural and artificial landscapes was incorrect, as nature pervaded the built environment and vice versa, so that there was a constant reaction between people and the environment (Meinig 1979a:212-6, 235). Indeed the term "natural' is a cultural construct, and is not found is all societies. Bender (1992:5) further argued that material structures and their remains were placed within the theatre of the topographic environment, and as they are complementary components that formed the landscape, nature and culture are indivisible in landscape studies. Firth (1993:1, 2) reinforced this point when he demonstrated that the concept of the sea as a natural environment is incorrect, as it is affected by human use of it in a number of ways through the deposition of archaeological materials, the definition of navigational routes, the extraction of natural resources and the development of perceptive and cognitive knowledge frameworks which dictate its use.

Some researchers have further recognised that seemingly "natural" (i.e. unaltered) places are often encoded with rich symbolic cultural meanings which act as validations of oral histories

and belief systems for past significant events (Jasinski 1999:17; Roe and Taki 1999: 415, 419; Bradley 2000). Their studies of many "natural" (often unmodified) features in Scandinavia, the Pacific and Europe, respectively, recognised the cognitive associations with important communal and ancestral events and landscapes:

> These histories transform the silent landscape of rocks and stones encountered in purely archaeological enquiries into a landscape in which some stones are keys to knowledge or information, or have a being of their own…(Roe and Taki 1999:419)

In these cases, the "natural" features had no archaeological signatures until their history was informed by traditional narrative and place names, which dramatically demonstrates the importance of oral accounts and memoir histories for any cultural landscape. These observations transform seemingly "natural" places into areas of high cultural significance, and reinforce previous observations that all landscape features are cultural owing to their associated meaning. There can be no division between natural and cultural settings, for by its very definition landscapes are always cultural. It is not a matter of how (or if) the land is altered, but the very combination of physical and cognitive expressions of culture within the land, along with the perceptions of it, that make it cultural, and therefore the term cultural landscapes is in itself is a tautology.

II) Land vs. Sea Divide

The differentiation between land and sea is largely irrelevant in a cultural landscapes approach, as all areas regardless of their geographical locality (i.e. underwater, above water or land based) are considered essential components of the totality of the landscape. In many cultures, people use the sea in similar ways to their utilisation of the land. In a study of Marovo Lagoon in Melanesia, Hviding (1996:1, 233-8) demonstrated that islanders did not differentiate between land and sea areas He showed that so-called "terrestrial" indigenous landscapes did not stop at the tidal interface, but extended out over the water to include territorial areas of traditional "sea land" which were managed within a structured land tenure system.

Cultural practices were also deeply embedded in the sea, and Hviding (1996:1, 233-8) demonstrated that to the Marovo residents, the sea was "an environment crisscrossed by culturally inscribed paths of sequential practical experience leading to/from distant lands, whose inhabitants are part of a wider social experience". The notion that the land and sea were inextricably linked even in Western societies/cultures was also expounded by Westerdahl (2000:3). He advocated that the boundary of one environment delimited the beginning of the other, whilst, at the same time as being opposites and contradictory in nature, neither could be understood without reference to the other. The cognitive continuities between the land and sea

have also been reiterated by other researchers in the Trobriand Islands and Australia (Malinowski 1961:343-4; Dale et al. 1999:48).

These observations had particular significance for this study, as they demonstrate the inseparability of the land/sea environments when analysing apparently maritime or coastal economies. The fact that data sets derived from either terrestrial or maritime environmental sources was irrelevant, because as perceived by their users they were collectively components of the same landscape.

III) Static vs. Dynamic/Continuing Landscapes

Cultural landscapes do not have a terminal point, but represent continuous trajectories from the past into the present and beyond to the future, and similarly they are not spatially constrained. Early approaches to landscapes (Hoskins 1955) saw the physicality of the twentieth century as a blot on the land that obscured and interfered with the previous historic landscape and its traditions. This contrasted starkly to Jackson's (1951) approach, where he argued for the notion of a continuing landscape which encompassed the present modern contributions that often comprised vernacular (or "ordinary") landscapes. Jackson's tolerance of change incorporated his principle of evaluating landscapes in terms of life, which included social dimensions in preference to Hoskins' aesthetics, but also integrated the latter's need for substantiation through history and specific detail to understand landscape meaning. Meinig (1979a) suggested that a combination of the two approaches, which addressed both historic and archaeological details of the land and the dynamic social elements of the inhabitants, would reveal the very richness of the landscape itself.

Numerous researchers have recognised that constant change is the normal state of landscapes, and includes the continual re-appropriation of landscape over time, as well as change at differential rates and on many different levels (Bender 1992: 5; Darvill 1999:107). The spatial migration of townships and centres of maritime activity is an important consideration in landscape evolution (Westerdahl 1991, 1994:267, 1998a:9; Parker 1999). Over time landscape feature locations might change based on internal or external political, social, cultural, climatic and environmental factors. Bender (1992:10) showed that these cultural and social influences might be evident by the temporary and/or total abandonment of some areas or features, further demonstrating the dynamic constitution and re-constitution of society. Modern and archaic features are therefore part of a continuing landscape, and analysis of the type and location of change in a landscape may further inform of the cause of those changes.

IV) Singular vs. Multivalent Landscapes

Many early landscape studies considered the existence of a singular landscape only that evolved over time (e.g. Hoskins 1955). However, most researchers now believe that multiple perceptions exist of the same region, that each landscape experience was unique to the individual or group, and was a result of personal or communal conscious perceptions and associations to places and/or regions. Views of landscape vary accordingly, and may be valued correspondingly for their natural, habitudinal, archaeological, administrative or power system, territorial, ideological, historical, or atheistic values, to name but a few. Meinig (1979b) proposed the existence of multiple and overlapping landscapes, which may be shared or individual, but co-exist independent and/or interdependent of other perceptive landscapes and their creators. The crux of this observation further reinforces the notion that people create landscapes, both physically and cognitively, and that all landscapes are therefore cultural as they are the result of personal perception. With the introduction of phenomenology and cognition to cultural landscapes studies, it was clear that multiple perspectives (and hence landscapes) were possible for any given area (Ingold 1993, 2000; Tilley 1994; Westerdahl 1994). People will therefore experience any given area differentially, dependent on their individual or communal experience. Gibbs (2005) even observed that there can also be multiple perspectives of shipwreck sites as graves, events, recreational resources, contested space or places of ideological reinforcement.

The introduction of the concept of a multivalency of landscapes led many researchers to recognise that landscapes occupy different areas of time and space. Bender's (1992:9) study of Stonehenge explored the notion that many different landscapes existed that were not necessarily bounded within the same geographical areas, and that these were dependent on (the landscape participants') "knowledge of the world out there". In particular, Bender (1992:1) commented on the weaknesses inherent in archaeological studies:

> They fail to recognise that the way in which people understand and engage with their worlds depends upon specific time and place and historical conditions; it depends upon gender, age, class and religion. At any given moment and place landscapes are multi-vocal. Moreover these approaches fail to promote a sense of the active presence of landscapes: people engage and re-engage, appropriate and contest them, use them to create and dispute identity - whether self, group or nation. Thus landscapes are not only created by and creative of specific cultural, social political and economic configurations, they are also tensioned by the contradictory claims and counterclaims made upon them.

Furthermore, perceptions of the physical landscape sometimes varied between user groups, and were especially dependent on the perspective of whether the landscape participant was terrestrially or marine based. Although it has been demonstrated above that many societies do

not conceptually distinguish a land/sea boundary, there may be perceptual differences on how disparate groups experience those environments. This notion was extensively explored by Westerdahl (1994: 267), who coined the phrase "topocentricity*"* to describe the situation where perspectives of the same land and/or sea features were experienced differently dependent on where they were viewed from. He demonstrated the notion further through examination of the possible viewpoints of coastal burial monuments from the sea and land, and their subsequent meaning from each perspective (Westerdahl 2002b:62, 65). Westerdahl's (2002a:169) study of Northern Europe recognised that differences existed between the cognitive landscapes of seafarers and agrarian workers, where he proposed that mariners rely more on mental maps for navigation through their landscape, possibly due to the dearth of tangible/physical markers. This is not to say that terrestrial dwellers do not also utilise cognitive maps, but that there are several different kinds of cognitive landscapes, each of which is used differently, although not exclusively by different user groups. Westerdahl proposed that there were many types of landscapes including *economic, transport, power, ritual and resources landscapes,* and that these landscapes transcended the land/sea divide and overlapped each other. This notion of alternative perspectives was also recognised by Crumlin-Pederesen (1996 as cited in Parker 2001:23) who expounded that the main objective of maritime archaeology should be "to learn to perceive the landscape and settlements as they were seen with the eyes of the sailor or fisherman in the past, approaching land from the sea or from navigable rivers". Indeed Goldsmith Carter (1945:22) has demonstrated that different perspectives of the same place by the same person may be held dependent on whether the view from is from the land or sea.

These different viewpoints have also been recognised as influencing the researchers' approach of cultural landscapes investigations. Jasinski (1999:13) has shown that the differences between maritime and terrestrial archaeology lie in the perspectives of the sea:

> Terrestrial archaeologists…stand on the shore with their backs to the sea, using the inland as the background for their documentation. Maritime archaeologists generally do the opposite.

Various researchers have advocated that these differences in perspective would be recognisable in local folklore and place names (e.g. Holmberg 1991). Parker (2001:35) showed that toponymy is dependent on landscape perspective, and that maritime landscapes may be identifiable by the perspective from where the place was named. The differentiation of landscapes was succinctly demonstrated by Hunter's (1994:263) observation of two varying sets of place names for the same area (Fair Isle), where those locality names used from the sea were never used on land, and vice versa, and by other demonstrations of the dual functionality of

monuments as navigational features and/or transit marks for both land and sea (Jasinski 1999:15-6; Parker 1999, 2001:35).

Therefore, a more effective way to analyse the differentiation of landscape based on locational perspectives (of the local inhabitants) may best be expressed in terms of maritime and terrestrial communities, where maritime communities are defined by their physical association with the sea (what Westerdahl 2002b:65 terms "maritime culture"). In the case of this thesis, the term 'maritime cultural landscape' is employed to define the use of a maritime economy/environment by local inhabitants and the associated social networks and relationships, rather than to imply any spatial differentiation between land and sea regions.

C) History Tied to Landscapes Through Oral History/Toponymy

The notion of cultural landscapes acknowledges that people tie life, events and continuity to the place, and that this is evident in narratives that have connections to the environment. Ingold (1993:153-5) recognised that landscapes are read from the land according to an individual's knowledge and perceptual attuning to the meaning of it.

> To perceive the landscape is therefore to carry out an act of remembrance, and remembering is not so much a matter of calling up an internal image, stored in the minds, as of engaging perceptually with an environment that is itself pregnant with the past. (Ingold 1993:152-3)

In Melanesia, several studies have observed the importance of anchoring and indexing of history through the association of narratives with named places in the landscape (e.g. Roe and Taki 1994:413). Numerous researchers have recognised the significance of narrative, toponymy and tangible places as mnemonic devices for the recollection of ancestral history, events and people (Mead 1973; Harwood 1976; Kahn 1990). The importance of individual places as historic markers in the landscape was reinforced by knowledge of individuals, families and lineage associated with those places, which provided a pseudo-temporal aspect that was otherwise unavailable for those sites. In those cases history was anchored spatially, not temporally. These places sometimes did not demonstrate any archaeological signatures, but were nevertheless of high social significance for those communities (Roe and Taki 1999:413-4). Knowledge of the meaning of landscape came with experience, and was often drawn from "myth" and folklore, or the landscape itself. As knowledge was also drawn from cultural ties (i.e. family and community) the construction/awareness of landscapes was also therefore a social phenomenon.

Although many previous studies have termed some data sources as "myths" or "legends", Roe and Taki (1999:414) have shown that these categorisations in themselves deny any sense of actuality of truth, as they undermine the reality of the narrative account. These accounts are better described as oral history or folklore, as the narrators often do not recognise a distinction between myth and reality. Folklore represents an informal framework for communicating culturally significant information that exists outside official societal frameworks, which is incorporated into group customary thought and practice, and transmitted through oral and documentary local histories (Seal 1989:7). Folklore also encompasses traditions and beliefs expressed in folk/mythology tales, place names, regular rituals and ceremonies, traditional oral literature and rituals, material culture, social customs, and artistic performances associated with various social groups (Gazin-Schwartz and Holtorf 1999:6). Furthermore, the disparities provided by oral traditions to official views provide access to the multivalency of landscapes that exist in any given area.

A further point to consider here is that it is not the truth of the account/belief that matters, but what the consequences/perceptions of it are, and how one might work in the opposite direction (i.e. an archaeological approach). Whilst it is recognised that oral histories and folklore contain inherent bias, so too do all historical documents, maps and even archaeological interpretations. Whereas previous historical and archaeological investigations have sought to control bias, the focus of cultural landscapes studies is the bias, which informs of the perceptions of landscape participants.

D) Other Landscape Components

Analysis of landscapes requires, paradoxically, that we investigate thematic issues (using analytical units) to divide the world again before constructing an image of the totality. This section looks at some themes/notions that have proven useful in the analytical phase of landscape investigation. Many studies have highlighted various landscape components that may not be universally recognised, but are worthy of further consideration for the development of an integrated methodology for investigating landscapes.

I) Empty Space/ Landscapes of Exclusion

In her study of the archaeological landscape of Stonehenge, Bender (1992:5, 8) expounded the significance of empty spaces as landscape features. She identified that the contextual setting of many monuments is of equal significance to the structures themselves, as it was the empty space

around the monument that drew the beholder's eye to it; without the void the aesthetic power of Stonehenge would have been lost behind a forest of trees. The importance of empty space has also been observed by other researchers, including Crumley and Marquardt (1990:73, 74) who noted that even unoccupied or infrequently used places were significant landscape features.

Empty space has also been used as an exclusionary zone to restrict access for those of lower or inappropriate hierarchical status (particularly in ritual, confinement and defence situations). The building of some structures has been shown by Bender (1992:8, 9) to reinforce social boundaries and notions of power, by providing differential and segregated access to certain landscapes/areas. This observation has many demonstrated similarities to religious/sacred and military realms, where restricted access to the inner domains reinforces the social hierarchy of both those within and without those organisations, and is a notion that has been supported by other researchers (Darvill 1999:106; Westerdahl 2003a:481, 484). Empty space therefore represented an important authoritarian power statement within the social landscape. Similar restricted circumstances have been observed in relation to tapu (or sacred) areas, burial and massacre sites, and other territorial restrictions associated with economic resources throughout Australasia and the Pacific (Hviding 1996:250-8; Meyers et al. 1996: 7; Dale et al. 1999).

O'Sullivan (2001:263) observed that the emptiness of space (in a maritime setting) was a matter of individual perception. What is a bare setting to one, is to another a landscape full of meaning informed by stories, songs, place names, working practices memories and imaginings of past shipping disasters, fishing seasons and other events. This reinforces previous arguments outlined above regarding perception and natural vs. cultural landscapes. It appears therefore that the construction of empty space (whether on land or at sea) constitutes a socially significant landscape component and/or feature that is worthy of further investigation.

Westerdahl (2003a:481) also explored the concept of islands as metaphors for detached or separate space (in relation to islands as enclosed and isolated boundaries for punishment). Significantly, he proposed that the notion of an island (where inhabitants form their identity based on their isolation and insular world) could be trans-shipped to the mainland, which suggested that conceptions of maritime identity could be shaped and reinforced by separation from surrounding communities. This concept will be explored in further detail in relation to the construction of community identity and cultural landscapes in Chapter Eight.

II) Authority or Power Landscapes/ Landscapes of Resistance

Control of central populations is a key component of social organisation within many societies (McGuire 1991; Morozowski 1991). In a maritime setting official control mechanisms may be exercised in many forms such as defence, policing, customs, quarantine, pilotage, immigration or even religion, which Westerdahl termed "power landscapes". In his investigation of one type of power, warfare, Westerdahl (2002a:169, 171, 177; 2003a:482) demonstrated that the dynamic and mobile nature of military action meant it was often spread over wide areas, but was evident from both archaeological remains and possessive toponymy ("authority names"). He proposed that the power landscape of warfare was archaeologically visible in (watchtower) beacons, ship blockages, mechanisms of control or restricted access (e.g. underwater defensive pilings), forts and high status burials. Official place names were also a product of the intentions of social powers, and in themselves were evidence of a power landscape. The naming of the landscape especially after royalty or dominant powers reflected the official ideology of the ruling class, and temporal toponymic variation can also reveal changes in social conditions and authority structures (Westerdahl 2003a:469).

Furthermore, some researchers (Firth 1993:3; Westerdahl 2002a: 179) have observed that networks of fortifications, beacons and watchtowers reflect attempts to impose centralised power at a distance, by acting as visible and tangible reminders of authority mechanisms that governed the area. This suggests that the presence of power landscape features (i.e. fortresses etc) in any given region does not necessarily mean that that area was the central seat of power, but rather could be a remote extension of it. Power landscapes may be visible not only through physical remnants of former authoritarian structures, but may also be defined by a lack of archaeological evidence of the classes who were barred from the exclusionary landscape areas that often bounded them.

Power structuring of maritime landscapes was often evidenced in less obvious ways. Hviding (1996:1, 233-8) demonstrated that Marovo Lagoon residents organise their maritime environment through its use as a storehouse of cultural identity. Localities within the Marovo seascape were named after events or ancestors, and constituted an historical map of that community. This seascape was then used to underpin that group's cultural identity, both through its marking of territory and the reinforcement of cultural origins. These territorial restrictions were subsequently often used to control access to given regions and the resources contained within, which suggested that territorial structuring of the maritime landscape also operated as a political statement (mechanism) of power/control.

Power landscapes by their own existence in some instances produce "landscapes of resistance", where inhabitants within or adjacent to those regions resisted the authority exerted over them (Westerdahl 2002a:169). These resistance landscapes might be expressed in violations of restricted territorial boundaries and governed behavioural codes, alternative landscape toponymy, or rebellious folklore, songs and oral histories. Physical indicators of intrusion might be evident in archaeological sites within banned territorial areas. The landscapes of power and resistance present interesting possibilities for investigation of social interaction between thematic maritime groups.

III) Technological Evolution

The importance of technological advancement on landscape evolution and practice was noted in many landscape studies (e.g. Clark 1987). Parker (2001) noted that Bristol mariners' practices (and hence their landscapes) changed markedly with the introduction of motors and other technological developments, which altered the way the landscape was traditionally utilised. Other researchers have noted similar evolutionary trajectories as maritime technologies developed in the Pacific and Scandinavian regions (Irwin 1992; Lewis 1994; Westerdahl 1998a, 1998b). Although these investigations have dealt predominantly with advances in shipping design, this study will further explore the effects of technological advancement, with particular relevance to defence.

IV)Importance of Actions/Events

The importance of an event or the creation of an archaeological site has been highlighted by Bender (1992:8), who advocated that the act or event that created a landscape feature was often as important as the consequent material remains. Her archaeological observations of the backfilling of votive trenches implied that often meaningful activities in the landscapes may not be archaeologically evident, or their subsequent signatures may belie their real meaning or significance. In other words, an actual act or event may be the primary focus of the landscape participant, and the resulting archaeological signature of that event may only be an inconsequential by-product that does not reflect the true significance or values placed upon the original occurrence. This has particular significance for the introduction of ethnography and folklore to landscapes studies, as archaeological studies alone may not recognise or inform of the full range of significance of certain landscape activities or events. However this situation may also work in reverse, where the event has been the main focus of research, but that in the eyes of the local population the site that is produced is just as significant. This study will

therefore examine the effects of an event in the analysis of landscape creation in further detail in Chapter Seven in regards to shipwrecks and strandings.

V) Routes

Routes are important landscape components (Evans 1999), and not only provide connections through the landscape, but are in themselves centres of activity that are imbued with meaning and tangible substance. Fowler (1998: 25) commented that:

> If landscape is not only the result of dynamics, but is itself dynamic at any one time, then movement within and through it by people and their materials is both a lubricant and a product of those dynamics.

The importance of routes was recognised by Ingold (2000:237) who has shown that navigation through the landscape is often guided by a series of recollections that link places and events. These are embedded in locale names that tie stories of people and events to place, and by following a story line. Differential access to, and knowledge of place leads to varying perceptive landscapes, and hence routes of navigation. The reverse is also true, where the use of different routes gives rise to new perceptive landscapes and knowledge. Ingold demonstrated this point by examining the way we guide strangers through our own landscape. First a place name is given, which may mean nothing to the visitor until the history of the area is explained relevant to the guide's own experience:

> As someone who has lived in a country, and is used to its ways, knowing where you are lies not in the establishment of a point to point correspondence between the world and its representation, but in the remembering of journeys previously made, and that brought you to the place along the same or different paths. (Ingold 2000:237)

Thus navigation through the landscape is dependent on the world view (or cultural landscape) of the navigator. Unless armed with the prior knowledge of the meaning of the landscape as passed down from the mapmakers (i.e. those who have traveled there before, or are informed through folklore and instruction) the newcomer must create their own landscape that is referential to their own experience or those guiding them. The continued use of similar landmarks for navigation generates new landscapes that are unique to the individual or group using them.

Similarly, sailing routes represent important dynamic maritime cultural landscape determinants and indicators that were often marked or defined by a series of staging points along the coast, whose primary purpose was often seemingly unrelated to navigation (e.g. forts, shrines, churches, megaliths etc - Westerdahl 1991; Rault 1997; Parker 2001:33). Some features were often underwater or out of sight of the coast, and mariners therefore required a serial mental

map that recalled the progression of these features, their associated stories and meanings, and application to landscape usage. Parker (2001:33) has suggested that there was an "underwater landscape" that mariners used for navigation, which was also shared by fishermen. Citing Thompson (1995:62) he demonstrated that:

> The lore of fishing was passed down for generations, together with an intimate knowledge of the seabed for miles around. The men were as familiar with the sea bottom as the farmer with his fields…Never written down, these marks were jealously guarded and passed down from father to son.

Many studies have documented the widespread use of encoded meaning in the landscape for navigation. "Natural" and artificial features often formulated routes through the sea, which were sometimes used by both humans (and even spiritual beings) to navigate by (Roe 2002). In his study of the Melanesian community of Marovo Lagoon, Hviding (1996:31, 238-9) demonstrated that physical cultural constructions, such as shrines and ancestral or ritual monuments, both served as validations of ancestral ties to the reef, and as navigational beacons. The sequence of travel through these routes was reinforced by informal oral traditions and folklore. Many other maritime societies worldwide utilise similar understandings of ancestral landscape monuments for sea travel (Lewis 1994: 345-51, 364-71; Westerdahl 1994; Parker 1999). The significance of maritime routes was recognised by Hviding (1996:31) as "simultaneously repositories and mediators of history, by virtue of containing signs of the past and present open ended relation and encounters across borders, social and cultural".

The investigation of sailing routes provided linkages between terrestrially based settlements accessed via the water and other aspects of maritime life. However, sea route identification is challenging owing to the dynamism of both its environmental and cultural determinants. Sailing routes were affected by many other landscape features, including seabed change, mechanisms of access control (e.g. defensive barriers), route markers (both physical and cognitive), vessel type, trade and social relations, and cultural practices. Changes in any of these factors would have effects on routes and destinations (Westerdahl 1991). However, as demonstrated by Westerdahl (1992:7), the spatial arrangement of artefacts and features within the landscape was often deliberate, and therefore examination of regional scale patterning of archaeological sites may reveal cultural practices associated with sea route use.

A major problem for maritime cultural landscapes identification has been how to recognise past sea routes. Parker (2001:25) has advocated that the artefacts (from isolated losses and jetsam) and other assemblages (from shipwrecks) required for sea route identification would be neither easily found nor frequently encountered. However, it is not clear how many people have really looked for these given the focus on wrecks. This point will be investigated in further detail in

this thesis, where it is therefore proposed that identification of new sources and types of artefact assemblages could facilitate wider investigation of maritime landscapes and routes, particularly in regards to tourism.

VI) Alternative Sensory Perceptions and Ancestral Knowledge

Landscape perceptions are not limited to visual stimuli and the importance of other senses, such as smell, touch, sound and taste has been predominantly overlooked in favour of landscape dimensions that are mostly visually appreciated (Ingold 1993:170; Darvill 1999:107). The existence of alternative sensory knowledge networks has been recognised by a number of terrestrially based landscape studies (e.g. Evans 1966). Numerous indicators such as croaking frogs, birds flying inland, unusual animal behaviour (Kerr n.d.:21; Goldsmith Carter 1945:10; Ross 2005; Schwab 2005; Berhane 2006) or distinctive earthy smells have been informally used to herald changes in weather, and other ecological changes have been used to signal seasonal availability of naturally occurring economic resources.

Alternative sensory perceptions and ancestral knowledge have been noted as essential landscape components in many maritime studies, especially when used by mariners to navigate through their own territorial waters (Gladwin 1970; Johannes 1992; Hunter 1994:262; Lewis 1994; Parker 2001:32, 36). Reflected sounds from cliffs in fog, and the smell of smoke, farm animals or mown crops, have all been used as portents of the approach to land (Parker 2001:36; Kerr n.d.), and are observations that have been verified through this author's personal experience. The use of seemingly intangible features to navigate in maritime landscapes has been noted by Parker (2001:32):

> The sea is not formless or featureless: even in deep water, a ship's position and direction can be gauged from the sun, the ocean swell, flotsam, seabirds, clouds on the horizon… the stars (provide) a two dimensional map…How near land may be judged by distant clouds, by releasing doves, or …the colour of the sea changes.. and (changes in colour of seabed) sand…is said to be the indication of an approach to the Bristol Channel.

Goldsmith Carter (1945:14) recorded that the distinctive sound of the wind through the reeds, or thundering through the chimney tops, was an indicator of an approaching storm in Britain. Many indigenous landscape studies have documented the importance of these other senses for landscape recognition, spatial orientation and stimulation of historical memory (e.g. Gladwin 1970, 171-2), and the significance of these aspects has been further recognised by ethnohistorical and/or ethnographical accounts, as well as in literary sources (Thoreau 1865; Proulx 1993:176).

Numerous offshore navigators were able to perceive the presence of land from a great distance offshore, through the subtle changes in wind, swell movement, current, cloud, water efflorescence or discolouration, fish and seaweed types, bird species and numbers, light patterns reflected off coastal lagoons (Reisenberg 1976; Lewis 1976:24, 1994; Meyers et al. 1996:15), while local knowledge of star constellations at given latitudes aided relocation of home islands on return journeys (Lewis 1976:25). Furthermore, local fishermen often demonstrated particularly detailed knowledge of particular fish species' habits and habitats, local indicators of migratory and seasonal availability, and exploitation practices which were based on previous collective ancestral experience (Reisenburg 1976:94-8; Iversen et al. 1990; Johannes 1992; O'Sullivan 2001:270). These observations suggest that maritime cultural landscapes were also shaped and maintained by the development of local specialist knowledge, which was held by experts in this field and passed down to successive generations via folklore and oral histories, This understanding implicitly recognised the dynamics of physical landscape change over time, but also that these determinants were cyclical and predictable, and this knowledge was a commodity used to establish power and status (Lewis 1994: 244-5; Irwin 1992:220). Perhaps the best known are the traditional Pacific Island mariners who structured the sea through the use of place names to form a cognitive map of the region, where island, reef, shoals and currents names were used as signposts for navigation through the seascape. Navigation was a trade unto itself in a number of Polynesian and Melanesian societies, and as such this specialised and sensory knowledge was retained by a class of local master mariners, who acted as the storehouse of maritime knowledge for the community (Reisenburg 1976:92; Lewis 1994: 32-4). The local knowledge held by the navigators varied between cultures, and mariners often used different cultural markers to travel the same route. Similar observations in European or colonial contexts have been made by numerous other researchers (e.g. Thoreau 1865; Westerdahl 1992-2003; Fox 2001; O'Sullivan 2001).

VII) Environmental Change

Landscapes are subject to both ecological/biological and physical environmental change as a result of cultural, climatic and geological influences and disturbances. Many studies have recognized the impact of environmental manipulation and alteration on the landscape. In particular, investigations of palaeo-ecological change of the Australia/Pacific region have shown that landscape utilisation may be archaeologically visible through indirect evidence of altered landscapes in the form of erosion caused through burning and land clearance (Kirsch and Yen 1982: 329; Spriggs 1986; Golson 1992; Gosden 1992; Hather 1992: 73; Head 1994; Kirch and Ellison 1994; Kershaw 1995). Other studies have demonstrated the influence of changing coastal formations on landscape use, including uplifted terraces (e.g. Chappell 1974; Groube et

al. 1986) and drowned landscapes (Hiscock 1993; Flood 1995:212-20). Intentional change to modify and mould the landscape to reflect pre-conceived ideals have also resulted in widespread environmental change (e.g. Gibbs 1997), particularly through the introduction of exotic plant and animal species (e.g. Yen 1991; Gosden 1992; Spriggs 1997).

Coastal shoreline change has been recognised as an important determinant of cultural landscape evolution (and consequent remnant site locations), not just physically (e.g. Cushnahan and Staniforth 1982; Boyd et al. 1995, 1996a, 1996b; Indruszewski and Gluzniewicz 1998; Indruszewski 2001; Howitt-Marshall 2003:4), but also cognitively (e.g. Westerdahl 1991:109, 2000:11, 2002b:61; O'Sullivan 2001:260; Parker 2001:24). Seabed change can include geological uplift, rising sea levels caused by flood/inundation or subsidence, shifting sandbars and coastal erosion, and can have marked effects on not only the development of maritime routes, but also the diffusion of culture and society (e.g. the development of a voyaging nursery for the Pacific Island navigators prior to sea level rises over time - Green 1994; Spriggs 1997:20, 28). Shoreline change can also be the product of cultural phenomena, such as infill encroachment where key elements of settlements migrated seawards over time (Parker 2001:30), dredging or land modification. This suggested that far from being deterministic in nature, the environment formed part of a dynamic interaction with humans, in which it both changes and is changed by human interaction. Gosden and Head (1994:113) recommended that the challenge presented for cultural landscapes studies is to expand beyond environmental deterministic studies, to include social change and action and interaction to address the "social landscape". They suggested that the integration of cultural observations and history (often accessed from archaeological, anthropological and folklore data) with studies of environmental conditions and change enabled the evolution and inter-relationship between both processes to be examined concurrently.

Dynamic change of physical coastal landscapes often affected not only the categories of activities that could be undertaken in given areas, but also the types and designs of vessels and maritime infrastructure used to operate in those regions, the location of ports and anchorages, and the availability of economic resources. Several cultural landscape studies of shoreline change have shown that in addition to affecting the site and subsequent design of ports and harbours, vessels and maritime infrastructure, shoreline change also affected cognitive perspectives of landscape that may then be reflected archaeologically. Westerdahl (1995:2, 2000:13, 14) proposed that unique vessel designs would be built that reflected not only their types of operational environments; cargo carried; available resources (for ship construction), activities undertaken, and the routes traveled, but that they were also to suit the character of the harbours and ports they serviced and vice versa. This implies that there is a key relationship

between vessel/maritime infrastructure design and location, and the environment, which will be deeply rooted in maritime social practice and perceptions. Westerdahl (1995, 1998a, 1998b) termed this approach "transport zones" which referred to the vernacular, traditional material culture and associated practices and folklore which was often reflected in other traditions besides those in the maritime field.

VIII) Social Hierarchy

The role and complexity of social relations have been shown to have pronounced effects on landscape construction. This theme was explored by Gibbs (1997) who argued that indications of corporate paternalism in the social hierarchy of a nineteenth century mining town were evidenced by the prominent physical location of the mine's owner on a rise, with the variously ranked subordinates scattered accordingly further down the hill. He suggested that these idealized landscapes may have been used to recreate and legitimize the hierarchy and social order of the town, a sentiment echoed in several other industrial landscape studies (e.g. Morozowski et al. 1996). Other researchers have recognized that landscapes also epitomize and reflect the changing societal structure and status present in various scales of community (Aston 1985; Bender 1992:3; Perry 2000).

Social hierarchy is also often embedded in ancestry, and the associated requisite demonstrations of roots to (and knowledge of) that lineage, be it familial or communal. This knowledge is often used as a social tool to isolate those who do not have the requisite ancestry. As such, the demonstration of ancestral understanding and communal belonging is potentially in itself another mechanism used for structuring the social landscape (Bender 1992:3).

These aspects of social divisions based on ancestral knowledge are particularly relevant for maritime communities worldwide. Although fishers and other mariners occupied and utilised the sea, they also inhabited the land, and as such formed networks that extended into terrestrial areas. Their landward activities often influenced the placement of settlements which were jointly shared by non-seamen. Although mariners recognised the land and water as integral components of their holistic world, they often used their connections to a particular maritime community and/or profession as an expression of who they were, contributing to the hierarchical differentiation of terrestrially based communities. Nautical knowledge was often used to distinguish a social class in Polynesian and Melanesian societies (Irwin 1992:220; Lewis 1994:32-4, 244-5). The specialist knowledge of boatbuilding and navigation was often based on hereditary skills transmitted through social practice and experience, and Westerdahl (1998a:9, 2003b:18) proposed that there was a recognisable social hierarchy based on occupation in

maritime communities. He advocated that maritime communities were very conscious of belonging to a given social group, and often established their identity in opposition to the "others", who were usually referred to as "landlubbers". Through demonstration of knowledge of traditional maritime skills, associated folklore and history, local environmental conditions, and the natural history and geography of local economic resources, individuals could claim membership of the nautical community as "seamen" or "fishers". Although this was a distinctive characteristic of a maritime community, this concept might equally apply to terrestrially based professional/occupational groups, such as in farmers, blacksmiths etc. Social hierarchy and class distinction, and its subsequent effects on relationships and archaeological signatures therefore represent important landscape components that will be further explored in Chapter Eight.

IX) Gender

It is indisputable that the sea was used by both men and women, but often in different ways. However, gendered studies of Western historic maritime communities have only recently begun to emerge (Lydon 1993; Adams 2001:304-5; Flatman 2003), but have been common in Indigenous studies (e.g. Bowdler 1976). As Westerdahl (2002b:54, 2003a:475) and countless others have observed, commercial and naval shipboard life was very much a male landscape that was seldom experienced by females, and hence was not often an active part of their physical world, even though it may have been part of their cognitive landscape. Some studies have shown that even though women did not generally go to sea on vessels to work, they played an active role in maritime societies that has until now been inadequately explored. In Ireland for example, O'Sullivan (2001:261) demonstrated that although the role of women was largely confined to the foreshore, they still played an active part in the fishing industry, particularly in gathering shellfish in the intertidal area in coastal Irish communities in the eighteenth century, and later as fish processors/ cleaners in the herring industry. Women often became the *de facto* heads of households whilst men were away at sea (Flatman 2003:3), which further demonstrated how the marine environment actively shaped women's worlds. Other studies have recognised that gender differences may also be evident in the landscape (e.g. Rotman and Nassaney 1997). Given that almost every maritime community worldwide also incorporated women who were related to seamen and fishers, gender studies clearly present another opportunity to further investigate different perspectives of maritime cultural landscapes.

X) Transport Ideals and Landscapes

The notion of transported landscapes is widespread in Pacific Island literature (e.g. Gosden 1992, 1997; Irwin 1992) and occur where cultural traditions were transposed from one area to another, and included not only physical manifestations (such as economic food sources and material culture), but also cultural practices, beliefs and ideologies. Similar observations have been made during ethnographic studies of immigrants to new lands (e.g. Thoreau 1865; Gibbs 1995:23; 1997). Many industrial communities often relocated in response to changing resource availability (e.g. the many world-wide gold rushes), and transported their cultural practices and beliefs with them.

Maritime communities were particularly inclined to relocate their shore-based activities in response to the movement of resources, and this was especially true of fishing based communities which followed seasonal fish stocks (e.g. American whaling communities - Mawer 1999:47, 85). The concept of transported maritime cultures has been investigated by many researchers in the Pacific (Gladwin 1970; Lewis 1980, 1994; Irwin 1992; Gosden and Head 1994:114) and Northern Europe (Westerdahl 2003a:481), and the transposition of maritime settlements often led to expanded networks of communities and settlements which shared similar transported beliefs and practices.

XI) Ritual/Superstition/Symbolism

Ritual, superstition and/or symbolism are almost universal themes in cultural landscape studies. Power and Ritual landscapes associated with religion, superstition and spirituality, and their role in shaping cognitive landscapes either through associated voluntary/enforced access and/or restrictions, or ritual practices and observances were a common theme in several landscape studies (Hunter 1994; Parker 1999, 2001; Westerdahl 2003a). Although the substance varies in aspect and dimensions throughout the world, these phenomena form components of powerful belief systems that are present in every culture on earth, and are particularly prevalent in maritime communities. This was recognised by Jasinski (1999:14), who commented:

> Some of the cognitive structures are essential for purely practical functions to be able to operate in the form of social practice. Utilisation of natural resources of the sea requires infrastructure in the form of settlement close to resources, technology transport routes, etc, but also a complex network of social norms and directives, which, together with ideology (including aspects of symbolism, mythology, religion and language and other forms of communication) constitute a cognitive system that is essential for a specific population to be able to function as a society in a concrete territorial entity

The ideologies of superstition, ritual and symbolism may or may not be divisible within the landscape, and are often inextricably interlinked, but for the sake of organisational ease of the argument will be addressed individually below.

(a) Superstition

Maritime communities worldwide have been noted for the entrenchment of superstition and mythology within their cultures (Jeans 2004:304). There were many superstitious beliefs outlining prohibited (taboo) items onboard vessels, which included women (in particular), religious personnel and land based (clawed) animals (Westerdahl 2002b:53; Jeans 2004:312, 323). Westerdahl (2002b:58-9) recorded practices of offerings to the sea in Norway, along with prohibited names which could not be spoken during the voyage, which included the taboo items mentioned above, but also certain types of fish, the direct route to fishing grounds, the sky and other natural phenomena, or the names of saints. Mention of the sea and these names could only be used from the land, giving rise to the use of alternative toponymy. Areas with negative (taboo) names were avoided, reinforcing previous observations concerning the multivalency of landscapes perspectives between those based on land or the sea. Similarly, many of the Pacific Island studies also exhibited various degrees of site or place avoidance rooted in superstitious beliefs (e.g. Lewis 1990; Hviding 1996: 250-8; Meyers et al. 1996: 7; Dale et al. 1999; Roe and Taki 1999 etc).

Religious observance may be viewed by some as a form of superstitious practice. Some authors (Hunter 1994; Parker 1999, 2001; Westerdahl 2003a) have reported the constraints of religious observance, and that the location of physical sacred structures have played major roles in the construction and use of both cognitive and physical landscapes, through temporal and physical regulation of maritime cultural activities (e.g. restricted activities on holy days, demarcation of navigational routes using church steeples etc). Ecclesiastical authority was also evident in regional toponymy (Westerdahl 2003a: 482). The importance of superstition to modern day fishermen and the suspension of maritime activities on days of religious observance were noted by other studies (Lethridge 1952; Duffy 1992 as cited in Parker 1995:94; Hunter 1994:262; Jeans 2004:308), and may be traced back to the avoidance of the utterance of ecclesiastical names at sea.

Westerdahl (2002b:65) has suggested that maritime superstition was more than mere curious beliefs. It may in some cases form integral components of a belief system that approaches a cult status, but never reaches a religion, and which transcend the land/sea divide (Westerdahl 2002b:65). Many other belief systems were grounded in superstitious practices, which in some

cases have left tangible archaeological remains (e.g. Evans 1966; Dean 1997; Anon. 2000; Eastop 2001; Hoggard n.d., 2004), and therefore superstition represents an essential landscape component for investigation.

(b) Ritual/ Initiation

Many cultures use initiatory ceremonies to mark the changing status of children into adults. The initiates are subjected to a liminal period during which time they are separated from their ordinary life, subjected to ritual practices (sometimes with a training aspect) and often physical stresses (e.g. scarification) or dangerous situations, before returning to society ritually reborn as mature members of society. This "rite of passage" was (and still is) an important component of transition into manhood for many boys in many cultures (Seymour-Smith 1986: 152). These types of rituals are important considerations for landscape studies, as they often represent the opening of previously restricted landscapes to "new" adults, and sometimes constrained access to previous childhood worlds. These types of ceremonies may therefore be highly influential in understanding the dynamism of landscapes from childhood to maturity, where and when the boundary between exclusionary landscapes is crossed, and new perceptions of life (and hence new landscapes) are introduced.

The transition from land to sea (and vice versa) was recognised by Sogness (cited in Westerdahl 2000:12) as a possible "rite of passage", where the time spent at sea represented the liminal period away from normality, after which the participant would return anew. The notion that the sea represented a metaphorical passage boundary from the structured terrestrial landscape to other worlds across its untamed chaos has been further explored by Westerdahl, who drew analogies between boatbuilders and shamans, both of whom facilitated access between two different worlds. Many maritime societies have demonstrated instances of this concept, and Westerdahl (2002b:54-5, 2003a:484) suggested that the sacred significance of some "holy" islands may have been linked to this notion. He identified a number of worldwide maritime initiation sites from oral traditions (the best known is the crossing of the line at the equator) which were linked to predominantly hazardous geographical locations (such as peninsulas or bay entrances) throughout Scandinavia, Continental Europe and abroad (e.g. Cape Horn, Gibraltar, English Channel). These localities were always places of transitions to other coastal locations, which were dangerous for those not familiar with those waters (and sometimes even for experienced mariners). Some were at once landfalls and embarkation points for sea crossings, and also marked the borders of the cognitive transport zones or 'the maritime cultural regions or areas'. Although actual ceremonies did not take place, Westerdahl (2002b:55) concluded that the passage itself was particularly important as a type of baptism at sea, a rite of

(initiatory) passage that was only known to 'local' fishermen and mariners. These rites of passage offer potential insights into the psyche and cognitive landscapes of mariners, and will be further explored in this thesis in Chapters Six.

(c) Symbolism

Culture consists of more than just an economic way of life, and Jasinski (1999:10) recognised that symbolic landscapes offered insights into the power structures and belief systems that were part of everyday life.

> The landscape was used by people to write their history, materialise their ideology, and document their life instead of using paper, therefore the landscape had to be loaded with strong symbols…(This) can also be applied to maritime sphere, which in itself constitutes something distinct in human mentality and brings us closer to past notions of the sea.

Symbolism represents overt and covert attempts to transmit ideologies and belief systems that are tied to physical entities. For example, churches were often placed on prominent positions to act as navigational marks to avoid dangerous areas whilst symbolically providing similar guidance of the soul. Likewise many execution sites were deliberately placed so they could be viewed both from the sea and land both for point of reference, and to reinforce authoritative ideologies against crime. Burial mounds in Northern Europe were also known as symbolic markers of the ritual landscape, as they served as navigational markers, and also as tangible territorial statements of demonstrated ancestry rooted in a physical structure, whilst reinforcing specific cultural beliefs regarding the afterlife (Jasinski 1999:15, 16; Parker 1999, 2001:35; Westerdahl 2002b:59, 2003a:486). The sea by virtue of its grandeur and ferocity has always evoked an aura of mystery and uncertainty, which has heavily influenced literature, art and ethnographic tradition and led to powerful symbolic influences of maritime landscape perceptions (Hunter 1994:263). However, Hunter's observations suggest that symbolic aspects of the sea also exist based from a landward perspective, and that this is romanticised, overplayed, and emblematic of the seafaring profession itself.

XII) Memorials/ Monuments

Auster (1997) has argued that memorials and monuments are also significant landscape features, as their placement is designed to imbue and stimulate recollected meaning in the landscape (of a place, person or event). Morgan (1998:103 as cited in Gough 2000:214) reiterated this stance, and maintained that memorials acted not only as aesthetic devices, but also as an apparatus of social memory. A memorial monument therefore represents the physical embodiment of a

person or event that would otherwise be lost in time. However monuments also attract other thoughts that will be cognitively inscribed onto them over time, and these collective associations themselves become a palimpsest of community values (Auster 1997:224; Gough 2000:214). Monuments also represent to some degree an appropriation of landscape, where the monument is used to insert meaning into what might otherwise be considered a meaningless or "natural" landscape (Auster 1997:224). These values often represent the official or "right" view for that period (Gough 2000:214). Taken further, monuments may also act as territory markers, stamping ownership by reaffirming ancestral ties and official correct histories to the landscape. The nature and structure of war memorials has also altered since the end of WWII, and they have become less obtrusive in the landscape which is related to the changing attitudes to war (Ingles 1998; Gough 2000:214). Furthermore Gibbs (2005:57-60) has noted that memorials to shipwreck victims offered a substitute place to mourn when the actual grave (i.e. the shipwreck) was unreachable.

4) Discussion

Many studies do not address all aspects of the cultural landscape approach, and focus purely on one component only (e.g. archaeological sites), and should therefore more appropriately be referred to as archaeological landscapes studies. Others have focused purely on ethnography or anthropology, and ignore the physical aspects of the landscape, while other researchers have studied the environmental aspects of topography to the detriment of culture, again under the landscape banner. The current study advocates that it is only through consideration of all aspects of cultural landscapes that a truly holistic representation of cultural landscapes can be achieved.

The resurgence of interest in regional archaeological inventories worldwide (this time for maritime archaeological sites) reflects a growing awareness of the existence of culture beyond the waterline boundary, along with recognition of the significance coastal, littoral and maritime infrastructure sites, which have until the last decade been largely unexplored. Many maritime studies have undertaken cultural landscape studies, but often do not address the full range of data sources that are available and underpin the concept.

This chapter has investigated a range of approaches to cultural landscape investigation, and has identified the following synthesized underlying principles and concepts as worthy of further investigation:

1. The cultural landscape concept is ambiguous and requires further refinement;
2. History is tied to cultural landscapes through oral history/toponymy/archaeological sites;
3. Land and sea form seamless components landscape, and should be studied concurrently;
4. All landscapes are cultural, and even "natural " (unmodified) places have meaning;
5. Landscapes are continuous, dynamic and evolve over time;
6. Landscapes are multivalent and overlapping;
7. Empty space is a significant landscape feature, and is often used to construct landscapes of exclusion;
8. Authoritarian structures create landscapes of power, which often lead to landscapes of resistance;
9. Technological change is a dynamic factor in landscape evolution and change;
10. Actions and events are as important as the subsequent archaeological signatures they generate;
11. Sailing routes and landscapes of movement represent key landscapes/ features which are structured by social knowledge, practice and ideology;
12. Alternative sensory perceptions and ancestral knowledge are key indicators of landscapes;
13. Environmental change shapes and is shaped by cultural landscapes;
14. Social hierarchy plays a key role in landscape formation and change;
15. Alternative landscapes can be accessed through gender studies;
16. Cultural practices, ideologies and beliefs are transported along with people; and
17. Ritual, superstitious and symbolism play a vital role in the determination of landscapes.

Analysis of several different types of studies revealed stark differences in data source types. Bender's (1992) study of Stonehenge was undertaken without the benefit of ethnography, and relied solely on archaeological data sets to enlighten our understanding of the landscape. In contrast, many Pacific Island cultural landscape studies (Gladwin 1970; Roe et al 1994; Lewis 1976, 1980, 1994; Hviding 1996; Roe and Taki 1999) placed heavy weighting on ethnographic and oral history data sources. The collection of oral histories and use of ethnographic data sets is pivotal in many indigenous cultures around the world for informing of the significance of both tangible and intangible landscape features. In some cases, no archaeological data was available for sites which evidenced high social and cultural significance. Westerdahl (1980, 1991, 1999), Jasinski (1999) and Hunter (1994) also used similar data sources for their studies of maritime cultural landscapes in Northern Europe, but further exploited archaeological and historical sources where available. Conversely, those researchers investigating historical landscapes were informed by similar data sets to Hoskins (1955), who displayed a heavy reliance on historic data and oral histories to enlighten his study landscapes. These are important observations as they demonstrate that different data sets are being accessed to

investigate different types of cultural landscapes. This aspect will be explored further in the next chapter, where the types of data available for the case study area will be explored in further detail.

The cultural landscapes approach is evolving, and an accepted methodology for the identification and analysis of maritime cultural landscapes is still being considered (e.g. Parker 2001; Jasinski 1999, Westerdahl 1991, 1992, 1999, 2000). The development of a methodology that would aid cultural landscape recognition and study offers the potential to provide significant insights into past behavioural traits that explain regional and local spatial trends in archaeological sites occurrences, both on land and at sea.

To date, there have been thousands of "cultural landscape" studies, all with their own derivation and interpretation of the concept. However, the application of a cultural landscapes approach is still ambiguous and largely undefined. The term landscape also has biological and scientific connotations used to describe the topological, environmental, geological and other physical aspects of the land. This terminology is often loosely used within archaeological studies under the banner of landscape research, which actually does not address the cultural and social aspects defined by cultural landscapes literature. So far, a methodological approach to documenting and analysing cultural landscapes has yet to be fully outlined. It is clear that there were a diversity of approaches and a multiplicity of methods that could be used for landscape analysis, but there was never one method prescribed.

After consideration of all the above sources, it has become clear that there would never be one acceptable methodology for the examination of cultural landscapes, due to the variation and diversity of source availability and possible methods that could be utilised. For this reason, the use of singular defined methodology would be at odds with the very ambiguous nature of cultural landscapes, so it was realized that it was more appropriate to specify the methodology utilised for this study to analyse a colonial Australian maritime cultural landscape.

This thesis will use the salient points outlined above to investigate an Australian case study area, that of the coastal township of Queenscliff in Victoria, Australia. In the next chapter I will explore this new configurative approach to demonstrate how these points may be practically applied to a study area, and will outline the resources and data sets available. I will use these concepts and data sets in a more nuanced way to examine the various communities, their social structures, and relationships to the sea to gain an understanding of the complexity of the Queenscliff's residents' maritime world and the diversity of cultural landscapes that span the land/sea divide.

> It is the archaeologist's sadness to have to study people through material remains, chipped flint, burnt clay…but it be the ethnographers madness to try to comprehend the complexity of culture through one kind of expression. (Glassie 1982:405)

Chapter Three: Methodological Approaches to Cultural Landscapes Investigations

1) Introduction

Cultural landscapes are complex and ambiguous, and are experienced by individuals and communities at many levels. To access the fullest range of the possible landscapes requires the consideration of multiple and highly diversified data sources, produced by many different people and/or organisations for various reasons. These data sets are often not complementary, but may be influenced by highly conflicting viewpoints of similar events and/or places. This is the conundrum of cultural landscape studies. Whilst holistic analysis demands units of study, we need to recognise and explore diversity within and between landscapes, but what is the best way to do this if the data sources are disparate.

Although the multivalency of the approach is one of its strengths, it is also an inherent weakness, as in the past specific areas of landscape have been allocated one meaning only, due to its association with a specific group. Furthermore, any external thematic differentiation imposed by the researcher to distinguish between landscape participants within any study area applies analytical units that may not be truly representative of their actual landscape utilisation, and may not recognise the multiplicity of landscape values and inter-relationships associated with any one area. How can we meaningfully distinguish between participants without imposing restrictive (and often unrealistic) divisions within the community?

A further problem exists in that various data sources often contain inherent bias for or against particular groups of landscape users, and that some participants may producer weaker or less visible signatures of their presence. Different types of data sources may also not be fully accessible or even available in any particular area, and therefore different community groups may not be represented equally (or at all) by the same data source. To further complicate the issue, the ambiguity of the theoretical paradigm also extends to the methodological approaches applied to investigation of the landscapes.

This thesis will demonstrate a methodology for accessing maritime cultural landscapes will be shown to have great utility for examining other analogous nautical communities. This chapter

will examine the various types of data that are available for analysis and will briefly scrutinise their complexities/shortfalls and applicability for analysing cultural landscapes. It will specifically examine the types of data sources available for a study area, along with the reasoning for its choice. A methodology for exploring maritime cultural landscapes will be outlined, and several common maritime themes will be introduced to further explore the problem of differential representation of the types of data sources for each group/theme.

In this chapter, I will demonstrate the reasoning behind choosing the study area, and will explore the potential and actual range/complexities of data sources that were available for that region. The intricacies of the methodology will be examined in further detail, including the use of GIS technology to investigate how this ethno-archaeological approach can inform of social inter-relationships and cross cutting ties within the community.

This chapter will explore an innovative approach to the analysis of maritime cultural landscapes in an Australian Colonial setting. It will be shown that it is only through the recognition of the diversity of landscapes and the disparities/bias expressed both between and within their informative sources (which has in the past been perceived as problematic), that truly multivalent perspectives of the same setting/event can be accessed. This was achieved by the adoption of maritime themes identified in other analogous maritime cultures elsewhere and by the local community themselves, which were used to categorise activities and places within the township using GIS spatial and temporal data representation. This system not only enabled comparative analysis of disparate data sets, but also facilitated the examination of multiple landscapes perspectives that cross-cut other landscapes. Furthermore, the use of this technology aided comparative analysis of known cultural practices with relict sites, to produce ethno-archaeological observations of new types of thematic maritime archaeological sites and characterisations.

2) Choosing the Study Area

The application of the methodology for investigating nineteenth century Australian maritime cultural landscapes was perhaps best demonstrated when applied to a study area. In order to provide the maximum potential for examining the strengths, weaknesses and interplay between the sources and landscape approaches, it was necessary to undertake the case study in a region which was rich in documented data sources, and that demonstrated a wide scope of maritime cultural activities which reflected the complexity and ambiguity of landscapes that could exist in any given locality. The ideal study area would therefore exhibit an extensive range of maritime

industries and services, along with a range of maritime traffic from/to highly diverse destinations. However, it was recognised in the initial stages that the huge volume of data associated with any major capital city could potentially overwhelm or obscure any patterning evident within the data sets, and could consequently become unmanageable at this level of study. Therefore the ideal area would be located at the confluence of local, national and regional vessel traffic, but be sufficiently isolated from central metropolitan areas so as to make the study manageable.

A number of other factors were influential when considering an appropriate case study area. In order for the methodology to be successfully applied, a plethora of sources from every possible type of the data set (i.e. historical, archaeological, anthropological/ethnographic, folklore/oral history/toponymic, environmental etc) were required, as this allowed a thorough consideration of which types of resources informed of particular landscapes. Furthermore, as another objective of the methodology was to characterise archaeological signatures of thematic landscapes through ethno-archaeological analysis, then a full consideration of all the possible data sources was necessary for the potential study area if the methodology was to be applied elsewhere where some data sets may not be available. Given the scope of completing such a task within the time limitations allocated for this thesis, the ideal study area would therefore also demonstrate extensive existing documentation of some or all of these data sets. This study had also chosen to investigate the development nineteenth and early twentieth century colonial landscapes.

The Borough of Queenscliffe in Victoria presented an appropriate opportunity as a case study for a number of reasons. The township of Queenscliff lies at the confluence of several major shipping routes, and is the home for many major maritime extractive and service industries. The township has played a pivotal role in the development of the ports of Melbourne and Geelong, and was one of the earliest maritime centres in the state of Victoria, which was an important factor, as the origin point of European landscapes in this region was identifiable. The area had been subject to intensive maritime archaeological surveys since the 1980s, and in particular, shipwrecks had been thoroughly investigated for this area, both historically and archaeologically. Several other extensive historical studies had documented many of the major maritime industries and general history of the town. Furthermore, the author has had a long association with the town through involvement in many archaeological projects that were based in this area, including examination of local artefact collections declared during the Commonwealth Shipwreck Amnesty Project (see Philippou 2004). During this time I had

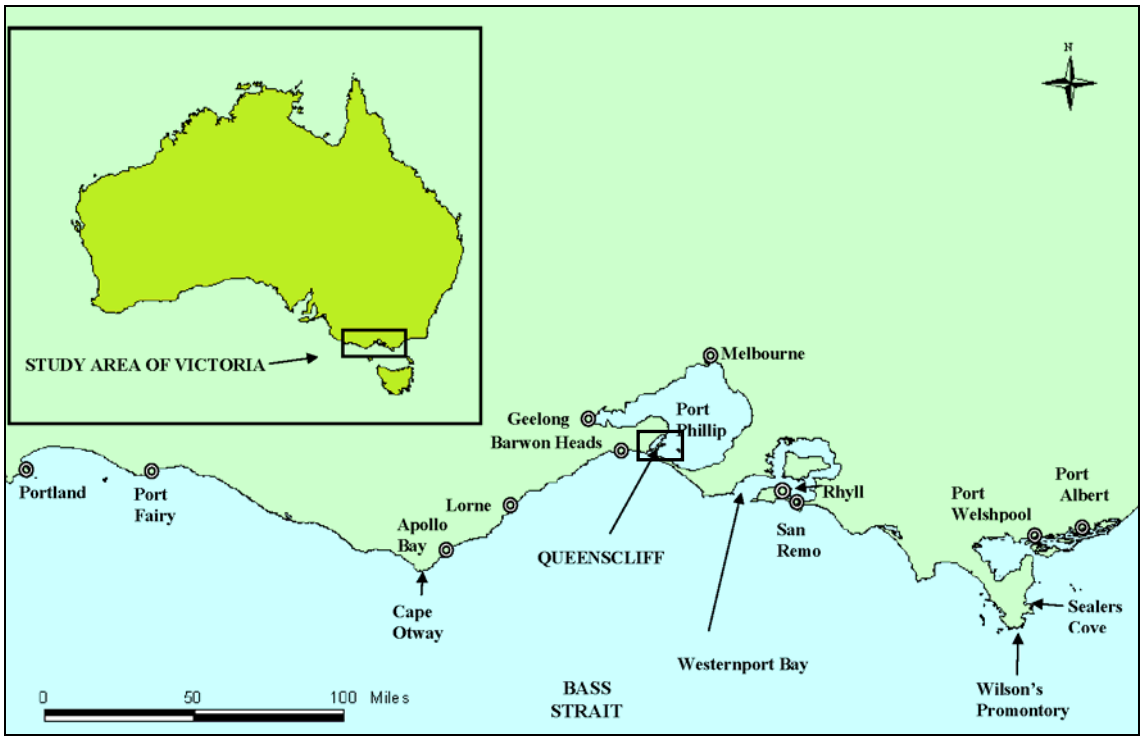

Figure 3. 1: Location of study area.

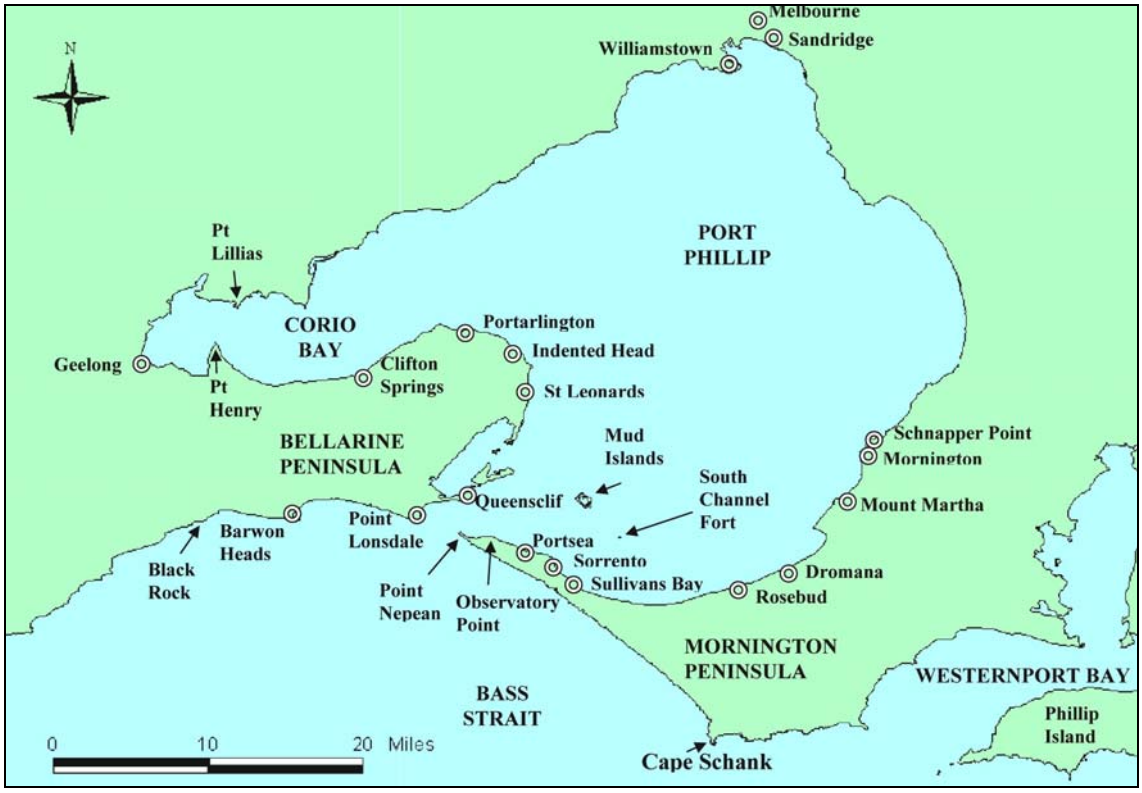

Figure 3. 2: Regional Places of Interest around Port Phillip.

developed a number of relationships within the community, which provided a potential network of informants for oral histories within the town. My associations with the community had previously revealed that many residents could trace their ancestry to the origins of the township, which offered potential opportunities to record deep and rich oral histories, traditional practices and folklore/ethnography. An expanded historical overview of the region, along with further reference maps of the study region referred to here are presented in the next chapter.

3) Data Acquisition: Types of Sources Available for Cultural Landscape Analysis

There are a wide variety of data sources available for investigation when analysing cultural landscapes. These include historical/documentary, archaeological, environmental/scientific, cartographic, anthropological/ethnographic/ethnohistorical and folkloric. Each data set has its own texture, character and strengths and weaknesses, and each will be considered below in further detail. This discussion recognises that many previous studies have already addressed the issues relating to the use of specific types of data, and in particular, the concerns surrounding the use of historic and documentary records. Where other data sources have been subject to less scrutiny, approaches are novel and innovative in this field, or their utilisation requires further justification they are considered in greater detail than other sources. Hence, some areas of this dialogue are briefer than others.

It should be noted that from the outset, every data source operated in a feedback loop to another, which drove the research to verify, challenge or modify previous observations and hypotheses as new data arose, and that the order in which the data sources and methodologies are presented here does not necessarily reflect the logical progression of the process, which was constantly evolving throughout the course of this study.

A) Historic and Documentary Resources

I) Documentary Records: General

(a) Overview

There are many levels of historical records. Official historical records provide access to authoritarian structures that shaped and regulated past societies, and therefore usually give a wide range of political and economic trends that may have existed at regional, state, national or international levels. However, these records predominantly focus on the recording of administrative, technical or political details/issues, usually at the expense of personal

perceptions and attitudes. Therefore, although these resources may facilitate access to global trends, world/national/state views and governmental attitudes, they present official views of the world and do not (usually) illustrate perceptions or behaviour at a local community or individual level. Local government and statutory authority records often provide better insights into regional official and mercantile/thematic maritime issues, as well as occasional glimpses of local ideologies, practices and behaviour.

Although historic and documentary records have played a pivotal role in historical archaeological investigation, this discussion takes into consideration the need for critical review of veracity and validity when using documentary sources (e.g. South 1977; Deagan 1988; Seashole 1988:92-3; Wood 1990; Keates 1996), and these aspects will not be discussed further here except where necessary, if particular sources that have not been widely addressed are being deployed. Indeed it is acknowledged that where some documentary sources may have previously been considered inaccurate representations, they may actually be useful as representations of differing viewpoints of the same arena/situation, a notion that is central for the investigation of multivalency in cultural landscapes.

(b) Local Documentary Sources and Historical Records

Documentary records were initially consulted to establish a chronological history of the areas to be investigated. Given the time constraints of this project, regional heritage syntheses and broad thematic histories were examined to obtain both potted and specific histories of the regional localities to be investigated. Although several overview histories of the maritime industries were available for the Queenscliffe region (e.g. Noble 1979; Tate 1982; Kerr 1985; Jones 1986; Kitson 1987, 2001; O'Neill 1988; Boyd 1996; Raison 1997, 2002; Inglis 1999), a review of these sources generally revealed that they inadequate for the purposes of this thesis, as they often lacked concise and comprehensive data regarding individual events and the installation of different maritime infrastructure that was still required for analysing the maritime landscapes and their overlap between industries. It was clear that a thematic chronological outline of many of the maritime services and maritime infrastructure sites in southern Port Phillip Bay was still required for many maritime themes (especially for the customs, defence, navigation, lifeboat, pilots, quarantine and tourism services) to ensure all relevant evidence had been collected and critically evaluated.

Where summary histories were not available, were incomplete or unreliable, they were supplemented with primary data sources. The time constraints of the project have meant that the research undertaken was not exhaustive, given the large numbers of sites to be investigated

and the regional approach taken. Chronological histories of the defence, customs, quarantine, lifeboat and lighthouse services, fishing and other extractive industries, and tourism were generated to enable comparison of events and infrastructure development within the area. Shipwrecks in this area had already been exhaustively documented and therefore further research to identify wreck sites was not required. However, no comprehensive documentation of stranding sites was available, although partial attempts had been undertaken (Williams and Searle 1963, 1964; Love n.d. 2006) so their general location and circumstances were recorded wherever they were identified.

Furthermore, as the project progressed it became apparent that some industries, particularly extractive industries (e.g. fishing, shell, lime burning and salt, guano and sand mining,) had not been recorded or evidenced minimal official historical documentation, and were revealed predominantly by anecdotal evidence from oral histories and historic memoirs. In these cases archaeological and oral history/folklore/ethnographical evidence would play a vital role in documenting the existence, nature and spatial distribution of these thematic landscapes (see below).

Many types of primary official governmental records were examined to generate summary histories for different maritime industries, and to identify installation dates for maritime infrastructure. These ranged from Harbour Masters records, Parliamentary Papers, Summary Contracts Books, Royal Commissions and other official correspondence. Privately sponsored sources included trades directories and sponsored histories, newspaper accounts and advertisements, personal diaries and memoirs. Because these aspects of historical research are standard approaches in archaeological research and have already been well considered elsewhere, they are not addressed in further detail here, but are more extensively discussed in Appendix A-1.

Several community members and historical societies had undertaken their own extensive personal research of this region (which in some cases amounted to decades of investigation), which included historical, archaeological and oral history information; these collections were made freely available for consultation. Private and government researchers who assisted with the project are listed in Appendix A-1.

A number of other sources not usually investigated in maritime studies were also consulted to investigate behavioural practices and perceptions of the area. Although maritime archaeologists have traditionally used official government “Notices to Mariners” to relocate historically known shipwrecks, this study innovatively utilised these sources, along with coastal sailing directions

(e.g. The Australia Directory - Yule 1968), to extract new interpretations of how mariners used the sea. For instance, official sailing directions were used in conjunction with hydrographic charts, and provided more detailed information for mariners such as indications of important landscape routes, hazards, and locations of other maritime infrastructure. In effect, these sources effectively repackaged and distributed a degree of local knowledge to outsiders as a risk management tool through the identification of preferential routes, local histories and toponymy, and official and unofficial practices associated with local maritime industries and services. These data sets not only provided insights into the areas used by mariners, but also those to be avoided. The former enabled prediction of potential archaeological sites and their possible signatures through descriptions of the types of infrastructure and associated behaviour, but the latter could also be used to indicate and explain empty spaces in the landscape. These documentary records were extensively used in conjunction with cartographic sources to better understand mariners' use of the maritime environment. Furthermore, unofficial sailing directions and vessel log books associated with specific maritime activities (e.g. those used by the pilots: Anonymous n.d.; Emerson et al. 1897-99) provided alternative indications of how maritime groups differentially experienced and perceived the nautical landscape.

Several photographic and artistic image collections were critically analysed to abstract contemporary attitudes towards a range of maritime themes. Photographs demonstrated a tangible reality not only of physical landscape components/features, but also of contemporary symbolism and perceptions (especially where they were posed). In contrast, created images (e.g. lithographs, paintings and drawings) reflected representations of a stylized reality which often conveyed underlying political, social and cultural agendas. These observations will essentially manifest themselves as the thesis unfolds in the thematic chapters below.

II) Ethnohistorical Accounts: Anthropological Accounts

(a) Overview

Many researchers have warned of the inherent biases in historical accounts through selective observer interpretation that does not reflect reality within the study community (Pipkin 2003) or politicised agendas (Flatman 2003:6). However, if these biases are recognised by the observer, these accounts can still offer valuable insights into the behaviour, practices and social structures of historical maritime communities; the biases themselves may inform of contemporary historical attitudes within and without the study communities.

Local newspaper accounts, which are often disregarded on the basis of their obvious bias, may provide insights into local viewpoints and behaviour that is not necessarily recorded in official historical records. Newspaper editorials, editorial correspondence and memoirs are often coloured with opinionated viewpoints, but were valuable sources of perceptions and beliefs of various local issues which are often never mentioned in official records.

(b) Local Ethno-historical Accounts: Newspaper Reports and private Memoirs

Newspapers have been widely exploited by maritime archaeologists to identify the locations of shipwrecks and the circumstances that contributed to them. Although the objectivity of local newspapers was often questionable, with a bias against the Melbourne dominated State government (which was often criticised for lack of action pertaining to many local infrastructure projects), it provided valuable insights into the psyche and rationale of many community residents that was not available in official historical records. These views were contained in the local editorials and personal community contributions, which proved valuable for later analysis of local community structures and hierarchy.

Queenscliff's local newspapers proved a particularly fertile ground of opinionated rhetoric. Aside from explicit details of various activities (including accounts of social events, tourist attractions and infrastructure construction) undertaken in the area, the locally published *Queenscliff Sentinel* often contained explicit accounts of important local issues, folklore and scandals, which often presented a startling contrast to mainstream documentary accounts. Of note were a series of individual memoirs/reminiscences of several maritime services and/or industries written by local identities, many of whom were original residents of the Borough in the 1850s which contained personal minutiae not evident elsewhere. Other early accounts were purportedly penned by tourists, although the authenticity of some of these accounts were suspect, as they may have been written as promotional material by local businessmen. These anecdotal accounts represented the first written oral histories and/or ethnohistorical accounts of the township, and extended the range of the subsequent oral history interview records (undertaken by the author and the Queenscliff Historical Museum) for the area back some 150 years (see below). Personal history accounts and memoirs of community members and local industries were also published in the modern *Queenscliff Herald* and *Rip View* newspapers. Other newspapers outside the region (including the *Geelong Advertiser* and Melbourne based *Argus)* provided balancing insights into general state events and wider community sentiments, in addition to the only coverage of news before the establishment of the local borough newspaper in 1879.

III) Cartographic Resources

(a) Overview

Although historical cartography represents another documentary data source, its' utility to identify past landscape utilisation areas and to predict potential archaeological sites made it worthy of further consideration. The numerous recognised problems with the use of maps (as outlined by Wood 1992:20, 26-7) were considered before incorporating cartographic sources into the project. Cartographic sources do not reproduce, but rather construct a reality that is peculiar to its creator, and selective representation of landscape features may often mask the underlying agenda of the cartographer. A map is frequently a "projected" or "inferred" view rather than an actual scene that reflects reality. These documents were regularly used by government bodies to express control and ownership of landscapes, and this was further complicated by imposed limitations on the information contained therein through restrictions on access and dissemination (Keates, 1996). The recognition of symbolism within a map may also demonstrate aspects of beliefs systems that were distinctive to the historical period in which it was produced.

Furthermore, charts and maps may represent the official world view, as decisions have already been made what to include and exclude, and what an area should officially look like. Maps and charts also provide official names for landscape features, which has connotations for how the landscape is viewed (and are addressed further in the toponymy discussion below). Although cartographic data is subject to the same creator biases inherent in all historic documents, cautious use of historic maps provided the opportunity for new insights into archaeological site re-location (Seashole 1988:92-3), delineating settlement patterns and analysing topographic changes.

Cartographic data sets also provided the opportunity to examine coastal changes in the study area. The advantages gained by comparison of updated series of the same historic map for time change analysis have been demonstrated by various researchers (e.g. Seashole 1988:98; Johnson 1997, 1998). Comparative analysis of these sources can often reveal significant temporal coastline changes (caused by reclamation, shoreline progradation/scouring, dredging or geomorphologic processes), which may often mask the present location of archaeological sites (Boyd et al. 1995, 1996a, 1996b; Indruszewski and Gluzniewicz 1998; Indruszewski 2001; Duncan 2002, 2003a, 2003b).

(a) Local Cartographic Sources

This study relied heavily upon cartographic data sets as many maps demonstrated a high level of accuracy that might enable relocation of potential archaeological sites that was often not available in other documentary sources. Unlike other documentary sources mentioned previously, there are particular nuances to cartographic sources that require greater attention.

Over 100 charts, plans and maps were examined to identify past features, maritime infrastructure and coastal environmental changes. These varied from charts produced by the earliest explorers to specialized thematic plans commissioned by local service providers. A number of these sources consisted of updated charts/maps, where new information was later reissued over older plans. When referencing these plans in the text of this thesis, the original cartographer is cited; along with the update information (e.g. Ross 1864 [updated 1903]). Many sources of varying scales and projections were used during this project, which, although problematic due to differences in generalization of features and topography/ bathymetry, still proved effective for the identification of the general locality and existence of archaeological sites. The problems of mixing plans of different scales was recognized when used for identifying potential field search and survey area, and the size of the search area was adjusted accordingly. Furthermore, many of the cartographic sources (especially the specialist military, tourist and local plans) provided indications of thematic cultural landscapes, in addition to local toponymic variations to official place names. Several modern cartographic coverages were available in GIS format, and were used in the geo-referencing process outlined below. These included coverages of cadastral land parcel boundaries (DNRE), Australian Hydrographic Charts (AHO) and geo-referenced aerial imagery (PMS). A list of chart and map types consulted are listed in Appendix A-1

What has previously been seen as map maker bias can be positively utilised in this study to examine the cognitive perceptions, values and ideologies of the surveyor/mapmaker. Hence what has formerly been viewed as a failure of cartographic sources was used to advantage to examine cultural landscapes of thematic groups (e.g. defence, tourism etc). As maps are created for specific purposes, they generally show only sites relevant to the creator, and hence in themselves are useful sources of cultural landscape data. A good example of this are the differences found between marine charts and terrestrial topographic maps. In the former, navigational features, prominent landmarks and bathymetry will be shown in great detail, while topography, street layout and other features not relevant to maritime navigation are generally excluded; in the latter, the focus is on detail for land features with water features generally excluded. The difference between these two types of mapping demonstrates what components

of the landscape are important to each surveyor and map maker. Other examples included tourism maps and amenity services plans, which further provided indications of significant landscape features and areas for those themes. Astute interpretation of plans therefore elucidated aspects/sites of various levels of community significance, and enabled further extrapolation of significant maritime cultural landscape features and behavioural trends.

Cartographic standards have changed over time, and vary accordingly with the author's purpose and precision. Charts had a high degree of accuracy from the 1850s onwards due to their use as a navigational tool, whereas tourist maps are more generalised as their use is for demonstration of location and attractions, where accuracy is not required. Varying standards of accuracy, along with production of maps at different scales for the study area was at first considered problematic, but was later reconciled through sympathetic use of plans of similar scales to examine aspects of landscape. As landscapes exist at many different levels, diverse scale maps/charts were used to examine landscapes of varying extents. For example, residential and shore based landscapes were analysed at a cadastral scale (e.g. 1:7 500), whereas maritime use of the bay was often examined using navigational charts (1:25 000 – 37 500). These produced observations based on different standards of accuracy, but were still within acceptable bounds when relocating archaeological sites. Use of the maritime environment was usually less precise in a locational sense than its terrestrial counterpart, and therefore relocation of archaeological sites in the terrestrial environment required more precise co-ordinates than those in the sea, which tended to be located over a much wider area.

The absence of cartographic records for some maritime groups (e.g. fishermen) was notable, given their constant navigation of the sea. This observation does not suggest that this group did not use charts, but suggests that their cartographic knowledge was stored and transmitted in different ways such as through oral traditions and folklore. This notion is discussed further below in the oral history section.

B) Anthropological Data

I) General

Anthropological and ethnohistorical records often provide deeper understandings of communities and individuals at a local level, through observations of cultural practices, behaviour, ideologies, traditions and belief systems. These records provide more intimate understandings of the dynamics of community relationships and social interaction that are often missing in other official records. Even though these accounts are often biased towards the observer's perspective, recognition of these prejudices further informs of contemporary

historical attitudes and community/official ideologies. However, the extent of the observers access to intimate knowledge is often limited by their acceptance within the community and their own ability to understand the underlying nature of the social interactions around them either from an outsider's or member's perspective. These accounts are by nature almost always insular, and are usually focused on local issues to the detriment of wider regional or international issues. Problems with using anthropological data have already been widely considered (see Dark 1995:42-47; Orser and Fagan 1995) and do not need to be discussed further here.

II) Folklore/ Oral Histories

(a) Overview: Folklore

Folklore presents a type of data source that until recently has been sparsely used in archaeology, and as such, requires further discussion in greater detail. Folklore sources generally present a tiered level of knowledge that is usually accessible in various stages/levels based on either hierarchical or membership status within a community or community sub-group. They can provide intense insights into individual and community level views and cognition, cultural practices and ideologies that may not be accessible elsewhere, or differ from accepted official historical accounts. These types of sources provide very personal or locally significant information that may vary even within that region. They represent alternatives to official histories, and often are encoded into local toponymy, stories, songs, superstition or beliefs, some of which may have relict or unknown meaning. As such, they may represent the only remnant data sources for aspects of long gone alternative cultural practices, beliefs and ideologies. They may not necessarily be representative of wider official or national/collective philosophies or attitudes, and may at times oppose them.

Folklore represents an informal framework for communicating culturally significant information outside official societal frameworks, which is incorporated into group customary thought and practice, and transmitted through oral and documentary local histories (Seal 1989:7). It has played a substantial role in the shaping of the landscape in many maritime cultures (e.g. Westerdahl 1980; Johannes 1992; Lewis 1994; Hviding 1996) where it dictated traditional usage of areas based on spiritual beliefs, superstition, tradition or caution associated with past cultural events, and often revealed underlying cultural realities that elucidated further aspects of relict cultural landscapes. This study adopted Gazin-Schwartz and Holtorf's (1999:6) definition of folklore which encompassed traditions and beliefs expressed in folk/mythology tales; place names; regular rituals and ceremonies; traditional oral literature and rituals; material culture,

social customs; and artistic performances associated with various social groups. This definition illustrated strong analogous properties to many elements of cultural landscapes analysis, and further reinforced the necessity for the inclusion of folklore in this study.

Many archaeologists have recognised the significance of folklore for enhancing archaeological studies (Glassie 1982; Burström 1999; Paynter 2002; Whiteley 2002:405-6). Although some researchers have argued against the validity of folklore as a reliable and accurate data source in archaeological studies, Gavin-Schwartz and Holtorf (1999:5) demonstrated that "archaeology is also perceived and interpreted by present (day) people", and was hence subject to the same biases contained within oral histories. There is often a bias in favour of textualised societies' records against densely coded oral narratives, as the latter are interwoven with complex cognitive cultural meanings. However, this problem is also inherent in historical records which are also products of political societies where what is the "truth" is defined by those in power in a particular social system (Whiteley 2002:408). Many studies (Glassie 1982; Joyner, 1989:18 as cited in Gazin-Schwartz and Holtorf 1999:11) have demonstrated the validity of the integrated use of oral histories and folklore and archaeological and historical studies, and the insights to be gained from anthropological studies, and that each discipline's source could not be adequately understood without reference to the other. It has also been argued that the shallow time depth of nineteenth century narratives and oral traditions were of sufficient accuracy to be accepted by archaeologists as historical documents (Symonds 1999).

Folklore may also facilitate access to social meaning (both past and present) associated with archaeological sites, and their role in the formation of communal/collective cultural identities, where object age is of secondary importance to its interpretive value. In this context, folklore potentially provides crucial understandings of the cultural landscapes and the communities within them (both for landscape participants and researchers) when they are subjected to systematic analysis. Significantly, Gavin-Schwartz and Holtorf (1999:5) argued that folklore might illustrate the continued use and significance of archaeological sites after their initial deposition and periods of intensive use, the latter of which had previously been the only focus of archaeological studies. This observation has particular relevance for shipwreck sites, as will be demonstrated in Chapter Seven.

Some researchers (Gazin-Schwartz and Holtorf 1999:12; Symonds, 1999:118-9; Thoden Van Velzen 1999) have advised caution against recognising second-hand or invented accounts expressed as folklore, which are known as Folklorism. These accounts do not derive from the central core of a culture, but may present knowledge that have been introduced into a culture for political agendas, to promote economic interests (driven by tourism or entertainment) or from

other external sources proclaiming a detailed "forgotten knowledge" of that culture (e.g. previously recorded or popular folklore which has been (re)introduced to a region, or archaeologically derived folklore). In these cases, the folklorism may inform more about the social environment of the area that the actual factual history. However, it will be argued that even this type of "false" folklore is informative of cultural behaviour and is a significant cognitive component of landscape, which will be further elucidated in regards to tourism in Appendix D-3.

Folklore is accessed from a variety of sources including ethnohistorical and ethnographical documentary records, memoirs, toponymy and oral histories. Although it is recognised that these are very different sources, for the sake of convenience these resources will be addressed collectively here.

(b) Accessing Folklore: Oral Histories

Oral histories are used by different social groups both to inform and reinforce their own cultural identity (Young 2002:13-4). A number of researchers have recognised the inherent value of utilising oral histories to elucidate the cultural/social aspects of community life (that are evident in folklore) and which might not otherwise be evident in the historical or archaeological records (e.g. Yentisch 1988; Paynter 2002; Young 2002). Paynter (2002:S92-3) has stressed the importance of narrative for investigating alternative histories that are normally overridden by the predominant and often dominant social systems that influence written historical texts. Governmental and administrative perspectives often overshadowed the viewpoints of other cultural sub-groups within the community, and required investigations that delved beyond the dominant official histories for an area to present alternative or supplementary realities which may only be accessible through narrative accounts or oral histories or archaeological research. Paynter further suggested that extant material culture (often produced by the ruling class) is often used as tangible evidence to substantiate the validity of the accepted or dominant written or popular histories. The investigation of these alternative sources offers the opportunity to establish agreement or disjuncture between the dominant historical narratives. In particular, archaeological deposits present the opportunity to investigate mundane aspects of everyday life (e.g. rubbish disposal, toilets, drains) that often go unrecorded in more glorious observations of township life (this aspect is discussed further below in Section 4B). Although many researchers have advised caution during use (e.g. Coll 1977:17 as cited in Young 2002:13; Souter 2003), oral histories provide an opportunity to access traditional folklore and practices that when submitted to analysis and interpretation to derive their meaning, they can be recognised as a valid data source for landscape studies (Gazin-Schwartz and Holtorf 1999:17-9). Taken further,

it could be said that when examining oral histories the accuracy of the account is irrelevant, as it is the substance of the narrative which is of more importance as an indicator of personal landscape perspectives and ideologies. Therefore, it is recognised that multiple pasts will exist in regional oral histories, each with its own distinct qualities based on personal experience, a situation analogous with the underlying principles of cultural landscapes studies.

Finally, the concept of the maritime cultural landscape recognises that the local knowledge held by community members is the product many generations of collective knowledge. In effect, the recollections of these people exemplify a palimpsest of cognitive cultural landscapes and traditions that form part of their own current personal landscapes. Parallels exist with Pacific and other indigenous maritime societies where folklore and cultural traditions are used to reinforce the social identity and history within a community.

(c) Local Oral History and Folklore Sources

(i) Local Oral History/Folklore Interviews

A series of scoping interviews within the Queenscliff community were undertaken to assess the viability of this method and the availability of appropriate resources. Upon first inspection it became obvious that oral histories were clearly an important method of transmission of local histories within the township, and often evidenced information that was not available through other sources of historical documentation.

Numerous long-term Queenscliffe and Geelong residents were interviewed to determine the existence of a body of direct and/or informally transmitted knowledge of a range of maritime industries and services still retained within the community. Interviewees were selected for their demonstrated affiliations (either direct or familial) with local maritime industries, services or other activities (e.g. the pilots and lighthouse service, tourism [guesthouses, baths complexes, golf clubs], military, fishing, lighthouse and lifeboat services, boatbuilding, town services (cartage) and/or extractive industries (farming, firewood/bark trade etc). Most of the local participants interviewed were between the ages of 70 and 90, which meant many informants had first-hand memories of many of the events, themes and sites being investigated. However, some younger participants were included where they had strong collective knowledge based on familial ties from both sides of the family tree, or where they were directly involved in a major maritime industry that exposed them to the cognitive landscapes and collective knowledge of non family members in those services (e.g. the Ferrier Family – lighthouse and lifeboat service, fishing, tourism).

Other interviews were conducted with younger community members, who demonstrated lengthy family ties to the area (either as residents or as tourists). Further informants included government agency officials (e.g. HV, MDC, PV, SBICMC) who had derived knowledge of local sites through contact with the local community, or committee members, staff, members and volunteers associated with the various local museums and history societies (FQM; QMM; QHM - this aspect is discussed in further detail in Section 2c). These groups proved to be extremely helpful contacts, often directing the author to other sources and informants. The historical museums also held extensive oral history collections, whose informants had long since passed away. These recordings enabled the oral history approach to access personal recollections dating in some cases back to the early 1860s.

It was also clear from the initial scoping interviews that women played a major, though scantly recorded role in the dynamics of the town, and that the role of women in the town was often masked by the perceived more glorious maritime activities that dominated the social histories of the town. Therefore women were also interviewed to try to gauge the female perspectives of maritime landscapes, and their personal landscapes. Of those interviewed, most had connections to either the fishing, defence or tourism industries, and in most cases all three. Although many women helpfully assisted with this project, the potential for gender bias against a male investigator must be considered, and it is recognized that further insights may have been revealed had a female researcher been undertaking this investigation. However, it should also be recognised that the reverse situation might also be the case, where female respondent were more communicative with a younger male interviewer.

Queenscliff and the surrounding areas proved a fertile ground for oral histories, as many residents could often trace their familial origins back to five generations, and in some cases in the same industry. Rich oral histories were available for most maritime themes, especially where the participants were permanently based in the town. However, the transient nature of the defence forces generally resulted in shallower time depths for direct family involvement in the military recollections, which usually began when intermarriage occurred between the fishing and defence communities. Many informants offered perspectives into multiple industries, which provided useful overlaps for comparing and contrasting data derived from other sources and interviews, and for attaining different perspectives of individual places or features. Most informants were interviewed on multiple occasions, both to reconfirm previous data, and as new information was gradually revealed as a relationship (and a subsequent level of trust) was established between the author and the informants/community.

Each informant was interviewed with a set of standard predetermined questions (Appendix A-2), which were designed not only to identify places associated with various cultural practices, but also the specific nature and diversity of the activities undertaken there which would later aid in the identification of their possible archaeological signatures. Informants were also questioned regarding social relations in the township, their belief systems and superstitions, and intangible knowledge of the maritime environment. Unexpected leads were pursued, and were later incorporated into subsequent interviews with other informants to contrast the veracity of previous data. Informants were provided with a modern hydrographic chart (AUS 158), and asked to draw the locations of various areas which were either used by them or their families, along with prominent landmark features, names, archaeological sites or other relevant information (i.e. their physical and cognitive landscapes). In later interviews, after these charts proved too small in scale/detail to record some information (especially for terrestrial areas), local maps or road directories were used. Aerial imagery would also have enhanced the output of these earlier interviews (particularly where divers had detailed knowledge of inshore underwater sites) but this was not available at that time.

This information was converted to GIS coverages (layers) which enabled comparison with other data sources (see below for more details). For the sake of brevity, where informants are quoted in this thesis, they are referenced by their initials enclosed in square brackets (e.g. Peter Ferrier = [PF]). A summary of informants' backgrounds and personal/ancestral knowledge in presented in Appendix A-3.

Recollections from oral accounts often proved surprisingly accurate, particularly in regards to the nature and location of historical events, and subsequent archaeological investigations often substantiated the observations. In some cases oral histories provided the only documentation of some maritime activities, particularly in regards to extractive industries. However, it was noted that the information from some early published memoirs (e.g. Cuzens 1912; Dod 1931; Hunt 1999) had been absorbed into popular local history in some cases, thus influencing actual ancestral traditions or recalled memories. Nevertheless, as most of the observations in these primary accounts proved to be accurate (especially in an archaeological context) this did not dramatically affect the survey. Many informants referred to what was commonly known as "the early days", a vernacular term used locally to refer to the time of the town's establishment until approximately the mid to late nineteenth century. This term was also extensively employed in many locally produced historical accounts and was also therefore adopted for this study.

During the course of several interviews, some data was related that could be considered sensitive or libellous, and included the specific identification of people who were allegedly

involved in historical illegal activities. Although many informants often reiterated the same events, in these cases the names of the individuals concerned have been deliberately concealed during this study to avoid potential slander allegations and are referred to in the text as [nw] (i.e. name withheld). It should be noted that references to these events have still been included in the study, as they demonstrate important aspects of local folklore and in particular perceptions about wreck exploitation, but their inclusion does not indicate any value judgments on the author's behalf regarding their accuracy or legality.

III) Toponymy

(a) Overview

The importance of toponymy to identify maritime cultural landscapes has been addressed by many researchers (e.g. Holmberg 1991; Westerdahl 1980, 2002a, 2002b, 2003a; Whiteley 2002:411). People name places in ways that are significant to them, and examination of those cognomens may reveal interpretive insights into past cultural use of an area (Barber 1994:17). Events outlined in oral histories were often identified and encoded in place names that "materially objectify oral history in the tangible inspectable landscape" (Whiteley 2002: 410). Place names serve multiple purposes within a landscape. They may act as a reminder of cultural identity, through the cognitive preservation of famous persons, events and history; operate as descriptive navigational signs; detail historical events; associate cultural activities to geographical features; or endeavour to promote the virtues of an area to potential users, and are at once both a perceptive and tangible reminder of the community's distant past (Barber, 1994: 18). Toponymy cross-cuts other data sources, as it draws from a wide range of fields, and therefore has the ability to extract past cultural regional usages, and as such represents another source of data that may assist in defining a landscape.

Dwyer et al. 2003:19 further noted that fishing boat names (which were often named after familial women) also encode the sea with history, which mariners and fishers used to locate the owner within a field of relationships, of which the boat is a physical embodiment. Boat names therefore provided prompts of genealogical connections, which summoned an enormous range of mental and emotional images both for those on board and approaching them. Furthermore Dwyer (et al. 2003:20-1) observed that the bestowing of boat names further "constitutes existential space out of a blank environment", which further personalised the seascape. The existence of these names reiterated the distinction between fishers and outsiders, as the insider always had knowledge of meaning which was often restricted from the outsider. Given the importance of nautical craft to any maritime community, the investigation of boat and ship names offers further potential insights into individual/community cultural landscapes.

(b) Local Toponymic Sources

Toponymic data for the study area was extracted from a variety of sources including historical records such as charts/ maps, survey notebooks and other historic accounts, particularly in ethnographic accounts and memoirs. Many toponymic derivations were explained in early sailing directions (e.g. Yule 1868; 1876) as allocated by early surveyors, which further reiterated the official exploration histories for the region. The naming of these places often commemorated visitation events (by surveyors) or reinforced patronage ties. Unofficial toponymy was usually accessed through local folklore, and this was revealed predominantly through oral history interviews and local historical memoirs which often revealed the only evidence of the meaning of these place names. Knowledge of many place names was often restricted to individual thematic groups within the maritime community.

C) Archaeological Data

The limitations expressed by historical records and folklore/oral traditions provided a boundary at which archaeological research could provide further insights into the nature of maritime activities and landscapes in southern Port Phillip Bay. Archaeological sites have been a traditional data source in most cultural landscape studies, and are well understood.

I) Consideration of the Potential Range of Maritime Sites

(a) General Overview

(i) Maritime Archaeological Sites

The archaeological record is often over-represented by large official, administrative or mercantile themes (e.g. defence, quarantine, navigation and harbour services, and tourism) which have generated often substantial and extensive original structures and networks of sites during their period of use. Many less well historically documented themes, particularly extractive industries (such as fishing), tend to evidence leaner archaeological records, either because they are historically less well represented or undocumented, they are less attractive targets for archaeological research, or because they inherently produce minimal or less durable archaeological records compared to other maritime themes, and as such are sometimes archaeologically unknown. However, if archaeological characterisations of these sites could be developed, they offer potentially rich data resources for often under-investigated and historically invisible industries.

Similarly, shipwreck sites produce extensive archaeological signatures. These types of sites are often the popular foci of archaeological research, which has further biased the recorded archaeological resource towards those areas high profile features. Ships do not operate in isolation, but connect to the land via piers, jetties, wharves and docks. Many thematic maritime activities exist in any coastal area including health/quarantine, customs, pilotage and navigation services, defence networks, extractive industries and tourism facilities. All these industries have relied on the construction of maritime infrastructure to service/facilitate their activities. For regional maritime archaeological studies to take place, the full breadth of maritime sites must be expanded to include all archaeological signatures of maritime activities, and must include seemingly mundane sites such as training walls (McCarthy 1999), ferry crossings and groynes etc.

Although some attempts have been undertaken to document historic maritime infrastructure sites, this field remains largely unexplored in an Australian context outside of studies of piers, jetties and wharves, and some extractive industry sites. A positive recent trend to adopt a more holistic regional approach to maritime archaeological research has begun to highlight the scope of alternative types of maritime sites (e.g. Wolfe 1991, 1994; Kenderdine and Jeffery 1992; Kenderdine 1994, 1995a, 1995b; Duncan 1994, 2000, 2003a 2003b, 2004a 2004b; Cummings et al 1995; Barnard 2000; Nutley 2003). Advances in this direction offer opportunities to further develop the scope of the field. A greater consideration the resources consulted is given in Appendix A-4. Despite these studies, no comprehensive list of possible maritime sites had previously been generated within Australia, and it was therefore necessary to predict the range of possible site types that might occur in the study area prior to fieldwork investigation. Appendix A-5 highlights the range of potential maritime archaeological site types that have been gleaned from a range of international and Australian studies of individual maritime infrastructure sites, and from ethnographic accounts of similar maritime communities worldwide which might be encountered in Australian nineteenth century maritime landscapes. Furthermore, the archaeological signatures of many of these types of sites are currently not characterised or even recognised as archaeological sites.

It was therefore clear that new types of maritime archaeological sites needed to be investigated to truly appreciate the diverse scope of maritime activities that were undertaken in the study area. Exploration of these types of sites therefore offered the potential to explore new aspects of maritime landscapes, but also presented challenges as many these types of sites had not been previously documented, and therefore the archaeological characterisations were not well understood (if at all). A glossary of terms which includes definitions of maritime infrastructure site types is included at the end of this thesis.

(ii) Historic Buildings and Places

Heritage agencies often record and maintain official inventories of known archaeological sites. In an Australian context these sites are located predominantly in terrestrial locations, although there is a current worldwide trend to record features located in the intertidal zones or underwater. The depth of detail contained in these data sets varies from comprehensive archaeological records of excavation and surveys, brief descriptions and history, photographs, sketches, or often simply a geographical location. However, archaeological sites are often linked to or associated with extant historic buildings or places, and therefore these features are also significant components of landscape studies. Heritage Registers of historically significant structures are often found at International, National, State, Regional and Local level government agencies (i.e. Councils).

(iii)Local Site Knowledge

Archaeological site information can be garnered through systematic field surveys conducted by researchers. These investigations specifically investigate newly identified sites or search for potential sites identified through historical and/or ethnographic information, the results of which can provide systematic and methodically verified archaeological data sets. However, the extent of research driven data that can be collected is often limited by time and budgetary constraints, and this is especially true for underwater sites.

The location of other previously unrecorded archaeological sites may be known by community sources such as individuals, local museums (and their members) or other local organisations. Many researchers have recognised the important role that divers, fishermen and other mariners play in the recognition of underwater archaeological sites, due to their knowledge of the underwater landscape through direct engagement or finds in nets (Maarleveld 1997:5; Westerdahl 1999:100). Although problems with non-systematic collection bias are inherent in these collections, Massagrande (1995) has shown that even randomly collected survey data (by non-professionals) can be utilised to examine regional patterning of sites, if the nature of the bias and selective acquisition of the collectors is recognised. These sources offer potential independent archaeological data sets that may represent vast periods of personal experience, which far exceed the capacity of individual researchers to record alone, and may be derived from remote areas or regions never previously unexplored by archaeologists. They therefore represent significant alternative resources of archaeological data.

(b) Local Archaeological Data Sources

Many archaeological data sets for the study area were available through a number of different sources. As the reliability of the data varied between data sets, the source of the different types of archaeological information should first be considered.

(i) Official Existing Archaeological /Heritage Databases

Several large bodies of archaeological data already existed for this area. Governmentally controlled data sets such as the Register of the National Estate (Environment Australia), The Register of the National Trust (Victoria), The Victorian Heritage Inventory and Register, and Local (Council) Heritage overlay were extensively consulted regarding existing heritage listed sites (both terrestrial sites and shipwrecks), along with their extensive collection of historical records pertaining to Victorian maritime industries. As shipwrecks sites were already well understood archaeologically, further investigation of these sites was not required. However, little or no investigation of other types of maritime sites had been undertaken in the area (with the exception of a number of maritime infrastructure sites recorded by Heritage Victoria).

The expected archaeological documentation of the study area proved to be disappointing. Despite the implementation of several previous local heritage and archaeological studies (Allom Lovell 1982, 1984; Weaver 1996; Long 1996; Austral Archaeology and Coroneos 1997; Anderson and Cladow 2000; Weaver 2000; Myers 2002), only eleven coastal archaeological sites and eleven registered sites were listed on the VHI and VHR respectively. Aboriginal Affairs Victoria also listed a number of Indigenous sites in this area, but these were not examined as part of this study. Forty six located shipwreck sites were documented by the Heritage Victoria Shipwreck Register, and fifty two others were historically known to exist in the area. At this time no overarching thematic study of maritime archaeological sites other than shipwrecks had been undertaken (a later state-wide study was undertaken by Barnard and Duncan 2003; Duncan 2003a, 2003b, 2004a, 2004b), despite the known presence by local divers of several informally identified strandings, beacon and lightship sites, ammunition dumps, and anchorages which had never been formally inspected (Love 2006; [PF]). From examination of the above sources, it was clear that further extensive archaeological documentation of the study area was required, and that some types of sites were archaeologically underrepresented by the current databases and research. It was clear that further researcher derived archaeological data was required to supplement the sources outlined above.

(ii) Local Knowledge of Archaeological Sites

Initial inquiries indicated that many Queenscliff residents knew of previously unrecorded archaeological sites in the terrestrial, littoral and underwater zones, and these locations were often revealed during oral history interviews. Two types of local knowledge of archaeological sites were demonstrated for the study area.

(One) Traditional Local Knowledge

A number of sites were identified through oral history interviews with local residents, some of whom demonstrated a traditional knowledge of the location of archaeological sites based on extensive familial/occupational ties to the region. Although several informants had personal experience of these archaeological sites, many knew of their existence from their associations with traditional practices in those areas. The veracity of these observations proved to be remarkably accurate, and archaeological remains were almost always discovered at the locations indicated.

(Two) Avocational Archaeologists, Divers and Bottle Collectors

Various commercial, archaeological, scientific and avocational divers were consulted to gain some understanding of the extent of potential underwater archaeological resource of Port Phillip Bay. Most of these divers had developed a personal knowledge of the Bay's underwater archaeological sites through many years of diving experience whilst involved in archaeological, marine science or port maintenance fieldwork.

Many divers had for many years been or were currently involved in artefact collecting activities within The Bay for many years, hence their detailed knowledge of the sites. In cases where interviewees were still involved in artefact collecting, this presented an ethical dilemma for the author, as this was antithetical to the archaeological discipline, and also had legal implications under heritage legislation. Further considerations included the non-archaeological provenance of the artefacts, and sometimes inadequate documentation and/or conservation of artefacts. After much deliberation these sources/informants were included in the study for the following reasons:

- Many informants indicated that some sites had already been lost due to over-collecting, and therefore the recollections and collections of the divers represented the only surviving record of the sites;

- Some divers demonstrated a detailed knowledge of the underwater environment and regional provenance of their artefact collections;
- The collective experience of the divers consulted added up to over 300 years of accumulative underwater exploration, which could not possibly be attempted during the time frame of this project; and
- The divers consulted were known to be reliable sources either through the author's previous experience, and/or by their association with previous scientific diving activities.

Given these considerations, a number of strict guidelines were introduced to adhere to archaeological ethics. Legal advice was sought from Heritage Victoria (the State Heritage Agency) regarding the legal implications of the previous removal of artefacts from shipwrecks or the seabed (particularly if excavated), and the associated obligations for the author (as a researcher) and any project participants (either from interviews or fieldwork). All participants in the project were advised of these legal implications and asked to sign a memorandum of understanding (Appendix A-6) prior to any participation, which included acknowledgement that no artefacts would be collected during fieldwork, and the author could be legally directed to surrender any information regarding illegal activities. The author also explained the outcomes of the project to each participant, and reiterated that this research did not actively support the practice of bottle collecting.

A number of divers were identified who demonstrated an extensive personal knowledge of sites in southern Port Phillip Bay since the inception of scuba diving into the area in the 1960s. Peter Ferrier, Don Love and Carl Paolini all demonstrated a pervasive knowledge based on over 120 years accumulated diving experience. In particular, Ferrier demonstrated a remarkable knowledge of the underwater landscape, and could geographically locate or identify numerous archaeological sites and their associated submerged topographic surrounds. On many occasions he was able to identify areas where the author had been diving simply from descriptions of underwater sand dunes, seagrass distributions or other seabed matrices, and subsequently guide later inspections to previously unlocated sites, based on his underwater directions. Given that this extensive understanding was accrued through actual physical exploration (via diving) in only one generation, it is also possible that in some cases detailed knowledge of the underwater environment (Ferrier's "underwater landscape" - see Parker 2001) also reflects the inherited ancestral knowledge accumulated by generations of family fishermen

A further problem raised was the issue of bias in divers' collection habits, as this could inadvertently skew the observations of the types of artefacts scatters. As the two main collectors in the area, both Love and Ferrier admitted to raising most artefacts that they found

(except iron, which does not survive well underwater), and Ferrier had established an unofficial museum in his house which was used for educating schoolchildren in local history. Ferrier's collection of even broken ceramics was so extensive that he was able to match broken ceramic sherds collected over the space of many years, and he was known affectionately by one diver as "the underwater vacuum cleaner". This demonstrated that although subject to collector bias, the relics raised by these two divers could potentially form a viable sample of the underwater artefact resource for this area.

II) Archaeological Inspection, Survey and Documentation Strategies

(a) Terrestrial and Intertidal Site Documentation and Survey Strategies

After critical review of documentary and oral resources, especially the available site literature, it was clear that further extensive surveys were required to document archaeological sites in the area, particularly those in the littoral zones and on offshore islands. A strategy was adopted to obtain maximum survey coverage in order to also locate sites not previously identified by background historical, archaeological or ethnographic research. As most of the sites identified through historical research were located in the intertidal zone close to shore, field inspections were planned to take advantage of low tides or clear water conditions (flood tides), when many features normally underwater were exposed or could be seen through shallow water. In order to undertake comparative studies of adjacent maritime areas, the original survey strategy proposed a survey of the entire Bellarine Peninsula from Geelong to Pt Lonsdale, a distance of over 80 km. A systematic inspection of sites in this area was undertaken with about 60% coastal foreshore coverage between Geelong and Portarlington, and at Edwards Point, and 95% coverage between Portarlington to Swan Bay (Edwards Point), Queenscliff, Lonsdale Bight, and Pt Lonsdale. Detailed inspections were also undertaken on Mud and Duck Islands, the West side of Swan Island and South Channel Fort (see Maps - Figures 3.1-3.2). No terrestrial inspections were permitted on the eastern side of Swan Island (due to defence and intelligence agency restrictions), and property access restrictions along with environmental hazards (e.g. quicksand, swamps, coastal foreshore subsidence), curtailed the total inspection of the Swan Bay Region and westward of Portarlington. A brief shoreline inspection of the foreshore from Sorrento to Pt Nepean was undertaken by boat to identify potential intertidal sites, which circumvented many of the access restrictions in this area, and terrestrial based inspections were undertaken of the Quarantine Station at Pt Nepean and other sites at Portsea and Sorrento. Boat inspections were also undertaken of the infrastructure sites in the South Channel, along with a terrestrial inspection of the South Channel Fort and Popes Eye Annulus.

However, the range of sites discovered in these areas soon proved to be beyond the scope and time limitations imposed on this study, and therefore the study region was refined to concentrate on coastal and underwater sites of the Bellarine Peninsula from St Leonards to Pt Lonsdale, offshore islands and the extremities of the two main shipping channels. Inspections were not undertaken where terrestrial sites had been previously surveyed, and this was particularly the case at the Pt Nepean defence complexes. Although numerous sites were identified at Pt Nepean and some had been previously documented, and their range proved too extensive to include in this study.

Due to the extraordinary number of sites identified in the study area, most site documentation was limited to photographic recording (using a digital camera), a site sketch using paced measurements of site extremity and dimensions and geographical coordinates taken using a GPS. A sample of various site types was surveyed using baseline-offset methods. A search for an underwater causeway was conducted with four people using a 2 m wide transect lanes and 2 m long fibreglass poles to probe through mud deposits. A transect survey of artefact scatter numbers and types was undertaken at Tip Island.

(b) Underwater Survey Strategies and Recording

Budgetary and time constraints limited the extent of underwater inspections that could be undertaken. Therefore, a representative sample of sites were chosen from each thematic category, and preference given to those where probable geographic location coordinates were available either through local ethnographic sources or through GIS image rectification. Where underwater inspections were conducted, fieldwork was planned to coincide during and after known periods of seasonal gales, as the author's previous experience of this area demonstrated that many submerged sites were subject to extensive scouring after storms. This strategy proved successful, as many sites (some of which had previously been unknown or considered archaeologically barren by local divers), were found to have been exposed after over a metre of overburden deposit was scoured out.

The sample sites were visited using a small boat supplied through local business sponsorship, and with Heritage Victoria. Underwater inspection used a swim-line search with teams of up to five personnel (but generally with two divers) to locate sites, which were then photographed, sketched and surveyed (if substantial remains were encountered and conditions permitted). A baseline- offset or tape and compass survey strategy was adopted, or a site sketch made where local currents restricted access time, and a GPS position was recorded. Extensive tidal currents of up to 12 knots curtailed daily diving operations to two 40 minute periods during slack water.

However, these currents were used to advantage to search for newly identified sites, and allowed faster inspection runs over wider search areas. Furthermore, in order to test that the observations of some new site types were not limited to or characteristically specific to the study area, a number of inspections were also undertaken outside the study area of similar infrastructure types (e.g. anchorages, navigational pile lights, strandings etc) to compare and contrast archaeological signatures at Geelong and Melbourne. Further details of the underwater sites visited are listed in Appendix A-7. Locational information provided by informants proved to be particularly accurate, and archaeological remains were usually located when inspections were undertaken.

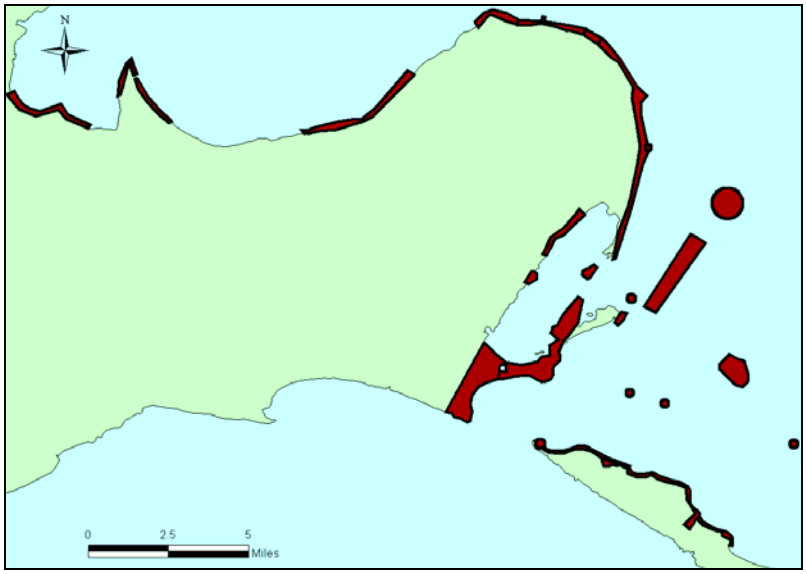

Figure 3. 3: Location of sites inspected.

D) Environmental data

(a) Overview

Environmental and coastline changes may alter the types and locations of various maritime activities, and thus an understanding of these processes (including topography, climate, lithology and the distribution of natural resources) is crucial when considering the maritime cultural landscape (Allen 1995:26; Wickler 1999:3). Cartographic and aerial photographic sources have been used to examine coastline and palaeo-environmental change (Amore et al. 2002; Howitt-Marshall 2003).

There are several problems associated with the use of environmental, geographical and geological records, as they essentially represent idealised or generalised representations of the world that often ignore direct cultural presences. The scale of these sources may often obscure

the human presence, but may be the catalysts for examinations of the courses of landscape change (see Spriggs 1986, 1997); or socio-political influences may have deliberately masked any detrimental changes for any number of cultural or social reasons. Conversely, these distinctions may not be recognised by landscape users. However, if these prejudices are adequately considered, environmental data can be used as indirect indicators of cultural activities through their resultant dynamic changes.

(b) Local Environmental Sources

As previously illustrated above, environmental information was forthcoming in all the data sources outlined above. In particular, environmental sources accessed for this study included bathymetric and topographic plans, oceanic conditions, coastal geomorphology and prevailing weather patterns. Environmental data was accessed through historic meteorological records (Government Astronomer 1872-1906), and official sailing directions (the Australia Directory: 1830-1919 - see HOA 1830, 1913, 1918; Burdwood 1855; Yule 1868, 1876; 1884; 1897; PHB 1959), marine science studies (Land Conservation Council 1993), environmental strategies (Fisher Stewart 1997), geological surveys and oral histories.

4) Methodological Approaches: Data Manipulation

A) Thematic Maritime Studies

Several studies have recognised the importance of the role of thematic workplace occupations in determining a region's character and the social relationships of its inhabitants (e.g. Evans 1973:23; Edmonds et al. 1995:55-60; Duncan 2000). People in similar professions tend to experience landscape comparably, as they occupy, utilise and perceive their region in similar ways, based on their shared workplace practices, social circles and status. The adoption of a thematic approach initially based upon maritime occupations and industries served as an entry point to investigate the diversity and multivalency of Australian colonial landscapes of the nineteenth and twentieth centuries. Some of the readily identifiable schemes included defence, pilotage, fishing, immigration, customs, extractive trades and associated transport, but these were expanded as more maritime occupations and practices were identified (see section below).

However, the use of these themes to define maritime factions did not preclude an individuals/groups membership of to more than one category, as by definition there are no hard boundaries between the landscapes of each thematic group. As different social groups constantly interact, their boundaries are therefore mutable, and as such they may also be

members of other factions who produce disparate archaeological signatures and landscapes. It must be recognised that these thematic groups are analytical units only that have been used to access individual/group aspects of regional landscapes. If we take a holistic approach, then one thematic data set on its own will only provide a partial view of the totality of regional landscapes that exist for any area.

Many of the occupational maritime themes mentioned above were identified by the local community themselves as distinct collective cultural groups within the township, and therefore actually reflected the reality of the social structure of the community. As the study progressed, wherever new themes were identified that cross-cut the boundaries of others, they provided new analytical units for landscape analysis.

B) Ethno-archaeological Approaches

I) Identification of Potential Types of Behaviours and Archaeological Sites From Analogous Cultures/Maritime Themes Elsewhere

In order to explore the complexity of maritime themes in the area, it was first necessary to explore the range of what types of activities could have taken place in the study area. However as previously demonstrated, the scope of maritime activities has to date has not been fully explored in this country. Ethno-archaeological comparison therefore provided a mechanism for identifying the potential scope of maritime activities within the study region.

(a) Overview

The potential of ethnographic and anthropological studies of analogous cultures for understanding archaeological sites and cultural relations has been recognised by many researchers (e.g. Gould 1980; Gould and Yellen 1987; Binford 1988). Although the archaeological, ethnographic/documentary and anthropological are parallel data sets, they are also act as independent sources and thus corroborate or challenge each other to provide a holistic and diversified notion of past cultural traits. This approach enables new understandings of the site formation processes and behavioural practices that have produced archaeological places (and vice versa), thus providing linkages to their former systemic contexts (Binford 1987 as cited in Gibbs 1995:26). The pitfalls of this technique are already well understood (see Dark 1995:60), and therefore if sympathetic analysis of similar time periods and spatially comparable cultures is undertaken, then it might reasonably be inferred that the behaviour that were associated with an analogous range of maritime activities in one area possibly were also undertaken other similar cultures elsewhere. The adoption of an ethno-archaeological approach

allows cultural landscape research to link observed behaviour to archaeological sites, and this is especially significant when applied to other areas (of similar time depth and/or culture) where any of the above data sources are not available or are fragmentary, and where previous cultural practices may only be expressed archaeologically in those regions.

For the purposes of this study, three key facets of associated with ethno-archaeology are employed. These were:

- The identification of new signature archaeological signatures based on behavioural observations;
- A better understanding site formation processes based on observations of cultural practices and subsequent material cultural remains;
- Insight into cultural practices and activities based on archaeological sites and site formation processes.

The adoption of an ethno-archaeological approach has the potential to identify new types of archaeological sites, both above and below water that have not previously been investigated in great detail, which also addresses the need to widen the scope of current maritime archaeological research. The categorisation of potential new archaeological places also provides new opportunities to identify cultural traits and behaviour that have hitherto been unrecognised in other areas, and which may be invisible in the documentary record.

(b) Identification of Analogous Maritime Cultures and Sites Worldwide

Problems were experienced in the scoping phase of the study, as few (if any) suitable analogous regional studies of maritime communities of this scale and diversity had been undertaken that fell within the same historical time period/culture within Australia (with the exceptions of Chamberlain 1988; Wright 1992). The consideration of alternative overseas sources was problematic from a spatial stance due to the large distances involved between cultures. However, this challenge was solved by first identifying the source culture of many of the inhabitants of Queenscliff, who proved to have predominantly originated from Britain, but also from mainland Europe and Asia.

Studies of similar maritime communities, particularly along the southern coast of Britain and other former British colonies were consulted to identify the diverse range of possible transported maritime activities undertaken in their ancestral lands. Many international ethnohistorical, historical and archaeological studies, historic photographic surveys and other observations of maritime communities and coastal life in England and America were examined

from across a broad range of maritime themes for the same time period as the study area (Thoreau 1865; Evans 1966; Hedges 1989; Stilgoe 1994; Lewis and Mason 1997; McErlan et al. 1998; Aberg and Lewis). Specific account and studies of thematic maritime activities such as fishing communities; the customs, lifeboat, lighthouse and pilots services and wrecking behaviour (Procter 1873; Procter Brothers 1882; Treanor 1904; Bradlee 1923 Goldsmith Carter 1945; Vivian 1969; Larn and Carter 1973; White 1997; Bathurst 2000; Fox 2001; Smylie 2002) gave insights into the practices, social structuring and possible archaeological deposits of these industries. Furthermore, contemporary historical folk tales were accessed in these studies and Wilson (n.d.) to assess the possible belief systems present in Anglo Saxon Britain.

Although outside the focus realm of Anglo Saxon societies, several studies of indigenous maritime societies also provided indications for the analogous types of specialist fishing and nautical knowledge that might be found in the study area. These indigenous studies included documentation of Pacific Island fishing communities (Iversen et al. 1990; Johannes 1992; Hviding 1996), and long distance voyaging (Gladwin 1970; Finney 1976; Turnbull 1991; Irwin 1992; Lewis 1994; Thomas 1997). These studies indicated that maritime communities would possess various levels of specialist knowledge regarding environmental and climatic conditions; resource availability, location and procurement methods; navigation; and ancestral history, which in some cases would only be evident in oral history traditions (see Duncan 2000). Previous ethnohistorical research of some maritime industries provided further opportunities for the identification of how and where the landscape was utilised by different historical groups (Hester et al. 1997:52), which was used for formulating site survey strategies, as it provided a basis for linking past behaviour and perceptions of landscape to current archaeological deposits.

Observations from these analogous cultures provided an understanding of not only potential behaviours associated with similar maritime industries in the study area, but also illustrated potential archaeological site types that might be associated with these activities. Conversely, similar site types found in the study region could inform of the existence of comparable behavioural practices. These sources formed a continual feedback loop to each other, where as new data was discovered (both in the study area or elsewhere) it added to previous observations derived from all the other data sets.

C) Comparison of Disparate Data Sources: GIS As A Data Manipulation Tool

It can be seen from the sources above that there are a multiplicity of data sets and methodologies available from many highly dissimilar data sources for the studying cultural landscapes, which presented a conundrum of how to compare and contrast the data sets for

different thematic groups. However, certain groups were differentially defined or covered by the available data sets. The official documentary and archaeological records provide good coverage of governmental and other official services, but are usually weak for unofficial sources. This disparity between the availability of data from similar sources for different community groups may at first be considered problematic, as it appears to curtail their joint analysis due to dissimilar representation. However, the strength of a cultural landscapes approach lies in that it uses different data sets in same kind of analytical framework, to enable comparison of diverse landscapes. Therefore different aspects of the world are accessed through different kinds of records.

The problem then remains as to how best represent and compare these disparate data sets in a way that would overcome the inherent vague methodological nature of cultural landscapes investigation, without becoming too restrictive in the analysis of the community, and hence lose the flexibility of the ambiguous approach that underlies cultural landscapes investigation? The key to this dilemma lies in the combined use of thematic categorisation, ethno-archaeological analysis and new software for geographical data interpretation (GIS).

I) Overview

GIS technology links spatial representations of reality (i.e. maps) with related information stored in a database tables. It provides a powerful medium for spatial and temporal analysis of the geographical distributions of features. The main functionality of GIS systems for cultural landscapes studies lies in its ability to compare and contrast multiple layers of different types of data spatially, through the overlaying of individual layers of information that are represented spatially. These systems have been used in the past to enable large volumes of archaeological data to be managed and locational details examined at multiple scales using different themes within an associated database (e.g. Allen et al, 1990; Lock and Stančič, 1995; Gillings et al, 1999), and has enabled extraction and analysis of potential archaeological patterns encoded into the landscape (e.g. Massagrande 1995; Johnston and Witter 1996; Murphy 1996; Lock et al. 1999). GIS has also been extensively utilised in previous archaeological studies to document historical site utilisation changes over time using time slice analysis (Hastenstab and Resnick 1990; Johnson 1997, 1998, 2003; Mather and Watts 1998; Plöger 1998; Godden Mackay Logan Heritage Consultants 2000; Stewart 2001), and the prediction of archaeological site locations based on economic, cultural or environmental determinants (e.g. Hastenstab and Resnic 1990; Wescott and Kuiper 2000). Of note, some studies (Boyd et al. 1995; Boyd et al. 1996a, 1996b; Boyd and Pathirana n.d.; Maarleveld 2003:123) have suggested that changing historic coastal landscapes and/or the subsequent access restrictions to maritime traffic should be examined to

determine the potential location of underwater archaeological sites. Other studies (Duncan 2000, 2004c; Duncan and Puotinen 2002) have demonstrated that spatial patterning of archaeological sites was often predictable, as (particularly in a maritime context) those involved in various industries often utilised spatially distinct areas of the landscape, or used the same areas in different ways to other mariners. The effectiveness of using GIS to map multivalent Indigenous cultural landscapes has also been succinctly demonstrated by Monaghan (2003, 2005), who used an ethno-archaeological approach to pinpoint appropriate seasonal occupation areas based on environmental factors and local knowledge networks gleaned from oral histories, documentary records, ethnography and satellite imagery.

II) Local Methodological Applications of GIS For Landscape Analysis

The past proven success of the application of GIS to archaeological research presented exciting new avenues for the representation of data in this study. The ability of GIS to overlay and analyse multiple layers of data at many different scales meshes readily with the concept of multivalent landscapes that exist on many different levels (both spatially and temporally), and therefore facilitates examination of the multiplicity of landscape almost instantaneously at many different scales and locations. GIS systems also do not impose boundaries between different environmental mediums (unless programmed to do so), but offer the potential to examine these areas seamlessly. Furthermore, the ability to analyse data changes over time facilitates investigation of dynamic and continuing landscape change at many different scales. Perhaps the greatest utility of GIS lies in its ability to allow the comparison of often vastly different types of data, and thus effectively demonstrate the overlap and differences between different landscape users worlds. Therefore, GIS presented an ideal data manipulation tool for analysis of disparate data sources because of its strong structural similarities to the cultural landscapes paradigm itself.

(a) Input of Data Sources

(i) Oral Histories/ Local Traditional Knowledge

Many hundreds of GIS data sets were created before any cultural landscapes analysis could begin in this study. Oral history information outlined on hydrographic charts during interviews (as described above) was converted into GIS coverages by digitising/transcribing the recorded material onto a geo-referenced version of the same chart. Observations by the informant were stored in a database table that linked to that information layer (coverage), which enabled features and cultural areas to be viewed and queried according to the standardised coded database fields (the structure of the database fields is discussed in the section below). A new

coverage was produced for each informant to enable easier interpretation of interview results, which often became obscured if incorporated into a single coverage.

(b) Using Historic Documentary Records For Site Relocation

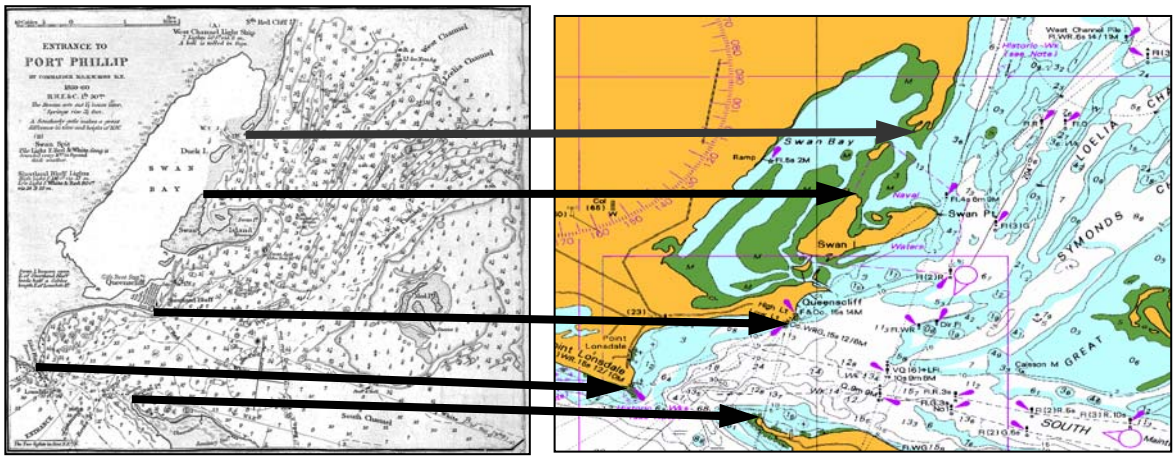

Figure 3.4: Example of the geo-referencing process, where historic charts (left) are assigned modern geographical coordinates from Hydrographic GIS databases (right). (Note: The ground points used here are for illustrative purposes only, as some are not permanent points).

An innovative GIS methodology that utilised some similar aspects of Mather and Watts' (1998) methodology was independently developed by the author as the strategy for predictive analysis of archaeological sites in the study region. Historical cartographic and aerial image sources were overlaid onto modern primary map coverages using a common GIS process called geo-referencing, which then enabled modern geographical coordinate system to be applied to the historic sources. The resultant GIS image coverages were digitised (electronically traced) and relevant historical information entered into an attached database. This process enabled the actual geographical coordinates for former historical feature locations (such as maritime infrastructure sites and environmental coastlines) to be extracted from the GIS. The positions of these historic sites were then relocated with a GPS (satellite navigation) unit and ground-truthed to determine the existence of any archaeological sites at these locations. Scores of primary cartographic data sources (as in section outlined above) which evidenced various maritime thematic infrastructure locations were used in this process, enabling the extraction of their current geographical positions to aid in fieldwork inspection planning and potential site identification. This process also worked in reverse, where archaeological sites were identified by their locational correspondence to sites known from historic maps (Duncan 2002). The technical aspects, accuracy issues and problems encountered with this process are discussed further Appendix A-8.

(c) Archaeological Site Plotting

This technique mentioned above proved to be remarkably effective for relocating archaeological sites, both above and below water, and was subsequently successfully used by the author in several other archaeological projects around Victoria (Duncan 2002, 2003a, 2003b, 2004a, 2004b). Although this method has been used by other archaeological/historical studies to identify former historic use of a planned excavation area, or to document the accumulated history of a given region (e.g. Johnson 2003), it is possibly the first time (to the author's knowledge) that it has been used to physically identify and locate potential underwater archaeological sites.

A modern aerial GIS coverage was also used to identify potential archaeological features to be investigated, and several visible features (both under and above water) from this coverage proved upon inspection to be archaeological sites. It also enabled the sites identified from geo-referenced historic maps and charts to be overlaid over the aerial imagery, allowing better interpretation of relocated ground features.

GPS coordinates for all archaeological sites were entered into a GIS database and linked to an associated database table. The location of these sites was interpreted in conjunction with the GIS aerial image coverage mentioned above to produce the site plans. Selected digital photographic images were hot-linked to the GIS coverage to allow visual analysis of the site within the GIS format. The association of seemingly unrelated or inconsequential archaeological sites to other maritime infrastructure and activities was investigated visually using GIS to determine any spatial relationships, and investigated further where necessary using the techniques described below.

(d) Time Slice Analysis/ Map Production

This study employed the method of time slice analysis, where the differences in a sequence of geo-referenced historic maps and charts were examined to analyse changes in channel and shore-line geomorphology of Queenscliff and Port Phillip Bay to identify the effects on maritime coastal use and the probable location of maritime archaeological sites. This process further aided with the exploration of the effects of changing environmental conditions on maritime activities.

GIS also proved to be an effective medium for the production of cultural landscape plans. Miles have been used as the standard unit when producing maps for this study, as this was the common unit used by informants when describing distances, the only exception being when

archaeological sites have been surveyed (when metre measurements were adopted for larger scale sites).

(e) Database Structure: Thematic Subfields

Having collected and collated the information, a thematic approach to investigation of maritime industries was adopted in this study to further analyse the data sets and archaeological site patterning. The range of potential landscape features in the study area proved to be substantial, and in order to manage the data, a GIS database (Arcview 3.2 and later ARCGIS 9) was created to track site localities as they arose from historical, ethnographic and oral history sources. This aided the identification of the actual geographical location of former historical feature locations.

GIS offered the potential to compare and contrast numerous types of disparate data sources. To facilitate this approach, a standard database with common fields (that were applied to all GIS data layers) was designed for each individual data set. These database fields included artefact and landscape feature type, date information etc (the final design of the data GIS data fields is shown below Appendix A-8), but most importantly a series of fields were assigned which noted every feature's associations with individual maritime themes. These fields facilitated analysis of individual and community landscapes on a number of levels. Firstly, the location physical and cognitive areas of significance could be mapped for each individual to demonstrate their own personal cultural landscapes. This enabled each personal GIS dataset to be overlaid to compare and contrast the concordances and ambiguities expressed between individual landscapes of members of the same thematic community, which might be evident by spatial clustering and/or dispersal of significant features or changes in their locations over time. Similar observations could also be investigated between different maritime sub-groups, and particularly in regard to how the activities of one group might enhance or inhibit the development of the landscapes of others.

A problem often experienced in other traditional thematic archaeological studies, is that by necessity some sites which are used by multiple users groups have commonly been allocated relevance to one theme only because of structural limitations within the recording system. It was at this point that the use of themes became a key element for the examination of different landscapes in this study, as the thematic fields could be used to indicate an individual's association with a specific sub-group in the community. The GIS database allowed individual landscapes features to be encoded and viewed with more than one associated thematic value (through the assignment of separate fields for individual user groups, informants or other data

sources), which thus enabled easier visual analysis of site patterning using different combinations of themes or data source sets.

The thematic fields also allowed landscape features to be assigned multiple associations to various themes, which then elucidated multiplicity of values that might be attached to them by different maritime groups. Furthermore, this aspect also applied to personal landscape participants, who might have cross-cutting ties across different thematic groups. These facets highlighted and facilitated investigative access to the multivalent considerations of landscape at and across various levels. This was of particular importance to this study, as many maritime landscape themes and sites overlapped and were interlinked, and were often valued by different maritime sub-groups for highly diverse reasons.

The use of a GIS database system therefore enabled large volumes of disparate data to be managed and the location to be viewed at different scales using disparate themes encoded within an associated database, which further allowed the extraction and analysis of potential patterns encoded into the landscape. The structure of the database fields represents the culmination of many modified attempts to successfully organise the data to analyse landscape features in many different ways. However, the setup of the database is such that the design can be modified to incorporate additional fields as new sources of data and thematic activities are identified. Further more complicated analysis of site patterning is possible using GIS interpretation, but this was not attempted in this study due to time restrictions.

(f) Ethno-archaeological analysis using GIS

Once the database was established, landscape features from multiple data sources could be overlaid for comparison, which provided significant insights into landscape practices and perceptions. Using this method, it was possible to overlay observations of the types of practices, material culture and perceptive values that were associated with any given theme (that had been identified through documentary and folklore sources), and then compare these with the archaeological record of what had been relocated in those areas. The subsequent ethno-archaeological observations often provided significant insights into previously uncharacterised/unrecognised cultural practices and their corresponding archaeological signatures. This process also worked in reverse, where archaeological sites informed of undocumented practices linked to maritime groups known to use those areas.

Furthermore, the mapping of cognitive perceptions associated with identified significant sites was also used to ethno-archaeologically assign social meaning to relict landscapes and features.

This was particularly important when identifying tangible remains that demonstrated the complex sociological, political and cultural ideologies that drove landscape development at many different levels for each theme and at a community level. It was only once the structuring agents for each theme were identified, that comparative analysis of the shared community landscape(s) could take place, as the underlying ideological, political, economic agendas and physical determinants of landscape structure for each theme were understood, and the interactive effects of each landscape could be understood in relation to the others.

These results were examined collectively to identify the trends and data sets that might characterise and strengthen/inhibit further investigation thematic landscapes. The differences between the characterisations of each thematic landscape were further investigated to try to identify the problems associated with its access.

5) Discussion

It has been shown that the investigation of cultural landscapes relies on many highly diverse and disparate data sources, whose information is often fragmentary or selective by nature. The information contained in these data sets is often biased towards the viewpoint of the recorder, or notes only particular types of information. Furthermore, the availability of these data sets varies widely and is often dependent on the research focus of previous studies. However, the prejudicial nature of these data sources can be used to advantage to extract aspects of landscape that have previously not been considered. This is particularly the case where, what in the past was considered bias, was used to extract alternative cognitive perceptions or values of the observer. The strength of the proposed methodological cultural landscapes approach has been shown to lie in the combination of these often very disparate data sets which have continual overlap. As such, particular attention was also given in forthcoming analyses to what types of data informed of different themes, which was central for later assessment of the effectiveness of the methodology. The ambiguity of data sources and multivalency of landscapes had further connotations for the proposed investigation of cultural landscapes, as will be seen in the following chapters with particular reference to the case study area of Queenscliff.

It can be seen from the discussion above that in any situation where thematic landscapes are studied, the effectiveness of the study will be dependent on the level of informative resources that are available. The multivalent nature of landscape studies will always preclude complete analysis of every possible landscape, as all are unique, diverse and/or boundless. Therefore the scope of this study was refined to a limited number of thematic landscapes that would best

demonstrate the differential application of the methodology. This was achieved through utilisation of a variety of diverse permutations of data sources of what might be considered the most influential maritime activities in this district.

This approach first required that a broad consideration of the study area be undertaken to check the availability of resources for individual themes, and the over-arching context of each activity within the townships framework. The next chapter will present a background synthesis of maritime activities in the town of Queenscliff and southern Port Phillip Bay, which will aid in the identification of significant themes that will be addressed in further detail in later chapters to demonstrate the practical application of the proposed methodology in a real world scenario.

> ...being so close to the Bay, and so close to Pts Lonsdale and Nepean with their fangs ready to tear to pieces any unfortunate vessel that came within their reach, it was only natural that the most exciting incidents in Queenscliff life have always been connected with the sea. (Dod 1931:66)

Chapter Four: Queenscliffe as Study Area

1) Introduction

The township of Queenscliff lies at the confluence of several major shipping routes of local, national and international significance. It is the home for many major maritime extractive and service industries, and has played a pivotal role in the development of the ports of Melbourne and Geelong as one of the earliest maritime service centres in the state. The hazardous nature of the region has also been a central factor in the growth of the township, and has led to the proliferation of many maritime safety services.

Queenscliff presents an ideal contextual setting in which to examine a range of maritime cultural landscapes using the proposed methodology, and the rich scope of maritime activities in this region offered the level of diversification required to adequately assess the versatility of the new approach. An overview of the historical background of the Queenscliff region is used to introduce the rich fabric of thematic maritime activities present in the study area, which far exceeded the anticipated extent of maritime trades expected at the beginning of the study.

This chapter begins with a traditional overview of the study area, which includes an environmental/ geographical history and historical overview. Although this approach normally divides "natural" from "cultural" landscape components, in this case the distinction between the two elements is used to demonstrate the interconnectedness of the environmental surrounds and boundaries with cultural activities (and vice versa), a theme which will be explored in further depth throughout this thesis. The geography of the "natural" environment will be shown to shape the location and types of activities being undertaken in the region, but it will also be later demonstrated that cultural influences actively shape and reshape the environmental theatre, both physically and cognitively. This style of approach also investigates the relationships between the various social groups contained within those areas, and sets the scene for later more in-depth analyses of specific thematic cultural landscapes.

The evolution of the township will be seen to be heavily reliant on the development of several administrative maritime services that service passing shipping, which, together with the inauguration of many extractive and mercantile industries, subsequently led to the installation of

a vast range of supportive maritime infrastructure. This historical consideration is used to contextualise the setting of several key maritime themes which were seen to be influential in the development of the maritime landscapes of Queenscliff which warrant further consideration for testing the new landscapes methodology.

2) Physical Cultural Landscapes: Environmental History

A) Geomorphology

Port Phillip Bay (locally known as "The Bay") was formed when the Pleistocene coastal plain and tectonic depression was flooded to form a semi-encapsulated bay over 60 km wide at its extremities (Bird 1964:35). A horseshoe shaped underwater chasm up to 95 m deep straddles the entrance to Port Phillip Bay, and is locally known as The Wall. The area was originally strewn with isolated uncharted pinnacles which often rose to within a few metres of the surface. These pinnacles were usually discovered by vessels striking them, and were often removed by blasting upon discovery in efforts to construct a safe channel through the Heads (Anderson 1997a:7-8).

A series of sand and mud banks form a delta from the former archaic Maribyrnong River mouth beginning approximately 5 km from The Rip and extending in a 5 km radius. The reduction in current velocity (and subsequent deposition of waterborne sediments) associated with tidal changes and channel narrowing at The Rip have produced an extensive sandbank delta. These banks are interspersed with up to six naturally occurring channels, cut by the former river course and tidal influences. The sediment in this area is highly dynamic, and only two channels of sufficient width (the West and South Channels) offer reliable courses for safe navigation; a third (Coles Channel) is navigable only through regular buoyage updates (Bird 1964: 138).

The Pt Lonsdale to Queenscliff shoreline consists of broad shore platforms cut in Pleistocene dunes faced by rugged cliffs. Shallow shelly lagoons lie inland between dune calcarenite ridges. Swan Bay is characterised by a shallow landlocked tidal marine region connecting to Port Phillip, and is partly enclosed by spits and barrier islands, and bordered by extensive salt marsh. Edwards Point is a recurved sand and shingle spit lined with salt marshes, shallow lagoons and fringing sandy recurves, and is a state faunal reserve. Swan Island is characterised by a large mobile sandy foreshore and spit, which is known for its constant deposition and erosion. The Pt Nepean to Observatory Point (Portsea) foreshore is similar to Pt Lonsdale, but also with parallel dune ridges on the inside of the bay and steep rugged cliffs fronted by shore platforms on the

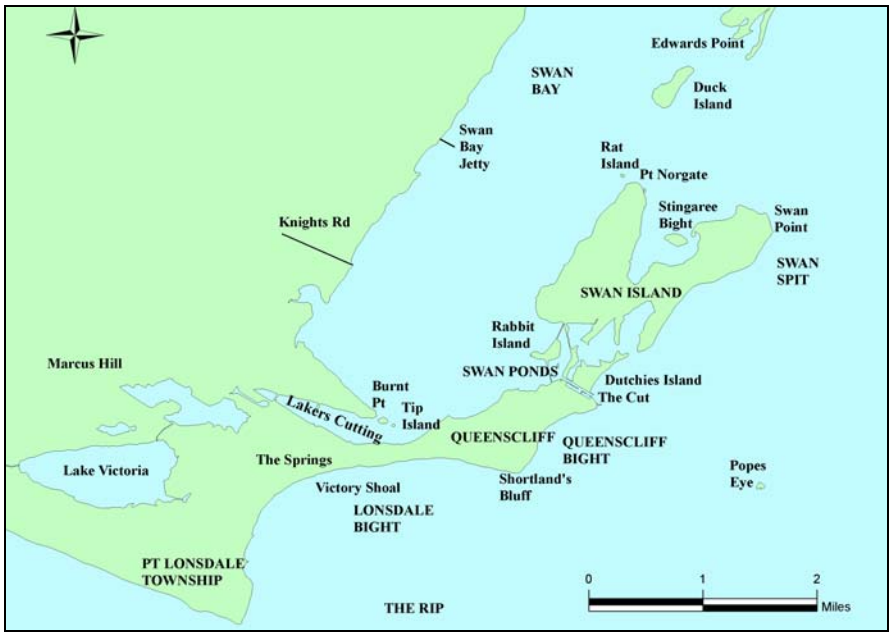

Figure 4. 1: Local places of interest in the Queenscliffe area.

Figure 4. 2: Street map of Queenscliff (After Geelong Advertiser Pty Ltd, 2006: Map 30).

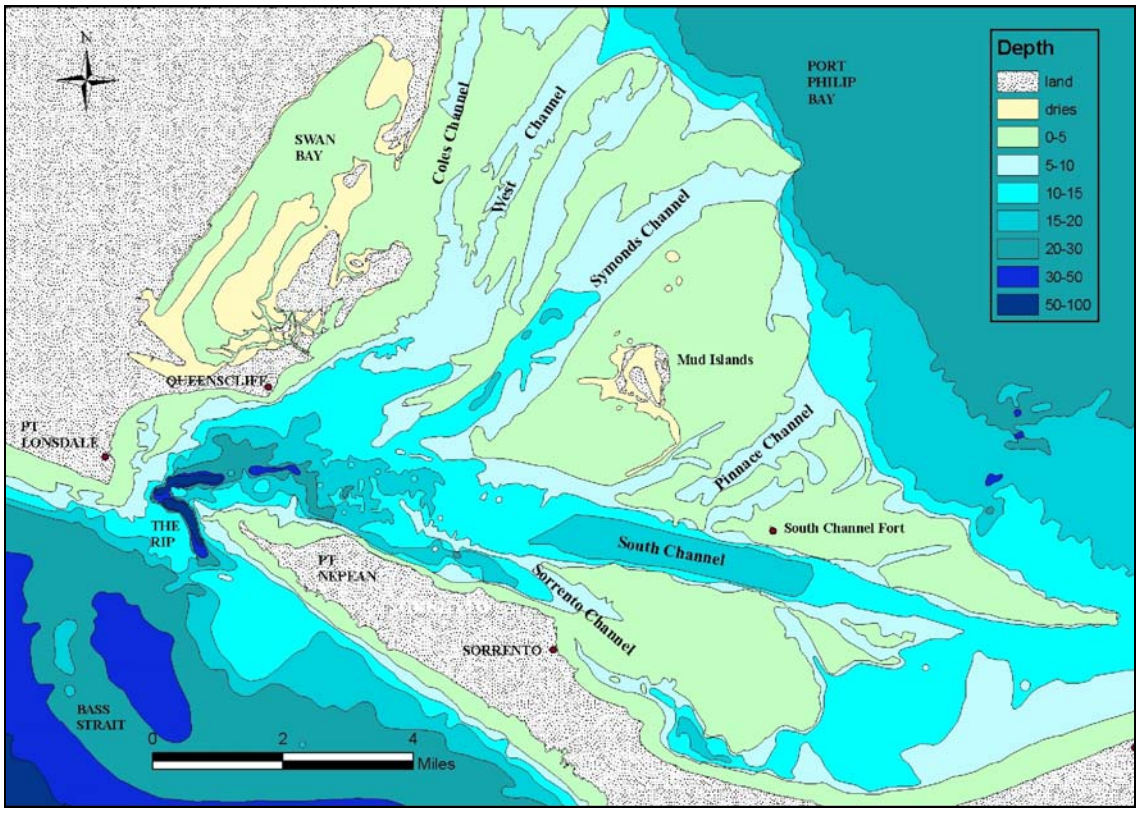

Figure 4. 3: Bathymetry and channels of the study area.

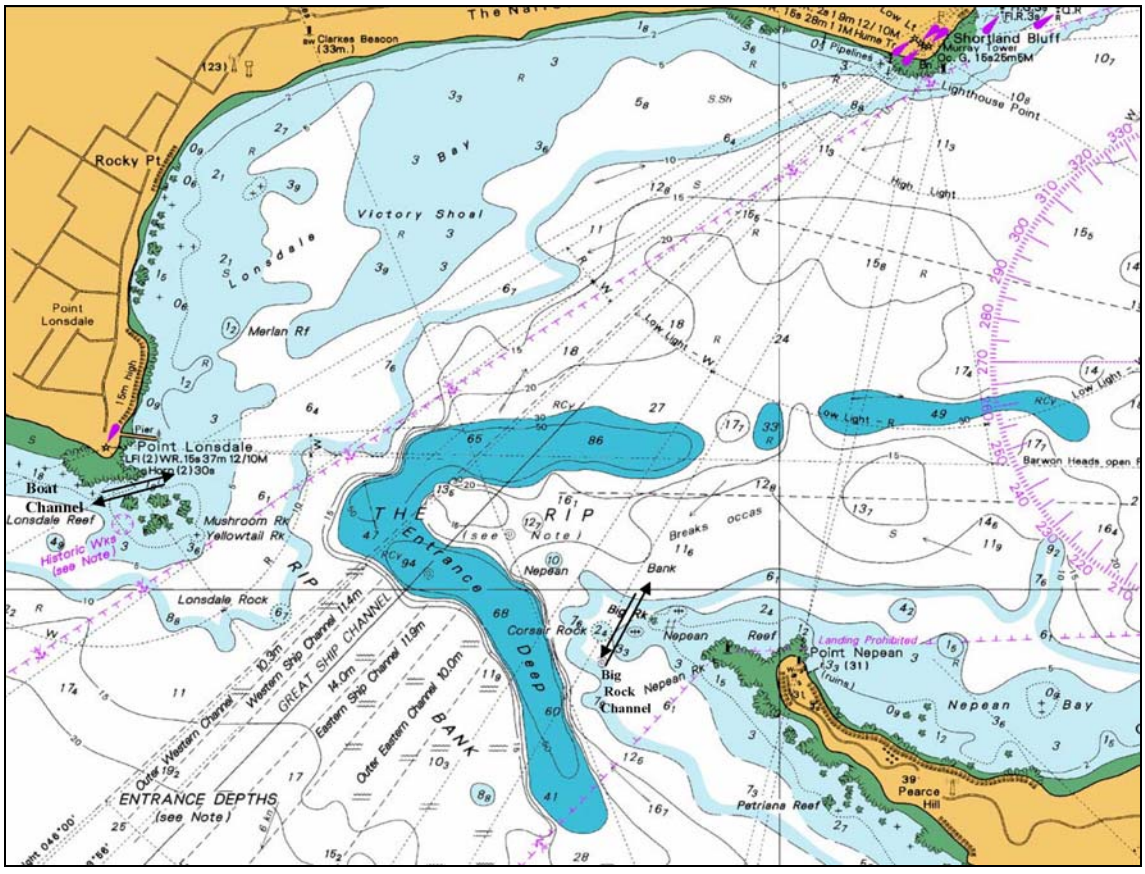

Figure 4. 4: Submerged features in The Rip (after AUS Chart 143).

exposed ocean precincts. Located in the centre of the delta banks lies the Mud Islands, which are enclosed low lying sandy and swampy barrier islands around a central lagoon and salt marsh enclave formed by wave action (Bird 1977:52, 56).

B) Tidal Influences, Currents and Effects on Mariners

The Port Phillip Heads area is known for its often unpredictable conditions, and is considered extremely dangerous. The semi-enclosed topography of the Heads entrance constricted the tidal water flow either outside or inside the inlet (dependent on high or low tides), leading to a disparity of water levels of The Bay and ocean outside (Bird 1964:9). The tidal influx is delayed by the narrow entrance, as only a restricted amount of water can flow through the inlet at any one time, a similar situation to bath water at the plug hole (see Figure 4.5). The water levels inside The Bay are therefore alternately higher or lower than the ocean sea level outside, dependent on the nature of the tide. The water flow continues until equilibrium is achieved midway between high and low tides, when currents slow and reverse to produce the period known as "slack water". However, slack water at The Heads actually occurs midway through the oceanic tidal stream, usually three hours after the tidal change, and this is the opposite of the generally expected rule where slack water occurs concurrent with the change of tide (Anderson 1997a:7).

Furthermore, the water flow through the entrance to Port Phillip Bay is funnelled through a one mile wide entrance, locally known as The Rip, resulting in a severe tidal current of up to 7 knots. Tidal waters are known to hit the edge of The Wall (the edge of the underwater Rip chasm) and are redirected upwards towards the surface and along the wall, resulting in unpredictable eddies and whirlpools, and currents directed towards the shore (Yule 1876:271; Loney 1989a:1). The tidal flow also runs slightly athwart the entrance with great force, which was constricted for at least half of its width by shoal reefs and pinnacles on either side, and added to a confused sea and tidal rip. When sailing vessels attempted to navigate The Rip against a strong ebb tide, the vessels were often swept against the eastern peninsula, especially as the oceanic wind frequently eased off as the tidal water was reached, leaving the vessels unmanageable. The combination of the tides with a shallower approach reef outside the Heads and a very deep chasm inside meant The Rip was often subject to high confused seas, especially in a south west gale (Yule 1876:305). Although ocean swells do not enter Port Phillip due to the narrowness of the entrance, wind generated waves are a constant danger within The Bay (Bird 1964:13, 14).

Mariners arriving at The Rip therefore faced multiple unexpected environmental dangers. Masters unfamiliar with the unique tidal discrepancies often attempted to enter The Rip at high or low tide (the anticipated slack water period), and the strong currents usually swept the vessels towards the shore where they were wrecked. In the founding days of the colony, most vessels were of limited draught, and therefore had adequate clearance to safely navigate through the field of pinnacles in The Rip. However, with the influx of international and other non-local vessels during the Victorian gold rush, many larger deeper drafted ships often struck these submerged rocks, and as vessel losses increased dramatically, The Heads at Port Phillip Bay became notorious as a shipwreck trap.

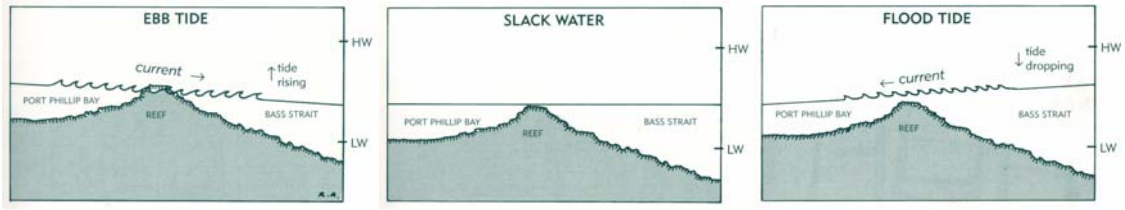

Figure 4. 5: Model of tidal influences at The Rip. HW = High Water, LW = Low Water (After Anderson 1997a: 7).

3) New Maritime Landscapes: European Exploration and Mapping

During an exploratory voyage in a whaleboat in December 1797, Lt George Bass observed a westerly swell at the newly discovered Westernport Bay, indicating the existence of a strait between Van Diemen's Land (Tasmania) and mainland Australia. The discovery was of major strategic and economic significance to Britain, and sparked further exploration by Matthew Flinders and Bass in 1798 that proved the strait's existence. A chart of Bass Strait produced in England later that year was given to Captain Grant of the *Lady Nelson*, which became the first vessel ever to navigate through the strait in 1800, and was followed quickly by two other merchant vessels. In 1801, the *Lady Nelson* was sent to survey the new region as far west as Cape Otway, but was confined to Westernport Bay by gales (where a survey was made) until forced to abandon the venture. Another inspection was undertaken in the same vessel under Acting Lt Murray, who discovered the entrance to a new harbour in January 1802. The ship's master was despatched in a launch to reconnoitre for a channel entrance, and he reported a large harbour inside The Heads. In February 1802, the *Lady Nelson* entered the passage where Murray noted the strong rippling due to the force of the tide (Scurfield and Scurfield 1993:14).

The Bay was initially named Port King after the then Governor of NSW, who later renamed it Port Phillip in honour of the first Governor of Port Jackson. Murray produced two charts of the

area based on partial surveys to give some indication of the size and orientation of the area, and one was published in London in 1803. Around this time (1802), two French vessels, the *Le Naturiste* and *Le Geographe*, were surveying the southern Australian coastline, and after becoming separated in a storm in Bass Strait, the latter under the command of Nicholas Baudin continued mapping west along the Victorian coastline until he met with an expedition run by Flinders in the *Investigator* (who was mapping the south coast) in Encounter Bay, South Australia. Flinders mapped the Victorian and King Island coasts, and eventually entered Port Phillip on April 26th that year. He remained there until early May, and upon his return to Port Jackson (later known as Sydney), he reported the harbour was "capable of receiving and sheltering a larger fleet than ever went to sea" (Scurfield and Scurfield 1993: 15-6). The news of his encounter with Baudin and the subsequent arrival of the two French vessels that year prompted suspicions of French colonisation plans for southern Australia, and eventually led to the establishment of the abortive settlement in Sullivans Bay (Sorrento) in 1803/1804. Lt Robbins and Acting Surveyor Charles Grimes were sent to survey King Island and Port Phillip in late 1802 in the *Cumberland*, and they discovered the River Yarra, the later site of Melbourne. With the arrival of the *HMS Calcutta* in October 1803, Lt Tuckey continued to survey large areas of the Bay (Scurfield and Scurfield 1993:15-6; Coutts 1981).

Many subsequent private explorations of Port Phillip Bay were undertaken by speculative pastoralists from NSW and Tasmania looking for lush grazing lands prior to the official settlement of Victoria. These included John Batman in the *Rebecca* in May 1835, who landed at Indented Head and Corio Bay (Geelong), where he "purchased" rich grazing lands from the local Indigenous people (*Wathaurong*) and was later followed by his brother Henry and surveyor John Wedge. They subsequently used their contact with an escaped convict, William Buckley, to improve their relations with the *Wathaurong* community. John Fawkner arrived in the *Enterprise* in July 1835, where he also landed at Indented Head and explored the west coasts of the Bay and both eventually founded a small settlement at the future site of Melbourne in 1835 (Sutherland 1888a:97-123). The data from Flinders' and Grimes' surveys were published in 1814, and were to be the main cartographic references for this area until 1836, when Captain Hobson in the *HMS Rattlesnake* was despatched to assert colonial authority over the new illegal pastoral settlements that had sprung up at the sites of Melbourne and Portland. The *Rattlesnake* extensively surveyed the harbour, channels and anchorages of Port Phillip, including the southern portion of the Bay in 1837 and a semi-sheltered peninsula on the western side (named Shortland's Bluff after one of the survey crew) was noted for its potential as a pilots station (Scurfield and Scurfield 1993:17-20). The development of Melbourne as a major port from 1836 onwards saw increased shipping traffic through The Heads, and the strategic semi-

sheltered Shortland's Bluff close to the entrance would later be assigned great significance for its potential as a maritime service centre.

4) Genesis of an Early Maritime Centre

A) Development of Government Maritime Services and Town Foundation

The region around Shortland's Bluff was important to the Wathaurong community owing to its proximity to the rich marine resources of Port Phillip and Swan Bay, and was the site of feasts that coincided with seasonal bird and seafood availability (Dod 1931:7, 80). The area was later used as part of a cattle and sheep station from 1845, until the area was surveyed for the township of Queenscliff in 1853 (QS 27/1/1912; Dod 1931:8, 9; Thompson n.d.:1; Fanning 1893). Swan Island was also initially used as a pasture for foaling breeding mares, and it later became a cattle and dairy station (Dod 1931:27).

The Queenscliff region had been the focus for a range of maritime services since at least 1839, when it was realised that reliable pilotage services were required to navigate the hazardous waters of The Rip. The Heads region had already proven dangerous to shipping, and the first of many recorded strandings and shipwrecks occurred in 1838 (PHO 1853 as cited in Love n.d). A pilots station began operation at Shortland's Bluff in 1839, when a local ships master (George Tobin), applied for and was granted a commercial pilots licence. Further mariners also applied originally as independent operators, and four more pilots were appointed over the next two years. By 1841, four pilots and five boatmen occupied tents on the beach in the lee of Shortland's Bluff, until houses were later built for them at the top of the Bluff; and this settlement was to prove the foundation for the subsequent Queenscliff township (Noble 1979:8, 9, 42). In the early years of operation, pilots initially embarked on vessels inside the Rip, but later boarded outside after many wrecks had occurred at or near the Heads. Many changes to pilotage routines took place over the years, and eventually two cruising ships alternated to patrol Bass Strait outside the Bay, with the backup vessel moored in Queenscliff Bight (Fanning 1892a). Pilotage continues to be an integral maritime industry based at Queenscliff to this day.

The increase in wrecks at the Heads highlighted the necessity for a reliable system of navigable aids and reliable charts. In 1841 pilots requested that a disused Melbourne flagstaff be installed at Shortland's Bluff to act as a signal staff for broadcasting tidal movements and communication with incoming vessels (LTGL 41/667). That same year lighthouses were proposed for Shortland's Bluff and Cape Schank (GA 24/4/1841:2; LTGL 41/908), with lead lights proposed for the South and West Channels (LTGL 40/319, 41/532). The first Shortland's

Bluff light and signal keeper positions were hotly contested (LTGL 39/86, 42/17, 42/478, 42/1530, 42/516, 42/2041). When construction of the first lighthouse began in 1842, sandstone was quarried from the base of Shortland's Bluff to build a tower with an attached storeroom and accommodation (Boys 1841; LTGL 42/401, 42/404; Cuzens 1912:1; Raison 1997:2). Although the light was operational by March 1843 (PPG 29/3/1843:2) several shipwrecks still occurred in the area, which led to the construction of an additional lighthouse on the southern side of the bluff as a complementary leading mark through The Rip (Burdwood 1855:121; Raison 1997:5). A network of lights and beacons to guide vessels through Port Phillip were built on Shortland's Bluff, Pt Lonsdale and around (and in) The Bay, and were maintained by the Lighthouse Service, which has continued its presence in the area until the modern day.

Hydrographic surveying continued to document submerged hazards in The Bay, when Cmdr. Stokes (British Admiralty) charted the southern Australian coastline in the *Beagle* in 1842/43. With the increase in gold rush traffic beginning in 1851, further surveys of Port Phillip were undertaken by Capt. Charles Ferguson (Chief Harbour Master) to document the changing marine hazards of The Bay. Cmdr. Ross (Marine Surveyor to the Colony) undertook detailed surveys of Port Phillip in 1858/59, and further surveys were undertaken by Cox (1860-66), Stanley (1872-74), Norgate (1882), and Mason (1896), all of whom noted the shifting channel locations in the Bay (Scurfield and Scurfield 1993:17-20). A Hydrographic Office operated out of Queenscliff until the end of the twentieth century.

From 1903 onwards, the Ports and Harbours Department was also involved in the extensive modification and deepening of The Rip and various channels through dredging and blasting (QS 29/7/1911; Noble 1979:49-50). These operations not only increased the size of vessels that could enter the Bay, but also led to dramatic changes in the local maritime environment, an element that will be examined in further detail later throughout this study.

Around 1852 after the grazier's lease expired, the government reclaimed the area and established a subdivision of allotments for use as a seaside resort during the summer months, as it was protected from prevailing winds and had views of passing shipping. The first land sale held in 1853 sold blocks predominantly to the pilots and lighthouse men, but also to wealthy business men and successful gold diggers from Melbourne, Geelong and the Western District who either required holiday homes (Dod 1931:8-9) or anticipated the value of the area as a seaside resort (QS 27/1/1912). The region was renamed Queenscliff prior to the first land sales (QS 28/2/1914), and the name Shortland's Bluff subsequently referred to the prominent headland only. The township of Queenscliff was defined by an isthmus leading to a narrow

peninsula projecting into the south west side of Port Phillip Bay. The borough of Queenscliffe later encompassed the later township of Pt Lonsdale 5km to the south west.

By 1854 a row of houses for the pilots service (Pilots Row) had been built by the government, along with the first summer cottage and a hotel. Tourism was to play a major role in the development of the town from this time onwards (Thompson n.d.:1), and was serviced predominantly by seaborne transport in the form of bay steamers and specialised ferry transport which contributed to the installation of substantial piers. Furthermore, the popularity of sea bathing and sea air for health purposes led to the establishment of a series of enclosed sea baths, a number of convalescent homes for sick children (*Cottage by the Sea*, *Santa Casa*), retreats for clergy (*Lathemstowe*) and other tourist facilities (such as grand hotels, guesthouses, promenades and business districts) from the earliest periods of settlement, which shaped the town's foreshore aesthetics and use for many years. Tourists came from as far afield as Ballarat, Bendigo, Melbourne, Geelong and the Western arming districts of Victoria. The initial high cost of ferry transportation led to the development of Queenscliff as an exclusive tourist destination for the high class social elite. However, with the introduction of a train connection to the township in 1879, along with cheaper tourist excursion fares around the same time, enabled lower and middle class tourists from Melbourne to visit the township (QS 21/1/1884, 26/5/1894; Inglis 1999:73-8). The influx of thousands of these day trip and weekend visitors changed the social dynamics of tourism in Queenscliff (which had previously been considered a genteel society), but also opened many new opportunities for local residents and tourism operators. Tourism peaked around the turn of the nineteenth century, and changed markedly with the transition from the use of sea baths to open sea bathing which was associated with relaxed attitudes to mixed sexes bathing (Wells 1982:86-7). Tourism still plays an important role in the area even today.

The influx of shipping through the area generated the need for many other maritime services in this area. Customs officials were responsible for the enforcement of quarantine and passenger regulations in 1852 (Day 1992: 283-5). Many steamers during the gold rush were overcrowded and offered poor accommodation conditions, leading to disease outbreaks and the possible introduction of epidemics into the colony. When the emigrant ship *Ticonderoga* arrived at Port Phillip Heads in 1852, many of the passenger and crew were sick with typhus, and 100 people had already died. A supply ship was equipped with medicines and food to treat and feed the ill, along with a specifically purchased Quarantine Hulk (*Lysander*) were taken to a bay west of Portsea with enough supplies to last three months (GA 6/11/1852:2). Over 180 of the passengers died from typhus and scarlet fever (Draper, 1900:9). Similar occurrences on other immigrant vessels in the same period (e.g. *Marco Polo*, *Borneuf*, and *Wanata*) led to sweeping

reforms pertaining to the types of vessels thereon of that could be used for immigration, along with recommended standards of hygiene. A permanent Quarantine Station was established west of Portsea (at Ticonderoga Bay), and an Immigration Officer was appointed at Queenscliff to process incoming immigrants, inspect conditions onboard incoming vessels, and ensure adequate stores had been carried onboard (GA 30/10/1854; Kruithof 2002:103-5). In 1852, the Health Officer (who inspected immigrants of foreign vessels for disease) was transferred from Portsea to Queenscliff. Both officers used whaleboats that were launched off the beach to board vessels inside the Heads (Dod 1931:9; Noble 1979:43). The Quarantine Station was located at Portsea until at least 1952, when most of the facility was taken over by the army (Welch 1969:85).

The increase in shipping traffic through the Heads led to an inevitable rise in shipping mishaps, and the need to establish rescue services. Pilots stationed at the Bluff initially assisted distressed vessels from the 1840s onwards until a former ships lifeboat was provided for Shortland's Bluff in 1856 (Fanning 1892b; McGrath n.d.:1). The continued incidence of local shipping mishaps led to the installation of the first of a series of purpose built lifesaving lifeboats to rescue shipwreck survivors. The lifeboat service remained as an integral part of the Queenscliff landscape until it was disbanded in 1979 (Noble 1979:49; Boyd 1996:3).

The increase in smuggling in this area and around the entire colony, along with blatant looting of shipwrecks, led to a token Customs force being stationed at Shortland's Bluff in 1853. However, given the large expanse of coastline and hundreds of vessels entering the Heads each year, the complement of a junior customs officer and boat crew proved ineffectual. A request was made in 1854 that an experienced customs officer and two policemen be stationed at Shortland's Bluff (Day 1992:292). By 1862, the customs boat stationed at Queenscliff was making raids in search of smuggled spirits as far north as Portarlington, but raised the ire of the local population when a raid was carried out on the Sabbath (GA 8/1/1863:2, 9/3/1863:3), and the boat was removed later that same year (Loney 1989a:5). By 1867, the Queenscliff Customs station was removed, prompting concern that the former smuggling trade that existed there would be renewed (GA 18/4/1867:3). After this time Customs Officers based in Geelong patrolled the area as necessary (Day 1992).

The growth of the Victorian colony also led to an increased need to improve communications with the outside world. By 1852, the steamer *Great Britain* had been engaged by the Royal Mail Steam Navigation Company for the first regular run from Liverpool (Noble 1979:46). A new post office was proposed for Queenscliff in 1853, where ships' mail would be landed and conveyed overland to Geelong (and vice versa) (GA 27/4/1853:2). Initial problems were

experienced when the mail service was introduced in 1853, and often the pilots in charge of the incoming vessels would not stop to allow the postmaster to take the mail off the vessel, which led to tension between the pilots and Customs Landing Waiter (GA 13/9/1853). This situation was probably the result of the (then) recent policy for pilots to board vessels outside the Heads (MMH 4/2/1853:4). The landing of the Western District and Geelong mail at Queenscliff proved controversial, as it took valuable transport trade away from Melbourne, and an inquiry into this practice was instituted after agitation from Melbourne businesses (GA 23/9/1853:2). Additionally, Melbourne bound vessels were required to either heave to or anchor within one mile of Shortland's Bluff to await the Post Office boat, which only operated in the morning. Some mariners attempted to bypass the Queenscliff mail delivery to avoid the long delays spent waiting, which led to a number of vessels gaining exemption from the drop if they had already landed at Sydney or any other Australian colonial port (GA 22/11/1853:4). However, by 1855 vessels were required to not proceed up the channels until after they had anchored and been boarded by the Health Officer, and that the pilots were responsible for removing the Geelong mail prior the vessel proceeding (GA 8/11/1855:3). By 1888, the English mail was transferred ashore for delivery overland to the Western Districts, and supplementary mail was also processed at Queenscliff for delivery via outgoing mail steamers (Sutherland 1888b:158). The former post office was located to the north of the Church of England Parsonage, before it was later moved up to the lighthouse, and the post office was supplied by a mail coach from Geelong (Fanning as cited in QS 24/12/1910).

Telegraph stations were important communications centres in the nineteenth century, both for civil and defence purposes. Although proposals were made to erect a telegraph cable between Melbourne and Shortland's Bluff (1849) and between Geelong and the pilots station at Queenscliff (1853), these suggestions were rejected (CSO 1849; GA 27/4/1853). A year after the first telegraph office opened in Geelong (to Melbourne) in 1854, a service opened from Geelong to Queenscliff (Brownhill 1990:583). The electric telegraph between Geelong, Williamstown and Melbourne in 1855 meant messages between Geelong and Melbourne could be received and replied to within an hour, instead of a weeks journey, and greatly simplified customs operations there at the port of Melbourne, as there was no longer need for boat crews to row to the Melbourne customs house (Day 1992:290).

Defence has played a vital and consistent role in the landscape evolution of the Heads region. The first British settlement in Victoria, Sullivan's Cove, was initiated in 1803 to thwart French occupation of what was then southern NSW, but was later abandoned when the threat had passed (Coutts 1981: 2-5). The period around the subsequent extensive settlement of Melbourne and Port Phillip in 1835 until the end of the nineteenth century was one of great upheaval and

paranoia amongst the British communities worldwide. England was often either at or on the verge of war and her colonies often felt themselves as potential targets for potential aggressors. After numerous war scares heightened the public's concerns of possible invasion from the 1850s onwards (GA 12/11/1852, 12/9/1854), several joint committees on defence recommended the fortification of The Heads region (e.g. Macarthur et al. 1858:949, 1859a). Over the years, up to seven fortresses and innumerable associated military facilities were established around the Heads area to combat the threat of potential invasion, including Fort Queenscliff at Shortland's Bluff which began in 1863. Furthermore, numerous defence vessels were stationed at the Heads (particularly at Swan Island – see Appendix B-1 for a summary history of Swan Island) to complement the networks of coastal fortresses, and were supplemented with other naval/government vessels during annual war game events held at Queenscliff and other Heads townships. Defence played a leading role in the development of the Heads area well into the twentieth century.

It can be seen that there was a diverse range of official maritime services operating in the maritime landscape of Queenscliff. However, there were also a number of other extractive industries that were based in the area that relied on the sea for transport and/or resources and affected maritime development of the area.

B) Extractive Industries

A fishing industry developed in Queenscliff in the early 1860s when a large population of originally Chinese and later European fishers arrived in the area (Fanning 1893; Kerr 1985:69). Dried and later fresh fish were an essential food source for the early colony, especially to provide the increased demand at the goldfields (Wynd 1988:115), and within a few years a large fishing community had been established in the township. Early fishermen initially inhabited the lower areas of Queenscliff and Swan Island from 1867 (Dod 1931:26-7, 80). The presence of the fishing industry progressively led to the installation of major maritime infrastructure for boat maintenance and shelter in this area, and was a key maritime industry that affected the development of Queenscliff. It continues its presence in a somewhat reduced capacity in the area today.

Limeburning was one of the earliest industries in Port Phillip, with limestone resources initially exploited at the Sullivans Bay settlement in 1803 and later extensive mining along the Mornington Peninsula from at least 1836 onwards. Limeburning provided one of the principle building components (lime) which was in great demand within the booming development of the colony. The first lime extraction at Queenscliff and its effects on the denudation of local forests

for fuel was noted in 1844 (but probably referred to deposits at Pt Lonsdale). A flotilla of small boats (known as the mosquito fleet) serviced the lime industry at this time (Harrington 2000:21, 31). The presence of lime boats in the area of Lonsdale Bight was recorded in 1850 (Intelligencer 31/8/1850:902 Baillieu Collection #51). After the first lands sales in 1852, a brick yard and lime kiln had been established near Swan Bay (at Marcus Hill, Dod 1931:4), and by 1854 James Hutchins and J. Cooper had started small farms and lime kilns in the back country at Pt Lonsdale, about a mile from the Signal Station (Dunn 1949:35, 1963:20; Harrington 2000:32; [CA]). Limeburning also led to the establishment of several brickworks in the area [CA].

Guano mines providing fertiliser for agriculture operated at both the Mud Islands and Duck Island until the 1920s (Prescott, 1970; Yugovic 1998:20). The Duck Island deposits were utilized mainly to meet the needs of local farmers, and were accessed by a system of causeways that connected Swan and Duck Islands [CA; CS; GW]. The Mud Islands deposits were discovered in 1852, and were reputed to have the largest guano deposits in the state (GA 1/11/1877). The deposits were commercially exploited from 1859 - 1902, where like most other guano deposits around the world they were exhausted (Yugovic 1998:20-1, 30, 90).

Wattle bark collection was another common early extractive industry in Port Phillip Bay and along the Victorian coast (Wynd 1988:115; Hunt 1999:17). Wattle bark was used as a tanning agent for leather goods, and stripped trees were subsequently felled for firewood. Large numbers of woodcutters were employed by George Cole based out of St Leonards, who had established a pier and small township there as early as 1855. By 1865, numerous woodcutters and their families inhabited the surrounding area including Swan Bay, and small vessels of 15 to 70 tons provided firewood for Melbourne, Williamstown and Sandridge. Firewood was still an important trade at St Leonards in the 1870s (Wynd 1988:115, 130). Wattle Bark was recognised as the most powerful bark (for tanning) in the world in 1878, and as exports demand grew for both bark and tanned leather goods, bark cutting was widespread right across the Bellarine Peninsula. Bush land brought higher premiums than cleared farmland, as it offered prospective farmers an alternative income source to regular crops (Wynd 1988:54). The Port Phillip Bay mosquito fleet were heavily involved in the transport of lime, firewood and bark for tanning in Melbourne, and would bring supplies down to Sorrento and Queenscliff, for the fishermen and lime burners, and would return with either lime, pre-cut timber lengths for the Swallow and Arial biscuit factories, or wattle bark for the tanneries in the Yarra and Maribyrnong Rivers (Field 1962:36; Loney 1981:87; [DB; JB; GH; HeH; PF]). Teams of up to 200 men were employed to harvest the timber of surrounding hills. This practice greatly assisted the development of agriculture in the area, as farmers were either paid to clear their

land (or tendered the process to bark strippers) to supply the markets in Melbourne, and continued until at least the 1950s (GA 11/3/1878; Wynd 1988:54; [GH; HeH]).

Several other extractive industries also existed in the area that affected the development and use of maritime infrastructure. Seaweed and seagrass was regularly harvested for local use as insulation [LID; PF; BM; GW], manure (QS 23/9/1893, 8/12/1894; [BM; JP]) and possibly also for potash and/or iodine (QS 5/2/1916). Salt pans were established at Pt Lonsdale in 1863, and although several attempts were made to generate an industry over the years up until 1934, all proved unsuccessful (GA 27/9/1875, 14/6/1876; Cuzens 1912:6; Dod, 1931:53; Dunn 1963:20; Wynd, 1988:133; Photo PH4216 – QHM Collection). Sand mining was also undertaken at Swan and Mud Islands, and Edwards Pt [CA; PF; PM; RF]. Shell grit was extensively extracted from the southern section of Swan Bay and Lonsdale Lakes, and the Mud Islands for use in glass production in Melbourne, and in the chicken feed industry (Evans 1978: 81; Wynd 1988:54; QH June 2004:6; [BM; DB; JP; PF; SS]). Further details of the extractive industries are contained in Appendix B-2.

C) Transport Networks

The isolated nature of the township led to a heavy reliance on the maritime transport networks. Beginning with the mosquito fleet, a steady stream of sailing and steamer vessels began to supply the township on a regular basis (Field 1962:36; Loney 1981:87; [DB; GH; HeH; JB; PF]). Several piers were constructed in Queenscliff Bight from 1853 onwards, including the Queenscliff/ Fishermen's Pier (1856: Cuzens 1912:1); Boat/Doctor's/Pilots Jetty (1864: McWilliams 1865 plan; VPRS 2143: 64/288, 65/92, 65/159; Dod 1931:9; Bluelight 1911) and New Pier (1884-1885: QS 19/7/1884; VPRS 2143: 84.5/257). An extended consideration of the development of the Queenscliff piers is contained in Appendix B-3.

Although an early track was constructed to the township from Geelong in 1853 and a later rail line was built in 1879, maritime modes of transport still predominated in the area (Perry 1973:41). Even when public access roads were constructed into Queenscliff, they were often blocked by sand drifts, high tides (Dod 1931:50, 51) or floods from Lake Connewarre [CA]. In the early days, this necessitated the use of a submerged limestone causeway from Burnt Point across Swan Bay to the township (QS 10/3/1894, 1/6/1895; Dod 1931:55; Monk 2003:10; [GW; JP; LID; WN]). This natural underwater track was extensively used by the local community as an informal access route across Swan Bay, and provided a route to deposit rubbish on a small island and to transport nightsoil from the township to a dump at Burnt Point. Other submerged tracks from Burnt Point to Knights Road [GH; GW; LID; PM; SS], and from Swan Island to

Duck Island [CA; CS; GW] were also known to exist in the area. Further aspects of these tracks are contained in Appendix B-4.

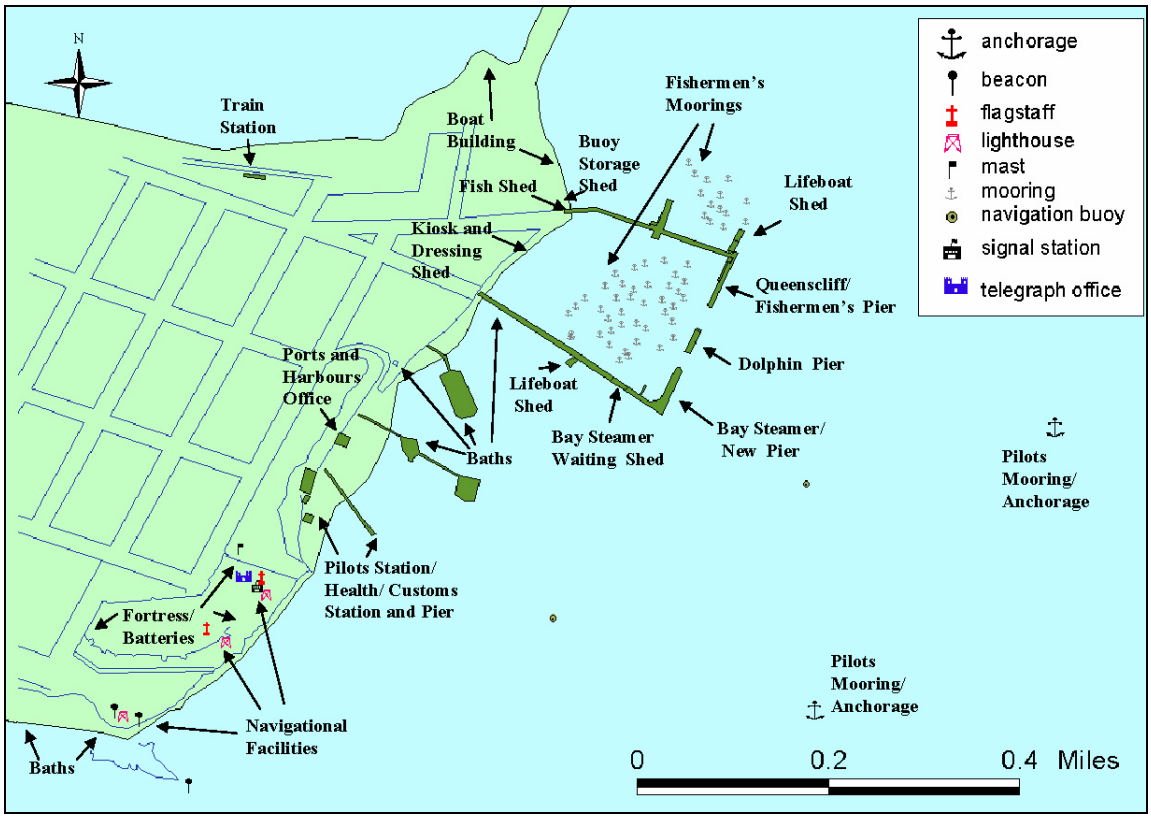

Figure 4. 6: Major maritime infrastructure sites in Queenscliff Bight 1842 – 1929.

The proliferation of maritime services and other industries at the Heads had a profound influence on the development of the area. The geographical location of Queenscliff placed it at the crossroads to all shipping movements servicing the colony. Queenscliff was often the first port of call for early large international shipping which had to stop for various government inspections and mail services, before passing onwards to Melbourne and Geelong. Smaller inter-colonial/interstate traders and passenger ferries also occasionally delivered mail and supplies here on their inwards journeys, and later the township was a regular destination for tourist excursion vessels. The siting of intensive terrestrial and naval activities, pilotage, customs, health, fishing, extractive industries, immigration, lifeboat service, navigational, tourism and mail operations (and their associated boats/vessels) together with many other smaller intra-Bay sailing vessels that serviced the small coastal townships, led to the development of Queenscliff as a hub of maritime transport routes on many different scales (see Figure 4.6). All these industries and services relied on the transport of goods, workers or passengers via the sea. These led to a series of maritime transport routes that utilised seaborne vessels, cross strait ferries, local small craft and submerged causeways. These facilities led to

the development of a maritime identity that pervades the very character of the Queenscliff township.

5) Analysis: Choosing Suitable Landscape Themes

The unexpected size and diversity of the maritime industries in the study area were well beyond those anticipated when the study began. Analysis of the data sources outlined in Chapter Three revealed numerous themes based on maritime exploitation of the study area. These included: the Pilots', Lighthouse, Lifeboat, Customs', Quarantine, Mail, Ports and Harbours and Hydrographic Survey Services; defence; extractive industries (including fishing; agriculture; salt production; sand, shell, guano and seaweed extraction; firewood and bark gathering, and lime burning); shipwrecks and associated looting; smuggling; tourism and tourists; merchants; and transport routes and destinations. Although all these themes were intensively investigated, it has not been possible to include all of the research in this thesis, as there were clearly far too many topics to adequately address in this study. Hence in order to keep the study manageable, selective analysis of a number of identified key industries and events was undertaken in further detail to understand the functionality of Queenscliff as a maritime township.

Analysis of the all the data sources revealed four themes that showed the greatest influence on the area, demonstrated the greatest diversity of local landscape perspectives and data sources, which and in some instances cross cut other themes. These were:

- Defence
- Fishing
- Shipwrecks and Strandings
- Landscapes of Interaction

These themes were chosen as they cover the widest scope of internal/external views and social groups that might exist in any area, and also because they represented the largest and most influential social groups in the community. Further details of some of the other industries mentioned are (by necessity) expanded or mentioned in forthcoming chapters.

There were many and varied ways to look at landscapes, including examination of the physicality of cultural landscapes or the groups of people who inhabit it. The themes outlined above are an example of an approach that has been taken by this study, but it is recognised that there are many other directions that could have been investigated. Several different perspectives could have been taken, and might have included any of those other activities outlined above, but

also other more ethereal aspects such as roads and tracks, relationships linked to religious groups or dozens of other combinations.

The diverse nature of each contributing element of change was explored, and these were later contrasted between landscape themes to demonstrate the complexity of landscape evolution. Furthermore, as each theme was investigated, particular attention was given to the types of data that informed of each activity/event, as these observations were central for an assessment of the suitability of the methodological application of disparate types of data sources for landscape analysis. As will be seen, the diversity of each group's landscape experience of the same arena was starkly different, and was driven by highly contrasting influences that were informed by equally distinct data sources. It will become evident by the conclusion of this thesis, that these diverse landscapes could ONLY be analysed using disparate data sources.

6) Discussion

The following chapters will look at the functionality of the Queenscliff community from four different directions. Chapters Five to Six examine groups of people (i.e. defence forces, and fishermen), who represent the perspectives of temporary residents (that represent an institution) and permanent inhabitants. The examination of these themes allows us to investigate two highly different social groups, which will demonstrate not only the existence of nested cultural landscapes that exist on local, national and international levels, but also the different perceptions and landscapes of permanent vs. itinerant people. Tourists and tourism presented another particularly significant theme in the development of the township but which had to be omitted from the main text of the thesis due to space restrictions. This theme is considered in further detail in Appendix D.

Through the individual examination of each theme, it will be shown how the use of disparate data can illuminate hitherto unrecognised components of landscapes, how landscapes are constructed and the multiple levels at which they exist. Each theme will be minutely investigated to examine the correlation between documented cultural practices and the tangible archaeological signatures that they produced within the arena of their environmental surrounds, whose ethno-archaeological characterisations and spatial patterning might then be used to inform of analogous behaviour in other regions. The underlying ideologies that influenced the social behaviour of each group will also be examined to elucidate cognitive cultural landscapes that exist at many different scales and their potential physical expressions within the community.

Chapter Seven investigates the effects of an introduced event into the area (in the form of shipwrecks) and its implications for local landscape construction. It will examine two conflicting perspectives of the same incident within the local community, and the cross cutting nature of shipping mishaps in the region, which is informed by combinations of every type of data set, some of which (i.e. folklore traditions accessed through oral histories) have not been explored in great detail before this time. Comparison of these data sources provided very different views of the same shipping mishap, and illustrated the range of disparate values associated with these events, and their later transformation into places. Chapter Eight draws together observations of the individual groups and event themes to examine the social interrelationships of these and other community groups, and the subsequent nuances of landscapes of interaction.

This chapter introduced a real world scenario to examine the application of the proposed methodology for the investigation of the cultural landscapes of a coastal community. It has analysed and demonstrated the diversity of themes available for a study area, and outlined an introductory history of the region's maritime services. In the next chapter the presence of the military in Queenscliff will be explored in greater detail to investigate the application of the methodological approach to examine the defence landscapes of Port Phillip Bay.

> Queenscliff residents seldom realize what this would mean to them. In an action at the Heads the town would probably suffer more than the fort…It is therefore sincerely hoped…that the day is far distant where we shall be awakened to hear the dreadful booming of the enemy's cannon at our gates (QS 25/4/1908)

Chapter Five: Defence Landscapes of Port Phillip

1) Introduction

Defence has played a vital role in the formation of the landscapes of Australia since the very inception of European settlement. The nineteenth and twentieth centuries were periods of major upheaval both nationally and internationally, which markedly affected the development of the Australian nation. Given the strong pervasive presence of armed forces in almost every major coastal town in the country, the study of the military presents an opportunity to examine maritime landscapes that exist at many different levels.

In order to understand what drives the development of defence landscapes, this chapter will explore the historic military expansion in Port Phillip, with particular focus on a number of key mechanisms that drove the spread of the military presence around The Bay. The episodic and dynamic nature of defence landscapes is investigated, and it is advocated that they were in part either controlled or influenced by external world powers and events. It will be shown that the impetus behind these military developments was frequently physically invisible or distant to the local community, as they were based on implied threats spurred on by events and authorities thousands of miles away. These local responses produced cognitive and often paranoid landscapes which were influenced by the fears and trepidations of others much further afield.

Advances in military technology played a vital role in the transposition of military landscapes both temporally and spatially. The effects of technological improvements in military hardware will be shown to have heavily influenced the strategies and placement of defence sites, and furthermore that Port Phillip provided a proving ground for new technology/ approaches to defence, and that the very frontier nature and isolation of the colony encouraged these practices. The archaeological expressions of military occupation sites will be examined in further detail to explore the types of signatures left behind by defence places and personnel. When viewed in association with known activities and behaviour in these areas, these characterisations might provide explanatory evidence for areas where other data sources are deficient.

The large military presence in the area undoubtedly influenced other sectors of the township. Therefore the effects large military presence in the Queenscliff area will also be explored in regards to the generation of other community landscapes, with a particular focus on the differential meanings of the military presence in this area.

2) History of Defence of the Victorian Colony

A) Early Defence Considerations and Overview

Ever since the first British settlement at Sullivans Bay in 1803, defence considerations have shaped the use and non-use of The Bay. By 1836, the new colony's first defence force was formed when 30 troops arrived from NSW on the *HMS Rattlesnake* (Noble 1979:86; Coutts 1981: 2-5). The discovery of gold in 1851 prompted major concern that a hostile vessel could enter The Bay and hold the colony to ransom (Macarthur et al. 1858:949). The Argus newspaper (31/12/1853, as cited in O'Neill 1988:39) printed the following ominous warning:

> …In the event of war we are in a very defenceless state and that the fact of it being known all over the world that we have a few millions worth of solid gold within cannon shot of The Bay is a circumstance which renders us peculiarly liable to attack.

With the secession of Victoria from NSW in 1851, it became clear that a series of defence networks were required for the colony. Initial fortresses were suggested for The Heads in 1852-3, especially due to the proliferation of maritime activities and essential government services based there (GA 12/11/1852; Tate 1982:4). With the onset of the Crimean War between Britain and Russia from 1853-56, calls were made to fortify The Heads region to deter any potential Russian attack after rumours circulated of Russian warships patrolling the Pacific, and concerns were expressed that a hostile ship could easily hold Geelong or Melbourne to ransom (Sutherland, 1888a:461; Brownhill 1990:634-6; Pearsall, and Trumble 1996:338). The colony's association with Britain also exposed them to attack by the Empire's enemies, which potentially included France, Russia and America (O'Neill 1988:39). Additional anxiety was raised in 1854 regarding the proximity of new French settlements in the Pacific and exploration attempts along the Australian coastline (Tate 1982: 4). An alarming situation occurred after Imperial troops became responsible for defence in 1853 when the *SS Great Britain* fired a saluting salvo upon entering the harbour the next year, which caused great panic amongst the community at Melbourne, leading to calls for the fortification of Queenscliff and its recognition as the key to Port Phillip (GA 12/9/1854; Noble 1979:46, 47).

Thus began the series of many war scares throughout the nineteenth century that led to a constantly renewed state of military preparedness. Many alerts were instigated by international tensions between Britain and potential aggressors, visitation of foreign warships (Tate 1982:50), or (perceived) severed communications cables (Age 30/6/1888, 2/7/1888, 4/7/1888; Argus 3/7/1888, 4/7/1888). Hyslop (1976) recorded that there had been 200 war scares in Australia during the nineteenth century, which gives some idea of the contemporary state of mind of the colonists. The Australian colonies not only represented rich targets to potential aggressors, but also supplied vital agricultural produce to England, and acted as essential strategic coaling depots for the steamships of the British Navy. Furthermore, the Alfred Graving Dock (Melbourne) represented the largest facility of its time in the Southern Hemisphere, and was vital for international vessel maintenance, a consideration which was further reinforced when the American Confederate Raider *CSS Shenandoah* arrived to use it in 1865 (Noble 1979:84; Kitson 1987:6.9).

With the onset of the gold rush, Victoria had become a very prosperous state, and many vessels now left the port laden with fortunes in gold for return to England. Looting and piracy of vessels was rife, even within the Metropolis' harbour itself, which led to the establishment of a water police force in 1853 to combat the rise in mutinous crew behaviour (Sutherland 1888a:136, 333; Draper 1900:1-6; Noble 1979:83). The isolation experienced by the colonists added to their concerns, as it often took months to communicate between Britain and the colony. A Select Committee investigating the Colony's defences in 1854 suggested the Victorian Government should deploy eight guns and howitzers and a warship steamer, and that the Imperial Forces stationed in the Colony could be supplemented with troops from India. Although these recommendations were not adopted, there were other factors coming into play (e.g. Eureka Stockade) which led to an upgrade of the Colony's defences. A number of local communities in Melbourne and Geelong formed Volunteer Corps and in December 1854 they received official Government recognition under the *Volunteer Act 1854* (Marmion 2003:33). Although the Allied war campaign in the Crimea proved victorious in 1856, the volunteer movement stagnated until another war scare in 1859. By 1863, the ranks of the Volunteers had swelled to 31 corps with 4000 men including a large detachment at Geelong (Sutherland 1888a:461; Brownhill 1990:634-41; Marmion 2003: 39-57).

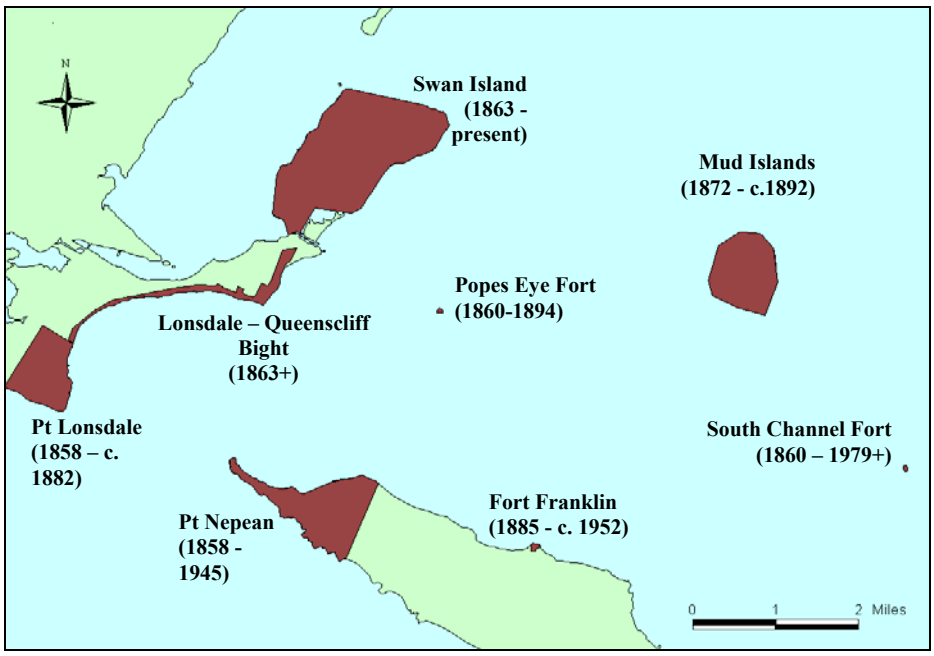

Figure 5. 1: Major defence reserves of southern Port Phillip.

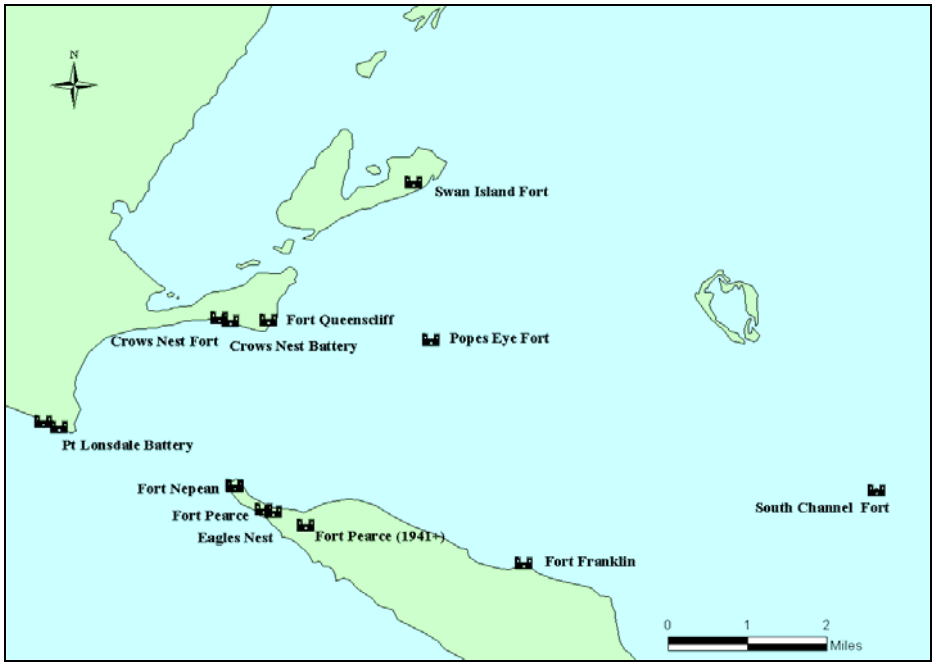

Figure 5. 2: All forts and batteries in southern Port Phillip Bay between 1861–1945.

In the period between 1854 and the 1880s, several Royal Commissions and advisory committees considered the problem of how best to defend the colony (Macarthur et al. 1858, 1859a, 1859b; Scratchley 1860, 1863, 1864, 1882; Barkley 1861; Select Committee 1861, 1865a, 1865b; Pasley 1864a, 1864b, 1865a, 1865b; Wiseman et al. 1864; Anderson 1865; Pasley and Scratchley 1865;

Verdon 1865; O'Shannesy et al. 1876; Jervois 1877, 1879; Scratchley 1882; Cook 1887. Two principle advisors, Major Peter Scratchley (of the Royal Engineers) was sent from Bombay and Col. Drummond Jervois (the Director of Works and Fortifications in Britain), were to have the most influence (Perry 1973:40). The collective recommendations varied between the establishment of fortifications at The Heads or closer to the metropolis at Hobson's Bay (Melbourne), which led to the reservation of many coastal areas as restricted defence reserves in anticipation of the installation of later facilities including at Pt Lonsdale (McWilliams 1865 [plan]; Macarthur et al. 1858:949, 1859a; Select Committee 1861; Scratchley 1863:7; O'Shannessy 1876:781]), Lonsdale Bight foreshore to the Queenscliff jetty (Philp 1856a, 1856b, 1856 [updated 1875] [plans]; McWilliams 1865 [plan]; SGO 1882 [plan]), Pt Nepean, parts of Geelong and Hobson's Bay, Swan Island and Pt Nepean (Scratchley 1863:7-13, 26) and the Mud Islands (1872- VGG 19/1/1872, as cited in Yugovic 1998:233 (Figure 5.1). The colony at this time was still heavily reliant on England for the provision of funding, which was not always forthcoming (Select Committee, 1865a:807; 1865b:887). Britain favoured the provision of obsolete warships as a stopgap measure, which placated the appeals for colonial defence countermeasures with minimal cost outlay. It is in this environment that defence considerations were introduced to the Colony of Victoria.

B) Ordnance, Military Technology and the Spatial Distribution of Batteries

An understanding of the progression of guns that were used in the Colony is essential for interpreting the development of defence networks and batteries around the Bay (Figure 5.2). The history presented here is by necessity truncated, as the vast scope of this subject is far beyond the confines available for this discussion. An outline table of significant historical events are presented in Appendix C-1 and an extended consideration of the history of defence in the Bay is provided in Appendix C-2.

The initial gun of choice was the smooth bore 68pr (pounder), which although it was the gun of choice for at least 30 years, demonstrated restricted firepower and limited range. It was extensively installed in the Colony's earliest forts at Sandridge and Williamstown (see Table 5-1), but its limited trajectory effectively restricted the areas where it could be used to narrow bays encompassed by enclosing peninsulas, which required supplementation with naval vessels that acted as floating gun platforms (e.g. HMS *Electra* (1853), *HMCSS Victoria* (1856), *Sir Harry Smith* (1859), *Elder* Gunraft (c.1865; - Figure 5.3), *HMVS Nelson* (1868) - see Appendix C-3).

The development of the Armstrong 80 pr RML gun overseas in 1859 led to renewed consideration of the placement of forts of the Heads (Macarthur et al. 1858:949, 1859a; 1859b; VGG 11/10/1859; Scratchley 1860; 1861 [plan]; Select Committee 1861:338). However these guns were in great demand throughout the world especially for Britain's own defences, and were unavailable for the Colony's needs (Pasley 1865a:62). Although the anticipated installation of the new gun types led to the establishment of the Queenscliff Volunteer Artillery in 1859 (in anticipation of the instalment of a battery at Shortland's Bluff - Macarthur et al. 1859b; VGG 11/10/1859; Scratchley 1860:22) further development of the area was hindered due to their lack of availability. The threat of war with America in 1861, led to renewed calls for increased defences in all the colonies (Barkley 1861; Select Committee 1861:337) and seven new shore batteries were constructed at Williamstown and Sandridge at Melbourne, along with a 3 gun battery at Queenscliff (VPD 1862: 420, 718; VPRS 2143:1; Scratchley 1863:7; Sutherland 1888a:462; Duncan 2003a:276, 280, 392, 440). The visit of the Russian screw frigate *Svetlana* to the colony in 1862 may have added impetus to completing the defences, and led to the installation of a permanent three gun battery at Shortland's Bluff by 1863 (Scratchley 1863:9, 10, 29; Wiseman, 1864:36; Tate 1982:50 - Figure 5.5). A small (two gun) battery was also constructed to defend Geelong in 1863 (Brownhill 1990: 639).

New attitudes to the visual imposition of fortifications were introduced around this time that reflected a trend away from the previous strategy of ominous presence towards one of camouflage. Instructions were given to encourage weeds, shrubs, trees and other vegetation to grow around fortresses, and gun emplacements, and a willow plantation for gabions and fascines was planned for Williamstown, (Scratchley 1863:14, 30, 1864:32).

Because the 80 pr were not available, rebored Paliser guns (which used a new rifled bore inserted into old smooth bore guns) were recommended (in 1865) and utilised in the colony from 1867 onwards. Although these guns were an improvement on the previous range of the smooth bore guns, they still did not appreciably increase the gun range enough to warrant forts at the Heads (Pasley 1965a:62; Select Committee 1865b:v; Billett 1994:5).

A series of floating blockade ships were used by the Colony during this period to supplement the coastal defences, including the *HMVS Nelson* (1868), and later the *HMVS Cerberus* (1871). In the interim, submarine mining technology was proposed for Hobson's Bay in 1863 (Scratchley, 1863) and again in 1867 to supplement the batteries. By 1870 a torpedo depot had been established at

Fort	Date Begin	Date usable	Date End	68pr	80 pr RML Armstrong Guns	9" RM L	HP BL	6" Mk VII	4.7" QF	Outdated fort/ result
Williamstown Forts	1854			1854						Batteries redundant late 1870s
Sandridge Forts	1855			1855						Batteries redundant late 1870s
Fort Queenscliff	1860	1862?/ 1884	1945	1861/ 1862	1878	1880	1884	1908		
Fort Nepean	1878	1882/ 1884	1945		1878	1878	1889	1908		
Swan Island Fort	1879	1881/ 1885	1909		R 1879	R 1879	1884			Redundant due to Mark VII Guns at Qcliff and Pt Nepean Forts - demanned 1909
South Channel Fort	1879	1888	1906		R1877	R 1877	1885 - 1888			Redundant due to Mark VII Guns at Qcliff and Pt Nepean Forts - demanned 1909
Crows Nest Fort		1886, 1908?/ 1914	1908				1886			Redundant due to Mark VII Guns at Queenscliff and Pt Nepean Forts (c 1908)
Fort Franklin	1885?	1889/ 1939?	1906?/ 1945			1885	1889			
Eagles Nest Battery	1885?	1886 1889	1945			1885	1889			
Popes Eye Fort	1886		1889			R 1877				Redundant due to HP RBL Guns at Swan Island (1890s)
Fort Pearce - moved to Cheviot Hill 1941	1911		1941/ 1945					1911		
Pt Lonsdale Battery		1942	1944					1942		
Crows Nest Battery		1943	1944						1943	
Note: R = Recommended										

Table 5.1: Fortress/Battery Installations associated with Changes in Gun Sizes.

Williamstown where the former prison hulks *Deborah* and *Sacramento* were used as torpedo store and assembly ships, along with a torpedo ground (minefield) which has probably been installed by the late 1870s (Yule 1884:334; Jones, 1986: 39; Duncan 2003a:237, 255). The term torpedo referred to static submarine mines prior to the 1870s, but was used after that time to refer to self propelled explosive devices, when the former then became known as mines (Bray 2004:5), however the use of this term was interchangeable in Port Phillip until at least the 1880s.

The new Armstrong MLR guns first arrived in the Colony as armament aboard the new ironclad steamer HMVS *Cerberus* in 1871 (Figure 5.4), which in addition to being used as a warship, also served as a floating fortress in war strategies where it was allocated a station on the Popes Eye Shoal to protect the West, Symonds and South Channels (A11 c.1889 [plan]; Anon. 1889; HCW c.1939 [plan]). The arrival of the *Cerberus* allayed many fears about the defence of the Port Phillip settlements, and its regular training runs from Hobson's Bay to Queenscliff and Sorrento and provided a tangible reassurance for the paranoid colony (Brownhill 1990:640; Noble 1979:99).

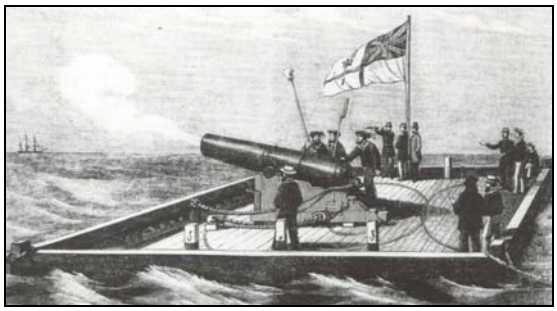

Figure 5. 3: The *Elder* gun raft at Hobson's Bay in 1865 (Calvert, 18/2/1865, IMP, SLV Collection).

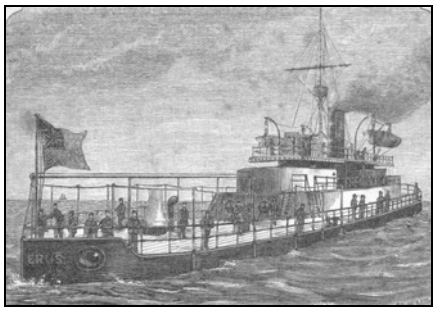

Figure 5. 4: *HMVS Cerberus* (In Sutherland 1888a:461).

In anticipation of the arrival of the Armstrong guns, in 1877 Scratchley and Jervois recommended the updating of the Queenscliff guns and the construction of extra forts at The Heads (Jervois 1879; Nicholls 1988: 181). These included two artificial island fortresses on the Popes Eye Shoal and on the northern side of the South Channel to deter any enemy vessels that might enter through The Heads, although bureaucratic indecision led to delays in their construction (Brownhill 1990:642).

However, it was not until the late 1870s when the range of Armstrong rifled gun were again increased that they were successfully applied to use at Victorian coastal batteries (Jervois 1879; Nicholls 1988:181). The widespread introduction of Armstrong guns into the Colony in1878 dramatically increased the scope of areas that could be effectively protected, which enabled the reconsideration of a network of fortresses to be placed at The Heads (Jervois, 1879:5, 6), as intersecting arcs of fire could now be concentrated across the channels and The Rip. Victoria commissioned several 80 pr RML guns during this period together with studless Palliser shot (Hawkins 1888:251).

In 1878, Armstrong guns were mounted at Queenscliff and at the new Forts at Pt Nepean (1878) and Swan Island (1879), and were planned for the new island fortress which was being built in the South Channel (1879). This development ultimately led to the dismounting of the Hobson's Bay defences by the late 1870s (except for Fort Gellibrand - Duncan 2004: 276). These new defences were to be supplemented with torpedo (mine) fields and searchlights to detect fast moving minesweeping craft (Kitson, 1987: 2.1), the former of which were being used at the Heads by 1879.

Shifting political alliances led to increased paranoia of a Russian invasion mounted from New Caledonia, when Russia and Britain came close to war in 1879 (Constantinople) and again in 1885 (Afghanistan). In 1879, the Queenscliff defences were upgraded and work began on the Swan Island and South Channel Forts (Kitson 1987:6.2) and necessitated the relocation of the lighthouse keeper's quarters to inside the fort's enclosure. A military railway from Geelong to Queenscliff was approved in 1877 (GA 13/9/1877:2) and completed by 1879 to facilitate the rapid deployment of troops to the forts in the event of an invasion. Prior to this time the principle mode of transport to the area was by sea (due to bad roads) and Queenscliff was even considered remote from Geelong (Perry 1973:41).

Despite the urgency prompted by several war threats, and the technological innovations in military hardware, the developments of the batteries were often delayed by bureaucratic delays in funding allocation to and the implementation of defence strategies in the early 1880s. Although two batteries had been installed at Queenscliff by 1880, and the contract let for the Swan Island facility (VPRS 2143; Tate 1982:55), a lack of funds delayed works at all the forts in 1882 (Perry 1973:43; Noble 1979:105).

The Swan Island and Queenscliff forts were an integrated networked enclosure of fire that could be operated by a relatively small number of men, and 12ft high walled enclosures were constructed around these facilities in 1882 to repel landward attacks (Jervois 1879:6; Sutherland 1888b:158; Noble 1979:105). The completion of Fort Queenscliff's walls in 1884 eventually led to removal of the Queenscliff Post Office from inside the fort's perimeter to a building in Pilots Row, as public access was restricted by the Fort's interior (see Figure 5.6). The postmaster at the time also complained that the ceiling had to be reinforced with pine slats, as it tended to collapse during gunfire practice (Dod 1931:94-5). By 1885, mounds had been added to the fort to dissipate exploding shrapnel, which was a radical change in fort design (see Figure

Figure 5. 5: Shortland's Bluff three 68 pr gun battery in 1866 (Photo PH2, QHS Collection).

Figure 5. 6: Shortland's Bluff firing range practice c. 1882. Note temporary enclosure of fortress behind guns (Photo PH142, QHM Collection).

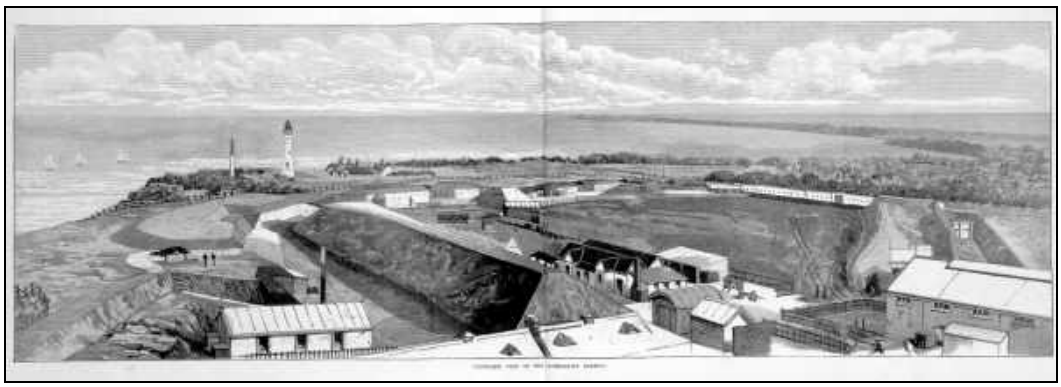

Figure 5. 7: Fort Queenscliff in the 1880s, showing massive defensive shrapnel mounds (AS, 21/10/1885, SLV Collection).

5.7). Progressive changes over time resulted in increasing size and complexity of fortress design over time, which is demonstrated in the significant changes to defences at Shortland's Bluff (as shown in Figure 5.5 – 5.7).

When 9" MLR guns were later introduced from 1878, they further increased the firing range, which led to the installation of new forts at Pt Nepean (Eagles Nest) and Pt Franklin (Fort Franklin) in 1885.

The construction of the South Channel Fort fell within a period of great innovation in military technology in the 1880s. The fortress was constantly altered during its decade of construction to incorporate cutting edge technology and new considerations in fortress design. The fort was built using a system of concrete caissons sunk through the seabed to bedrock and also the use of camouflage and sand parapets (which had been proven effective against artillery barrages in Alexandria), which were a radical change from previous fort design. The stronghold was one of the first of the low profile forts of its time, and the only shoal fort of this type in the world (Kitson 1987:1.1, 6.1).

The refocus of submarine mining from Hobson's Bay to The Heads led to the transferal of the Williamstown Torpedo Depot to a permanent mining/torpedo depot and training centre being established at Swan Island in 1884 (Duncan 2003:237). A contingent of submarine mining units (part of the Victorian Engineers) operated the base, and was responsible for the charging, laying and storage of static (mines) and self propelled torpedoes (Jones 1986: 39). The South Channel Fort was designed to eventually be the guard centre for the new submarine minefield defence system, and worked in conjunction with a newly established Submarine Torpedo Depot at Swan Island (Noble 1979:106; Kitson 1987:2.2; O'Neill 1988:44).

Several new defence vessels were commissioned as defensive technology evolved. With the introduction of the propelled Whitehead torpedo in 1877, torpedo boats were developed to deploy these devices. By 1884, the Colony established a substantial Colonial Navy when it purchased several torpedo launching craft (HMVS *Lonsdale* - Figure 5.8*, Childers, Gordon,* and *Nepean*), and gunboats (HMVS *Albert* and *Victoria*), and other government craft were used as auxiliary naval vessels (Noble 1979:95-9 -see Appendix C-3). The launch *SS Miner* was also obtained for the dedicated torpedo staff (Permanent Section Torpedo Corps) of the Swan Island torpedo depot (Jervois 1879:5-6; Tate 1982:61). These vessels were used both to defend against

incoming warships, but also to protect the minefields (Kitson, 1987:1.1, 6.4-6.6), and the torpedo boats were stationed at the Swan Island Base.

Figure 5. 8: Torpedo boat *HMVS Lonsdale* (QMM Collection).

Nordenfeldt Machine guns and quick firing cannons were later introduced to the Victorian Fleet as a countermeasure to the enemy using torpedoes against them (Nicholls 1988:189). The vessels all played active parts in the annual Easter war games held at Port Phillip Heads, where mock battles were staged to test the colony's defences. All were strategically anchored around the entrances to the channels, to prevent the entrance of any warship (A11 1889 [plan] – Figure 5.9; Anon. 1889; HCW 3403/ 3507 c.1889 [updated 1939 - plan]; Noble 1979:100).

A protective torpedo dock was incorporated at the South Channel Fort, along with other innovations include the installation of electric searchlights for detecting night raids on the fort and minefields, Nordenfeldt machine guns to fend off landings or torpedo boats, and the use of massive sections of the Australian hardwood jarrah as a substitute for concrete. The final design for the South Channel Fort was developed by 1885 during the Russian scare and became fully operational by 1888 (Kitson 1987:1.1, 2, 6.4-6.6).

The South Channel Fort's construction also coincided with the development of a new type of armament and mounting, the hydro-pneumatic (HP) BL disappearing gun which was also introduced to the fort. In addition to significant increases in range, these guns were shielded behind a steel cover shield, and popped up momentarily above the shield to fire before recoiling into its casemate (Kitson 1987: 6.4- 6.6). These guns were installed at several forts around The Heads (see Table 5.1), and their proposed installation at Swan Island (which could then cover across the West and Loelia Channels) led to the redundancy and abandonment of the Popes Eye (island) fortress where works proceeded from 1886 to an extent where an annulus for the base of the fort had been established above water on the Popes Eye Bank by 1889 (Tate 1982:73; Kitson

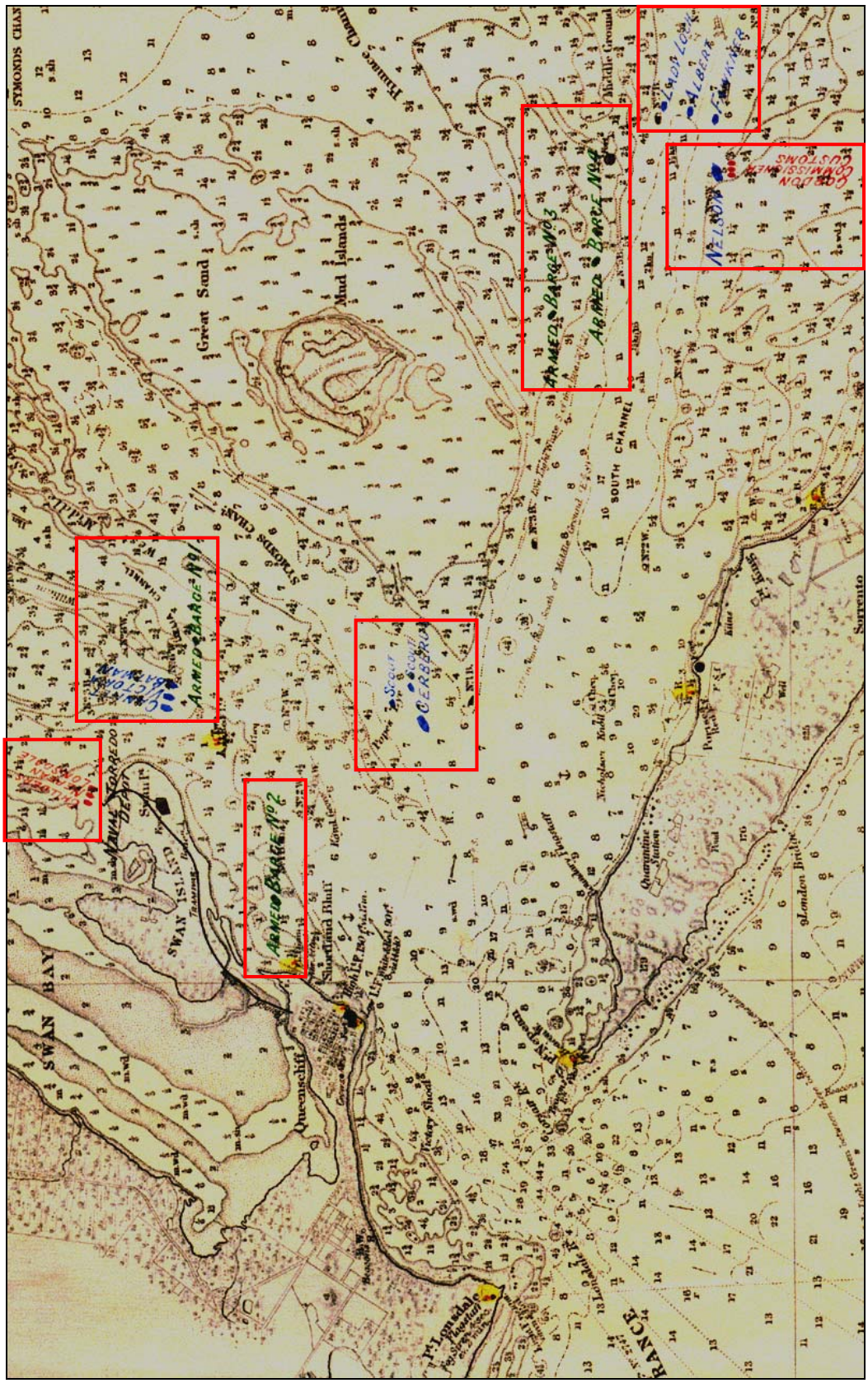

Figure 5. 9: After military plan A11, c. 1889 showing positions of Victorian Navy Defence Anchorages for Defences at Port Phillip Heads (Image courtesy FQM Collection).

1987:2.2, 6.5). These guns were eventually installed at all the forts in the area by 1889, and their availability also led to the installation of a new facility (Crows Nest Fort) to protect Lonsdale Bight.

By 1886, the defence system was finished, complete with electrical mines operated from South Channel Fort. It was an improved and more powerful battery, and by 1887 the whole Pt Nepean Peninsula was riddled with tunnels that connected garrisons with batteries and magazines (Noble 1979:106; Kitson 1987:2.2; O'Neill 1988:44). Another scare occurred in 1888, when the telegraph cable to London was accidentally severed, which prompted all the defence garrisons to be mobilized and the batteries upgraded. This situation led to the mounting of HP BL guns at Fort Franklin and Eagles Nest (Tate 1982:73), and by 1890, Melbourne was considered the best defended commercial city in the Empire (O' Neill 1988:46).

By the late 1880s, concerns also focused on potential night raids of the port, as enemy shipping could slip through the Heads undetected. Two electric searchlights were installed at Queenscliff in 1886, and by 1892, fixed (search) lights had been installed at Swan Island, Queenscliff, South Channel and Pt Nepean Forts, and were supplemented by wandering searchlights that could illuminate any vessel that wandered through the fixed beam (QS 26/11/1892; Kitson 2001:23). In 1893, another contract had been tended to construct an electric fixed searchlight on the foreshore at the Queenscliff Battery (Tate 1982:63, 69, 77).

C) Post Federation

With the passing of Federation, all defense matters were passed to the Federal Government, and all State defense forces were unified as a Commonwealth Military Force. From 1902-08 the Anglo-Japanese Alliance raised the spectre of potential hostilities with America. With the American, German, Japanese and French fleets' expansion into the Pacific Ocean, and a visit by the American battleship fleet in 1908 (QS 22/8/1908) Australia faced threats on many fronts, leading to suggestions for the formation of an Australian Navy, (Overlack 2001; Reckner 2001:175-8, 181), and the installation of 6" Mark VII guns at Pt Nepean and Fort Queenscliff in 1908 (QS 13/6/1908; Kitson 1987:7.2) The extended firing range of this ordinance resulted in the closure of the South Channel, Crows Nest and Swan Island Forts as artillery batteries. A new battery and was also built at Pt Nepean (Fort Pearce) in 1911 to make greater use of the new gun technology in The Bay, which rendered Fort Franklin redundant in its former use as a

bar to traffic through the South Channel, and it was later only used as an examination battery in conjunction with Fort Nepean during both major world war conflicts (O'Neill 1988:52; Wixted et al. 2006: 21).

Following the formation of the Australian Navy in 1911 (Overlack 2001; Reckner 2001:175-8, 181), the Swan Island Torpedo depot became a Naval facility in 1912, (QS 11/5/1912; Noble 1979:107), and the Engineers who had previously cared for the mines were placed in charge of the searchlights. Many of the former Victorian Navy Vessels were either broken up for scrap, or stripped before being re-used as breakwaters, sand groynes or piers (Noble, 1979:100; Jones 1986; Anon 1993b: 25-30).

The outbreak of hostilities led to the first shot of WWI being fired from Pt Nepean, when a German freighter tried to escape through the Heads. During WWI, the garrison at the South Channel Fort was reduced to a skeleton force (Kitson 1987:6.5). The artillerymen and engineers were often criticized for their failure to serve overseas, even though The Heads Forts were often seen as training grounds for subsequent overseas postings (O'Neill 1988:54).

In 1914, an Examination Battery was established (shared by Forts Franklin and Nepean) and a Port War Signal Station was established at Cheviot Hill (Pt Nepean) under naval control (Veale n.d.:5). The Pilot ships *Alvina* and *Victoria* were seconded as Examination Steamers, as the pilots inspected all vessels passing through the port. At this same time the infantry forces guarded the narrows at Queenscliff, and light horse regiments patrolled the countryside beyond (Tate 1982:90). A large 6" howitzer was installed near the junction of the Geelong and Portarlington Road (Figure 5.10), which was used for firing practice at Duck Island [CS]. At Pt Lonsdale, two new electric searchlights, an engine room, and E.L.D (Electric Light Direction Station) were installed in November 1914, along with a 7 ft high barbed wire fence in 1919 (DOA 1914; Troup 1916 [plan]).

In 1919, Britain presented Australia with a fleet of six destroyers and six J-Class Submarines. The vessels were so obsolete and in such poor condition that despite a refit for use in training, they were eventually decommissioned successively by 1924. These vessels were eventually stripped at Swan Island, before being hulked for use as breakwaters (J3 was used as a pier/ generator at Swan Island, J7 at Sandringham, Melbourne), or were scuttled in the Ships Graveyard at Barwon Heads (Anon, 1993b 27; Smith 1990).

Figure 5. 10: Swan Bay 6" howitzer firing at Duck Island c. WWI (Photo: FQM Collection)

The Nepean defences were reduced considerably between the World Wars, and were operated by a skeleton crew who were re-supplied daily from Queenscliff by a small military boat (*Mars*) (O'Neill 1988:54). These personnel operated the searchlights at Pt Nepean at this time (QHM Photo: 1891/2572)

Prior to WWII in 1938, a review of defences decided that mining and boom gates were not required, as submarines were unlikely to enter Port Phillip Bay due to strong currents, and that attacks would probably to be limited to coastal bombardments and motor torpedo boat raids in Bass Strait. The first Allied shot fired worldwide again came from Pt Nepean in 1939, again in response to a vessel failing to stop for examination. A Port War Signal Station was established at Pt Lonsdale to communicate with offshore naval craft (Veale nd:5). In 1941, the German Raider *Pinguin,* along with a captured merchant vessel that was converted to a minelayer (and renamed *Passat*) both began seeding the waters around NSW and Bass Strait with minefields (Perry 1973:49; Hunt 1999:24).

The attack on Pearl Harbour in 1941 led to another review of defences that identified weaknesses in air and naval defences at The Heads, which were open to aerial bombardment as there were only seven active guns, and no aerial defences. Emergency defences were planned, and these included sinking ships to block the fairways (as mines were in short supply), and mounting torpedoes tubes on two Portsea Piers (which proved unsuitable - Noble 1979:108). As the gun emplacements at Fort Pearce were considered vulnerable to aircraft attack, they were moved to Cheviot, where a dual gun emplacement was built. Additional protective concrete shields were also installed over several guns, and a new battery observation post was built at Pt Nepean, along with a new 14 pr Nordenfeldt gun at Fort Pearce to cover the examination anchorage (O'Neill 1988:55).

The threat of war appeared closer to home around this time, when enemy submarine and aircraft were sighted in the area (Tate 1982: 97-9, 114, 121). With the threat of submarine and aerial warfare (the latter from carrier or submarine planes), the focus of war shifted further offshore and to the air. In 1942, two 6" BL Mark VII guns were removed from Fort Queenscliff to be remounted at Pt Lonsdale Battery (Figure 5.11), and the Fort Pearce Battery mounted at Pt Nepean was also moved up higher to Cheviot Hill to focus on the ocean side of the Peninsula (O'Neill 1988:55). Aerial defences in the form of antiaircraft guns and searchlights were also installed in the recreational reserve near the fort [GW], and as were military and private air raid shelters [GW; JP]. The guns at Fort Pearce were also relocated to Cheviot Hill. In that same year, a sentry at Crows Nest was killed by an unknown person, who later fired on other soldiers. The changing scope of warfare and the increased speed of attack craft led to the installation of 4.7" QF guns at Crows Nest Battery in 1943, which could fire smaller rounds but at a faster rate. All the shore batteries were eventually replaced with offshore warships of the Australian Navy.

Figure 5. 11: Pt Lonsdale Mark VII battery (Photo: PH1928 QHM Collection).

Although the use of searchlights enabled the detection of any vessel entering The Heads, their illumination also provided a stark signal of Port Phillip's location to any enemy traffic (Brown 1999:1). These circumstances led to the development of a number of experimental installations for detecting vessels entering The Rip. In March 1942, a new experimental facility called the "Magic Eye" was installed which shone a photo-electric (infra-red or piezo electric -PE) beam from two transmitting units at Pt Lonsdale across The Rip to two receiving stations at Pt Nepean (M.E.E n.d: 2). The amplified signal triggered an alarm in the Nepean Battery Observation Post (via a cable that went ashore at the Quarantine Station) and automatically switched on the searchlights whenever shipping broke the beam. This cutting-edge facility was used in conjunction with the batteries and searchlights at The Heads, and although it operated for a few

years, the system often failed as it was continually activated by birds, waves and rain, despite the installation of a higher beam which allowed the lower beam to be switched off in heavy weather. In 1942, an indicator loop for detecting the magnetic presence of submarines was installed across The Rip underneath the beam, but was removed by 1944. Despite these failures, the potential of this new technology led to the installation of another facility at Sydney, and also other indicator loops around Australia (Army Reports 10/3/1942, 23/4/1944, as cited in Honoury Editor 1989:9; Nelsen 2002).

Another PE light beam station known locally as the "Chinaman's Hat" (and officially known as "Station M") was installed on a dolphin structure near Popes Eye before 1942 (Figures 5.12 and 5.13). It transmitted from a site north of the south channel to transceivers located at either Pt Nepean or Portsea (its exact location was not positively identified) and to Swan Island, where similar alarms were raised, although this too proved unsuccessful. The mechanism was removed in 1944, only after the army gave priority to the development of radio direction finder/ radar equipment which made the system redundant. An indicator loop was installed on this structure to detect the magnetic presence of submarines in 1942, but was abandoned in 1943 (DON 1942; Honoury Editor 1989:10; Nelsen 2002; [JB]).

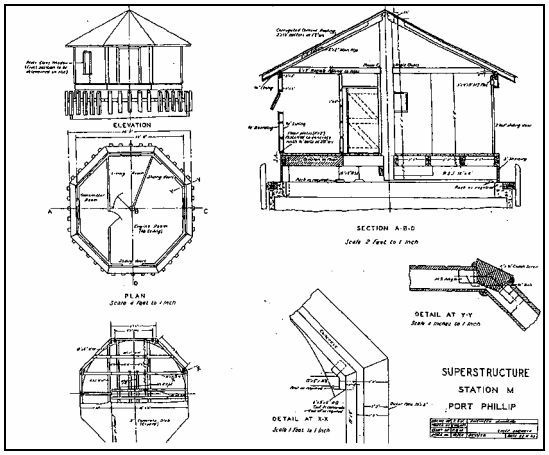

Figure 5. 12: Station M Plans, Anon. 1942 (In Sinclair Knight Mertz 1999).

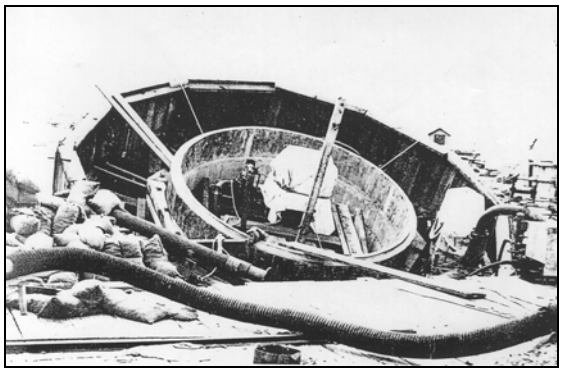

Figure 5. 13: The construction of The Station M Caisson at the Fisherman's Pier (Photo: Lewis Ferrier Collection)

With the threat of war so close to home, proposals were made towards the end of the war for dual purpose lightweight guns for anti-aircraft and small vessel deterrence, which were installed at the football ground and near Crows Nest [CA; GW]. In 1943, the Port War Signal Station was moved to Eagles Nest, a hill at Pt Nepean (Veale n.d.:5). The existence of the Burnt Point

Causeway road during WWII was obviously perceived by the military as a possible defence threat, and in 1944 the area was surveyed for barbed wire entanglements. The operations at The Heads were scaled down by the end of the war, and Pt Nepean defences were declared redundant. By mid 1944, it was proposed that the Crows Nest Battery be withdrawn, and that the Lonsdale Battery be placed into maintenance (Tate 1982: 104).

By 1946 the guns were removed from Fort Queenscliff and the Fort was converted to the Australian Staff College (Noble, 1979:109; Perry 1973:49; Hunt 1999:24), as were the guns at the Pt Lonsdale batteries (DOA 1961). In 1951, the Commonwealth Government acquired temporary use of part of the Quarantine Station from the Health Department for use as officer cadet training, but this was closed in 1985 pending the opening of the Australian Defence Forces Academy in Canberra (O'Neill 1988: 56). In 1988, the site was occupied by the School of Army Health.

D) Forces Structure: Summary of Military Units

In order to understand the effect of the military upon the township, it is first necessary to review the structure of the military units that formed the defence forces manning the Forts. In 1859 Victoria was gripped by sudden interest in the military which led to the formation of the Volunteer Forces (Marmion 2003: 39-43). Volunteers were soldiers who served part time in an unpaid capacity. They were drawn largely from the town's population of fishermen and government workers, and included the Health and Customs Officers and their boat crews, the Lighthouse Superintendent and six assistants, the postmaster, the Telegraph Master, the Signalman and the West Channel Lightship crew (Perry 1973:38-9). In 1860, the Queenscliff Volunteers joined the Victorian Volunteer Artillery Regiment to avoid infantry training suggested by Scratchley (1860:22) to repel land based forces (Perry 1973:39). By 1861, members of the Queenscliff Volunteer Artillery were required by rules/regulations to attend monthly drills, and financial penalties were imposed on those who failed to attend (Macarthur et al. 1859b; VGG 11/10/1859; Pitt 1862:7). The early Volunteer Force was plagued by poor discipline and infighting, and the situation was not rectified until 1863, when it was restructured. A number of improvements were made including the testing of Volunteers for efficiency as soldiers, which led to the exclusion of some former Volunteers from the new force (Marmion 2003:54). In 1883, the Volunteer Force was disbanded and replaced with a Militia Force. The Militia soldiers were paid for their part time service, but were also governed by military law. A new permanent artillery garrison was also stationed at the Heads Forts, and all were was placed

under the command of Col. Lemarchand, a retired officer from the Royal Bengal Artillery (Perry 1973:43). Most of the permanent personnel were elite troops from outside the area, who commanded the Militia during defence practices and annual training encampments (O'Neill 1988:49). Monthly live fire gunnery practice was undertaken from at least the 1880s-1908, which restricted the use of large tracts of sea in front of the fortresses (e.g. QS 29/3/1890, 16/5/1891, 10/12/1892, 3/2/1894, 22/8/1908 - see Figure 5.14), as did areas of submarine mining (QS 29/3/1890), and rifle range practice (see Appendix C-4).

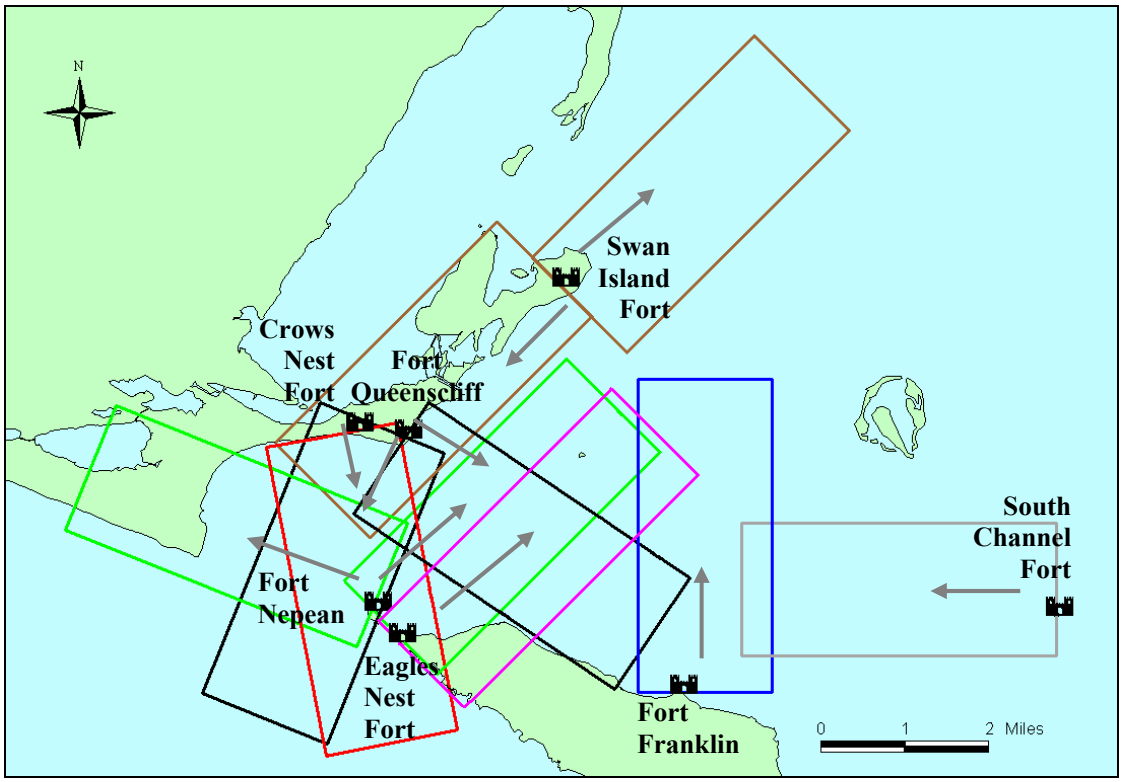

Figure 5. 14: Firing range exclusion areas in 1894.

An examination of the Nominal Rolls of staff at the Forts revealed very few of the former Queenscliff Volunteers were included in the Militia (a ratio of approximately 1 in 500 - Marmion In Prep), which somewhat excluded the local population from many of the military places and activities in which they had previously had access to. An outline of the structure of the Queenscliff Volunteer defences is contained in Appendix C-5 and a more extensive consideration of the volunteer forces has already been presented by Marmion (2003).

After Federation, these groups became the Royal Australian Engineers, and the Royal Australian Garrison Artillery, which were both groups of professional soldiers, and the administration of all military establishments was assumed by the Federal Government (O'Neill 1988:52).

The moral well-being of the military forces also became a point of concern. A soft drink factory began operating inside the fort from c.1896 to the early 1930s. Lemonade and soda water were bottled in distinctive in marble topped bottles embossed with an exploding hand grenade (known as a Bombardier bottle) and ginger beer in stoneware bottles, which were sold at the Fort canteen. The factory was established in an attempt to provide alternative beverages to alcohol and to encourage a more sober lifestyle. The drinks were manufactured for the exclusive use of the military, and hence were relatively unknown amongst the local Queenscliff population (Tate 1982:119,143; Arnold 1990:168).

3) Defence Landscape Archaeological Signatures

A) Forts, Batteries and Associated Infrastructure

As made clear from the discussion above, defence has played a large role in the shaping of the Port Phillip landscapes, both physically and cognitively. Archaeological signs of the military presence in the area were enormous and widespread, and in hindsight were worthy of their own dedicated study. These sites were overwhelming demonstrated throughout the area and were analysed to produce a characterisation of individual site type evolution over time. For the sake of brevity only a summary of the more significant observations is presented here. A detailed consideration of the archaeological signatures associated with all these site types is included in Appendix C-6 along with an overview table of sites type characterisations in Appendix C-7. The main types of archaeological sites within the study area associated with the military were:

1. Fortresses
2. Batteries
3. Magazines, Tunnels And Other Infrastructure
4. Direction Range Finding Stations/ Battery Observation Post
5. Enemy Detection Systems: Searchlights, Engine Houses and Experimental Sensors
6. Mines, Minefields and Associated Equipment
7. Artillery, Ranges and Other Signatures
8. Shipwrecks and Naval Vessels

9. Transport Networks: Road and Rail
10. Piers, Jetties and Docks
11. Naval Anchorages
12. Communications and cables
13. Personal Landscapes and Memorials

The most obvious signatures of the defence landscape were the robust frontline features normally associated with the military presence; i.e. fortresses, batteries and magazines, searchlights and observation posts. These sites were generally found clustered together, and the presence of one of these sites was usually indicative of the existence of other site types close by. More importantly, the larger robust military bases demonstrated the installation and subsequent removal/abandonment of these technological developments into and out of the landscape, both spatially and temporally. It was evident that over time the location of defensive batteries migrated from their original proximity close the central seat of power, to become increasingly distant in response to increases in ordnance and other firepower technology. Forts and batteries were usually preferentially located in the highest elevated areas; a generalised observation that proved accurate for relocating other archaeological defence sites locally (and at other defence sites around the country and internationally).

These sites were also evident through much more subtle archaeological signatures which have previously been scantly documented. The use of introduced (though often indigenous) vegetation at these sites was also an understated indicator of their presence (also through analysis of foliage antiquity), along with the use of introduced thorned species (such as boxthorn) as natural inhibitive forms of barbed wire. The introduction of the threat of aerial warfare to the area in 1942 led to new approaches to camouflage of battery sites, whereby tonnes of leather off-cuts from shoe factories were spread around pathways on the dunes of the Crows Nest Battery to disguise their location from aerial surveillance [LB], and are still evident in great densities around that site. Furthermore, large black carbon rods often indicated the presence of carbon arc searchlights used during WWII (Honoury Editor 1989:8 - Figure 5.16). These sites now comprise unexpected but readily legible archaeological signatures.

Other unexpected type of military sites included transportation networks used for both local (Swan Island Tramway) and the intra-colonial railway station/line (which was installed as a military railway). These sites provided an overlap of interrelationships within the landscape

where the military facilitated community transport networks both within and without the local area. This latter installation was particularly important for the local community as its installation had marked later effects on the tourism and fishing industries through its provision of community transport to and from the area.

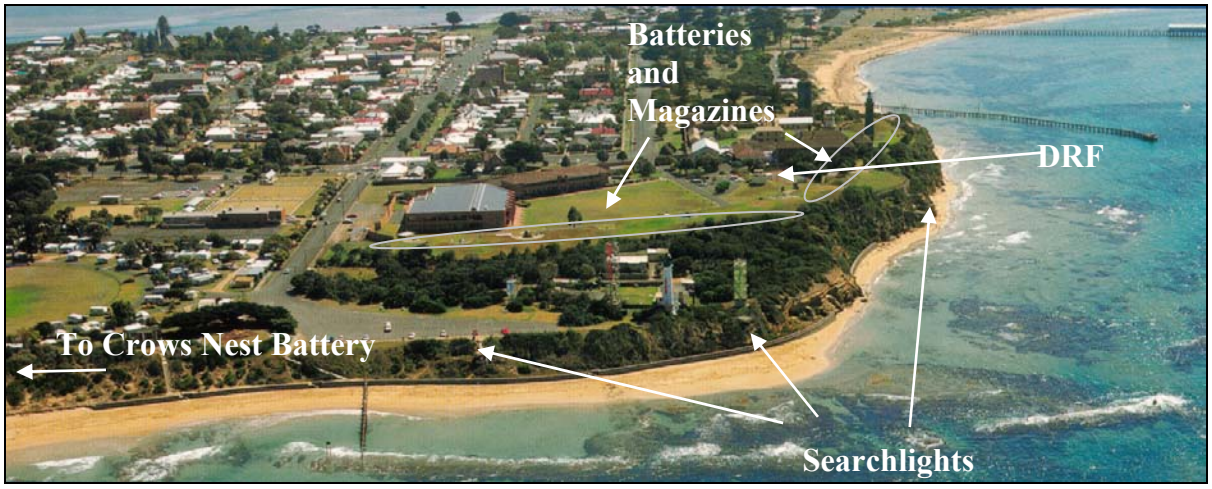

Figure 5. 15: Fort Queenscliff from south (Photo Postcard: Neil Cutts, Rose Stereograph Co., Mt Waverly).

Figure 5. 16: Unused searchlight carbon arc rods (FQ Collection).

It is notable that many previously undocumented types of military sites were also discovered in the littoral and underwater zones that directly noted the military presence, and these are discussed in further detail here.

B) Firing Ranges, Gas Check Plates and Ammunition Dumps

Several divers [CP; DL; PF] reported the discovery of an arc of scattered bronze expansion cups around the Swan Island and Queenscliff Forts, and at Popes Eye. Gas check plates/plugs (also known as plates expansion cups/ disks) were seated between the explosives charge and the projectile to maximise the explosive force with a more effective seal by retarding the loss of gas that escaped past the shell in the bore. They also retarded erosion of the gun bore, facilitated greater range and accuracy, and later aided rotating shells in rifled guns (Patterson 1985:7; Hawkins 1888: 152, 155). Ferrier's collection includes over 24 gas-check plates of two distinct types dating from c1860-1880 [ME] (Figure 5.17 and 5.18). Many of these robust bronze artefacts showed obvious signs of distortion, and some were missing their centres as a result of the force of the explosion. Similar objects have also been discovered in front of forts at Warrnambool in Western Victoria [PR], and at Fort Gellibrand, Williamstown ([PT]; Duncan 2003a: 279).

Figure 5. 17: Gas check plates (Peter Ferrier Collection).

Figure 5. 18: Underside view of 80 pr gas check plate (Peter Ferrier Collection).

Other evidence of artillery practice included fuse detonation devices used to explode artillery shells [LM; PF]. Several types of fuses were identified in both the study area and adjacent zones (Figures 5.19 and 5.20). Cannon balls have also been discovered in this region and in Lonsdale Bight [DL; PF]. These types of artefacts are highly datable and diagnostic of the dates and types of guns used (see Cundill 1877; Hawkins 1888; and Appendix C-6 for further discussion). They further represent tangible evidence of the gun batteries, their range and size

of charges used, and the artefact scatter range compared favourably with known trajectory diagrams (Barrett n.d. [plan] - Figure 5.21).

Figure 5. 19: Artillery shell fuse from WWII Torquay firing range (Lyall Mills Collection).

Figure 5. 20: Shrapnel round percussion fuse (Peter Ferrier Collection).

Artillery practice and gunfire practice was also evident via craters and shrapnel debris that was located on local offshore islands (and one case – Swan Bay Howitzer – this was the only archaeological signature of the battery itself), and bullet heads/ shells and other damage were observed where reefs/wrecks were used as strafing targets [JA]. Similarly rifle ranges in several areas produced tangible evidence of not only the target butts and earthworks, but the range's extent and the types of guns used could also be derived from analysis of the bullets and distance of the butts from shore [CA; JA]. Other spent ammunition was found in association with former rifle ranges at in Swan Bay and Swan Island [CA; GW; LID], and similar observations have been made at Geelong and Williamstown [JA; PT]. See Appendix C-4 for further consideration of firing ranges in this area.

Artillery and rifle targets also presented potential archaeological signatures. Dod (1931:84) recorded that barrels were used as targets in the West Channel, which could be the source of anchors and piles of chain discovered there [CP; DL; PF], and targets were also towed behind military vessels in the 1930-40s [GW]. More subtle evidence of artillery might be found in the neighbouring house construction, where gaps were built into windows to stop them shattering during gunfire practice [GW].

Many ammunition dumps were identified in The Bay, and included various sized artillery shells, intact cases of WWII bullets with waxed wrapping paper, and mortar shells [CP; DL; HG; LM; MS; PF; SA; TA]. Mortar scatters have also been observed offshore from similar military sites

at Melbourne [PT]. These caches also inform of military recycling/ dumping practices (see below).

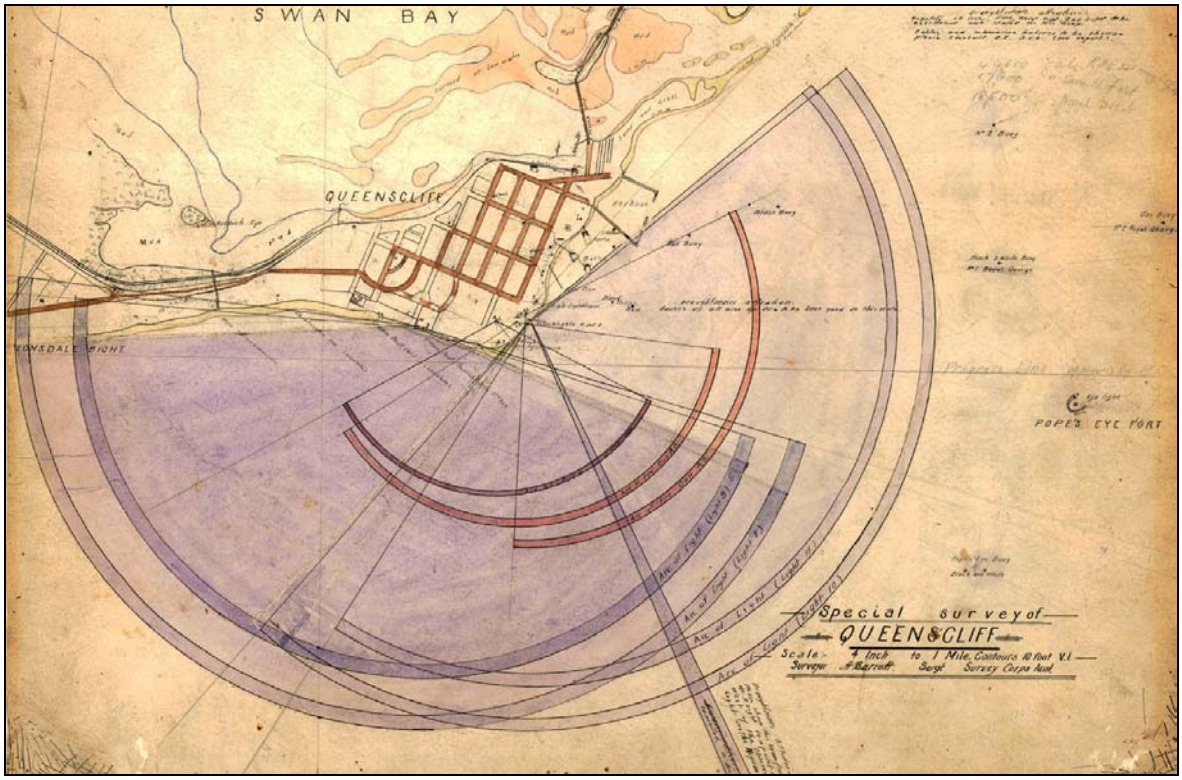

Figure 5. 21: Plan showing searchlight and gunfire trajectories (inner - red) and searchlight ranges (outer - blue) ranges of defence facilities at Queenscliff (Barret n.d. [plan], FQ Collection).

C) Mines and Minefields

The presence of submarine mining was also detected in the study area, both above and below water. Many facilities associated with transport, delivery and storage of mines were sighted at Swan Island, including extant storage sheds, pier remains and hulks used as piers.

The importance of the contextual setting of isolated military finds was succinctly demonstrated when analysing several concentrated deposits of underwater mines [PF]. Although initially indicative of a minefield, their proximity to former mine assembly sheds were, upon further reflection, demonstrated discard behaviour associated with casing disposal and their use as erosion control devices (Anon 1993b). Minefields were by design set across shipping channels, and were often evident by or associated with electrical detonation cables [CP; MS]. Stranding sites may also be another indicator of the presence of submarine minefields, especially where shipping may have been trying to avoid mined areas by navigating close to the edges of the

channels [DL; PF], but this observation could not be adequately tested during this study. These minefields not only formed an exclusion zone for vessels, but also actively represented a dangerous area to be avoided by shipping. It was not possible to ascertain how long it was before the mines were removed, but mines were still being reported to archaeologists in the 1980s/90s [MS], and the significant risk of remnant mines led to the implementation of a remote survey of the South Channel prior to a major channel deepening project in 2006.

The presence of mine detonation mechanisms (i.e. spikes from the shells) may indicate areas of minelaying/detonation practice, but could equally be associated with channel blasting operations in The Rip in the 1960s [PF], when the explosives from outdated mines were removed and used for (blasting associated with) channel deepening (Topp 1930). These practices also produced surplus mine cases which were archaeologically evident in their use as incinerators throughout the district, and as erosion control devices along the foreshore (Anon. 1993b:4, 5, 20), which are more indicative of the presence of a mine assembly plant/ depot than a minefield.

Furthermore, with the introduction of electrically powered telegraph technology and electrical circuitry, communications cables became a part of the defence landscape and several examples were discovered both underwater and on land. These facilities provided previously unexplored indications of the presence/location of battery and mine observation posts and command centres.

D) Innovative and Exploratory Technology

New experimental warfare technology was also evident that demonstrated the movement into the detection of previously "invisible" enemy. WWII saw the instigation of a new breed of site whose technology was hidden from both the potential enemy and the location population. These seemingly innocuous sites (concrete blockhouses and a dolphin structure) housed state of the art warfare, both above and below water in the form of an infrared detection beam and an induction loop to detect incoming ships and submarines respectively. These types of sites were elevated only slightly above the water, and were geographically placed to straddle major shipping confluences. They represented a new war strategy where a finding of a hidden enemy warranted a concealed detection system. Even though these infrared blockhouse structures were visible to the public the secretive nature of the internal installation often lead to widespread speculation as to its use ([CSp; JB] Nelsen 2000). No other archaeological relics were found

under the construction during inspections by the Victoria Archaeological Survey in the 1980s, suggesting that either the structure was unmanned or sporadically occupied [MS]. A similar sized structure at Port Melbourne which housed a degaussing range (to demagnetise ships – see Duncan 2003a: 259-60) was virtually unknown to the local population.

E) Shipwrecks and Deliberate Vessel Discard/Re-use

Several former Victorian Navy and Royal Australian Navy vessels and hulks were used for breakwaters or piers locally or outside the study region (*HMVS Lonsdale*, *Countess of Hopetoun, Childers, Cerberus,* and the *J3* and *J7* Submarines. Several other vessels were also purchased for similar purposes around the Swan Island Base. Numerous other military vessels were scuttled in the Ships Graveyard off Barwon Heads, including four *J Class* submarines. All these craft were normally stripped of all usable equipment prior to being hulked, which in itself demonstrates tangible differences between these and other types of shipwreck sites. The locality of these vessels so close to shore is a potent archaeological signature, as are the often subsequent changes in environmental coastline caused by their presence as they either act as (or in conjunction with) sand groynes, or encourage further erosion.

Far rarer are actual shipwrecks in this area and these include the *Isa* (a former powder hulk), and an unidentified vessel associated with the construction of Popes Eye Fort. Some shipwrecks have even taken on memorial status (e.g. *HMAS Goorangai*). It was notable that many of these vessels evidenced shallow draughts, which demonstrated the need for their manoeuvrability within the shallow waters of the Bay, a factor that was reaffirmed by the limited maximum depths at several local military piers and docks (see below). Strandings of military cargo vessels were also discovered at Pt Nepean, where the substantial cargo of bricks destined for the Pt Nepean Batteries (but which had been thrown overboard to refloat the vessel *Trusty*) were evident underwater.

F) Piers

Military piers were generally short as the vessels using them were of shallow draught to enable their rapid and unrestricted use of the sea terrain of the bay, and were usually serviced by a tramway and sometimes a crane. The military also made extensive use of former defence vessel hulks as piers, especially around Swan Island, and all the military piers examined demonstrated

some form of small gauge tramway, probably to transport ammunition. These sites often evidence substantial underwater archaeological deposits including broken earthenware ceramics, aerated water bottles [SA], and other personal paraphernalia, electrical batteries (for pier lights), insulators, and ammunitions casings. However, no alcoholic bottles were observed.

G) Naval Anchorages

Two naval anchorage areas were located close to Swan Island. A large anchorage for the *Gannet*, *Commissioner* and *Victoria* was located approximately 1 km offshore from Swan Point (A11, c.1889; Anon. 1889; HCW 1889 [updated 1938] [plans]). Many bottles (predominantly aerated water, torpedo and lemonade bottles from Melbourne and Geelong) were found in this naval anchorage area by local divers. The deposits were concentrated in a 360º circle around a mooring anchor and chain which formerly served as a special mooring buoy [DL; PF]. The absence of any form of ceramic, particularly plates of Naval or other origins, in this area may indicate that although naval personnel were stationed aboard vessels in this area, their meals were served ashore. The torpedo boat mooring area used by the *Childers*, *Lonsdale* and *Nepean* was marked by a post which is still evident underwater, with black alcoholic and beer bottles dating to the 1850s-90s of predominantly English manufacturers [PF]. The concentration of alcoholic bottles in this area would suggest that these vessels were out of sight of the commanders ashore, and that these moorings were more permanent and not used only during war maneuvers when discipline would have been closely monitored. Given the abundance of many other naval moorings which were repeatedly used as part of the Easter War Games and for the planned Heads defence networks, substantial deposits are also expected in those areas, but were not examined as part of this study.

H) Military Recycling and Discard Practices

The abundance of abandoned and obviously dumped defence hardware highlights several philosophic attitudes resident in the military regime.

I) Recycling

Recycling of defence hardware and sites was a major component of the military landscape which was evident at many different levels. This is observable in the disposal of obsolete

(though economically valuable) hardware from Imperial Forces, such as naval vessels (e.g. *HMVS Victoria, Nelson, J* Class Submarines etc), redundant guns and submarine mines, and in itself is indicative of post conflict abandonment processes where surplus materials are dumped to Colonial governments. This process has at least two purposes, as it firstly attempts to placate the dependent Colony's needs through minimal financial outlay, and secondly often is economically sound as it negates the inherent costs associated with the necessary disposal of the equipment to the host nation. This potentially leads to a skewed archaeological representation of redundant technology in the patronised nation.

It is notable that many, often outdated, defence sites were subsequently reused to install later technology such as where twentieth century guns were inserted into nineteenth century gun emplacements). This is particularly evident in the constant installation of guns and other hardware that were often repositioned and transferred around the landscape with changes in defence policy, demonstrating the continuing strategic value of these sites. These observations have obvious implications for the archaeological record, especially where new technology was based in older structural surrounds and then removed, as initial inferences would suggest that we are presented with a much older abandoned site, rather than one that has experienced a continuing constant use

One almost universal observation at most battery sites was that the guns had been removed. This absence is significant, as it demonstrates not only the high practical (and strategic) value placed on these items (which were often exported to other locations as needed) and their economic importance as financially valuable commodities, but also their great cognitive value, as many were removed as post conflict war memorials and for celebrations of Australian Federation (see Billet 1994).

It appears that recycling was a widespread practice within the military. Aside from demonstrating the former presence of the submarine mining depot, decommissioned mine cases were often re-used as incinerators were evident throughout the Bellarine Peninsula, and were also used as seawall defences along Swan Island and the actual explosives from the mines were recycled for use in several Channel Deepening projects at The Heads. Similarly, the former Swan Island Tramway rails were also used as seawall defences in this area (Coroneos 2006).

This observation is also highlighted in the post conflict abandonment practices associated with naval defence vessels, many of which were subsequently used as piers, generators, groynes or breakwaters, along with the use of other purchased hulks for similar purposes. In these cases those features have ceased to function as ships, but have taken on new meanings that are related to their new use (i.e. they are now piers and groynes, and not shipwrecks (the latter of which will be later demonstrated to have very different meanings to the community). For further discussion of issues in shipwreck abandonment refer to Richards (2002).

II) Dumping

Where the military did not recycle equipment, they were known to dispose of materials by dumping them into the water. The discovery of several ammunition dumps of potentially valuable ammunition shells and mine cases, crimped knuckle dusters (to make them unusable), submarine hulls and other recorded instances of discarding valuable military equipment (e.g. planes, trucks and other vehicles post WWII) outside the study area give further insights into economic protective strategies employed by the military during post conflict periods. In this strategy valuable war-time equipment was preferentially dumped rather than risk queering peacetime industrial economies through the oversupply of surplus stock.

Clearly the defence forces ranked their hardware according to a hierarchy of values, where strategic, economic and memorial worth were placed on various items at different times, which led to either their recycling or eventual dumping, dependent on what significance was assigned to them. This was played out in a continual interplay between the acquisition of cutting edge technology and the dumping of surplus/ redundant stock, often into the landscapes of others.

I) Social Military Landscapes:

I) Bottle Scatters

Other archaeological evidence of defence occupation was less obvious and relied on observations gleaned from a number of divers. The presence of the characteristic "Bombardier" Victorian Artillery soda water bottles (Figure 5.22) were noted offshore at many fortification sites, especially at the South Channel, Swan Island and Pt Nepean Forts [CP; DL; LID; PF; SA]. Arnold (1990:168) observed that these bottles were only manufactured for use at the forts, and it therefore appears that these bottle types may indicate the presence of military sites in this area.

Figure 5. 22: Victorian Artillery "Bombardier" soda water bottle. Scale = 20cm (Peter Ferrier Collection).

There were often many other non-alcoholic bottles (glass and stoneware) and some bottles known as "blacks" (which were generally alcoholic) were found in these areas, and near the Swan Island Submarine, and the southern end of the West Channel (near a naval anchorage). Their concentrations suggest that these were official rubbish dumping areas [CP; DL; PF; SA]. Most of the soda water glassware originates from Melbourne and Geelong [PF; SA], particularly in the area in front of the Swan Island Fort to the *J3* submarine Another dump over the reef ledge at Bell Rock (Shortland's Bluff) appears to be discard from the Fort, and varies slightly from the other sites due to its inclusion of ceramics and various brass pieces (which were unspecified by the informant).

Although the military provided their forces with aerated water, it appears that alcohol was still consumed in many areas. Interviews with many divers [CP; DL; PF; SA] indicated that there are a number of isolated finds of alcoholic bottles on the periphery of military establishments. These finds were within throwing distance of the shore or jetty extremities (Pt Nepean, South Channel, Crows Nest and Swan Island Forts), and may indicate surreptitious drinking by military personnel in fringe areas where the evidence was easily disguised. Similar deposits have been located in isolated areas of the Fort Queenscliff moat:

> …When the gardeners used to clean the moats out from time to time, I would follow behind them on the tractor, and we would sometimes find alcohol bottles and other artefacts from Queen Victoria's time, you know before Federation. [SH]

These observations provided tangible evidence of social norms that were extensively known locally throughout the township [BMn; CS; HM; PF; SH].

II) Memorials

Many defence memorials are scattered around the peninsula. Of particular note are those at Shortland's Bluff (Figure 5.23) which commemorated seamen lost in many conflicts, along with a major maritime accident in The Bay (*HMAS Goorangi*) where many local defence personnel were lost; and a WWI war memorial at Pt Lonsdale, where an annual service is still held (QH Nov. 2003:1). Other less obvious memorials were the avenue of trees (known as the Avenue of Honour) on the narrow neck road into Queenscliff where each tree was installed for a deceased soldier (Figure 5.24), and the RSL hall near the Fort Queenscliff. These sites provided important foci for grief whilst also acting as tangible reinforcements of identity (and hence belonging) within the general community.

Figure 5. 23: Shortland's Bluff defence memorials

Figure 5. 24: Avenue of Honour, Queenscliff

An overview of archaeological remnants of defence sites are shown in Figure 5.25-5.29.

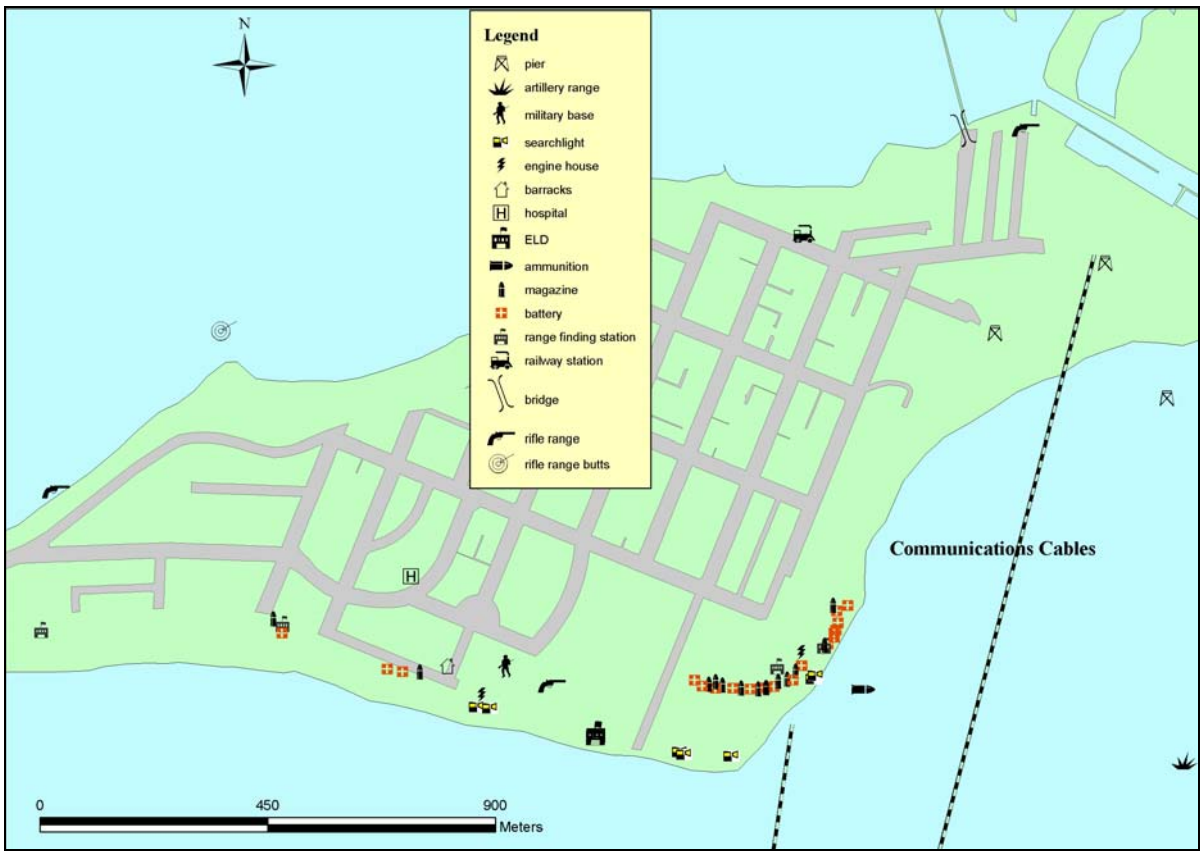

Figure 5. 25: Defence sites at Queenscliff.

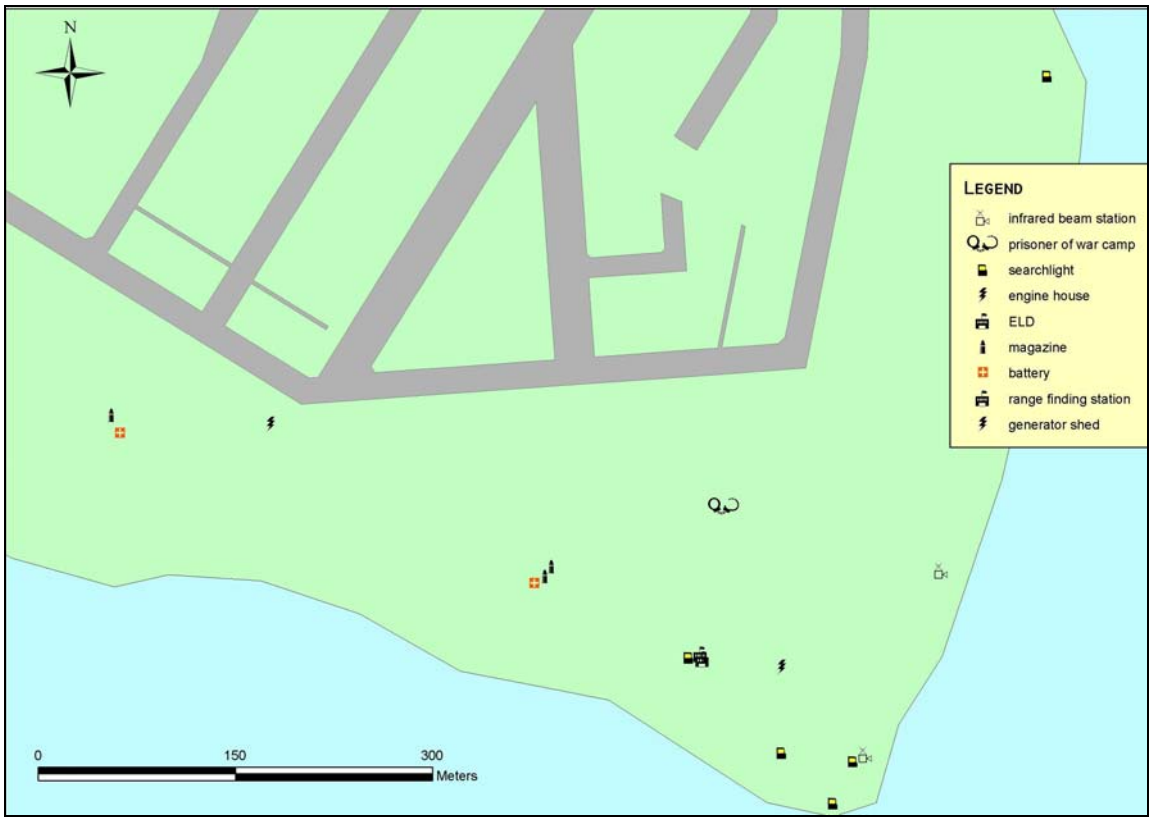

Figure 5. 26: Defence sites at Pt Lonsdale

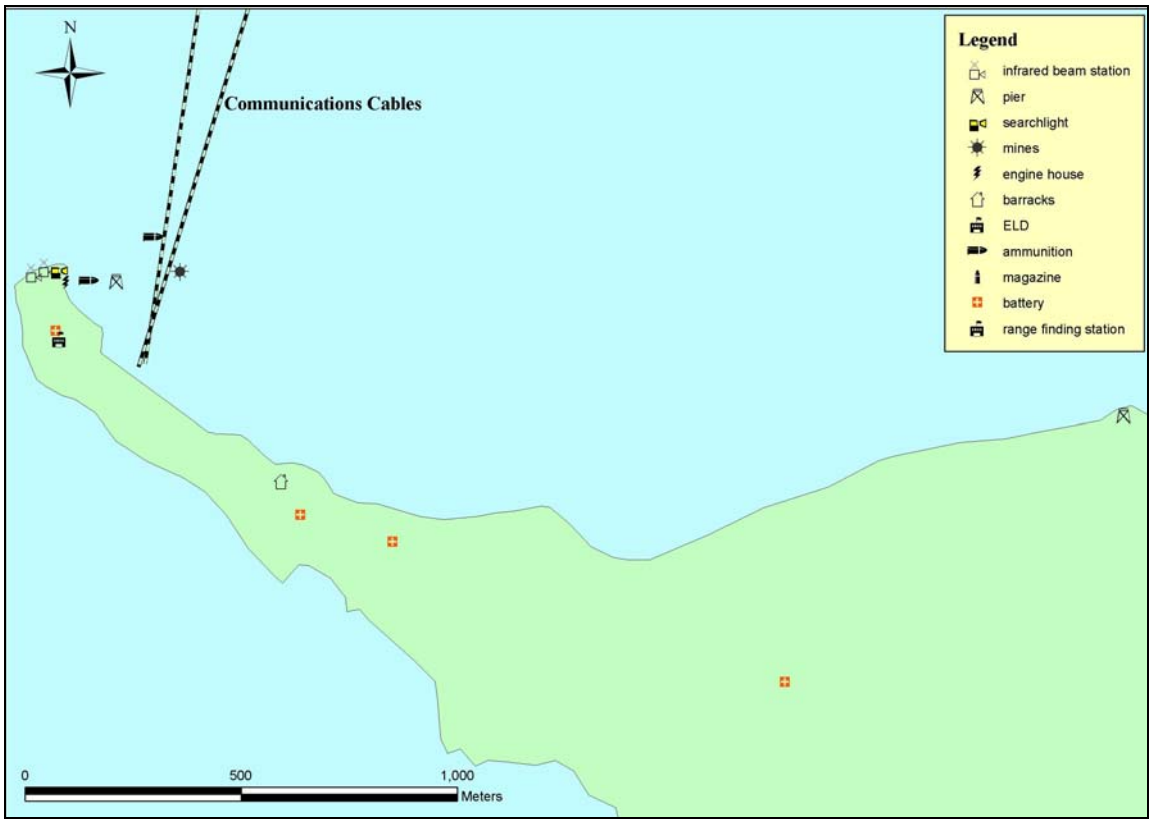

Figure 5. 27: Defence sites at Pt Nepean

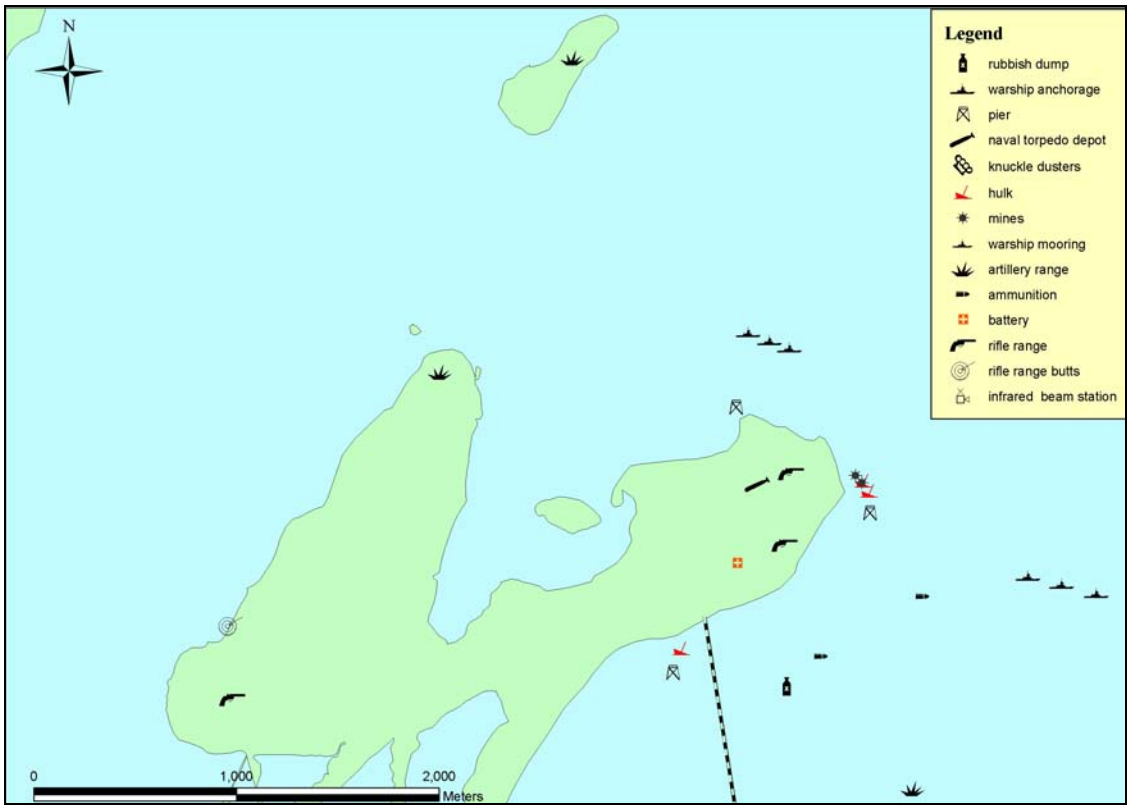

Figure 5. 28: Defence sites at Swan and Duck Islands.

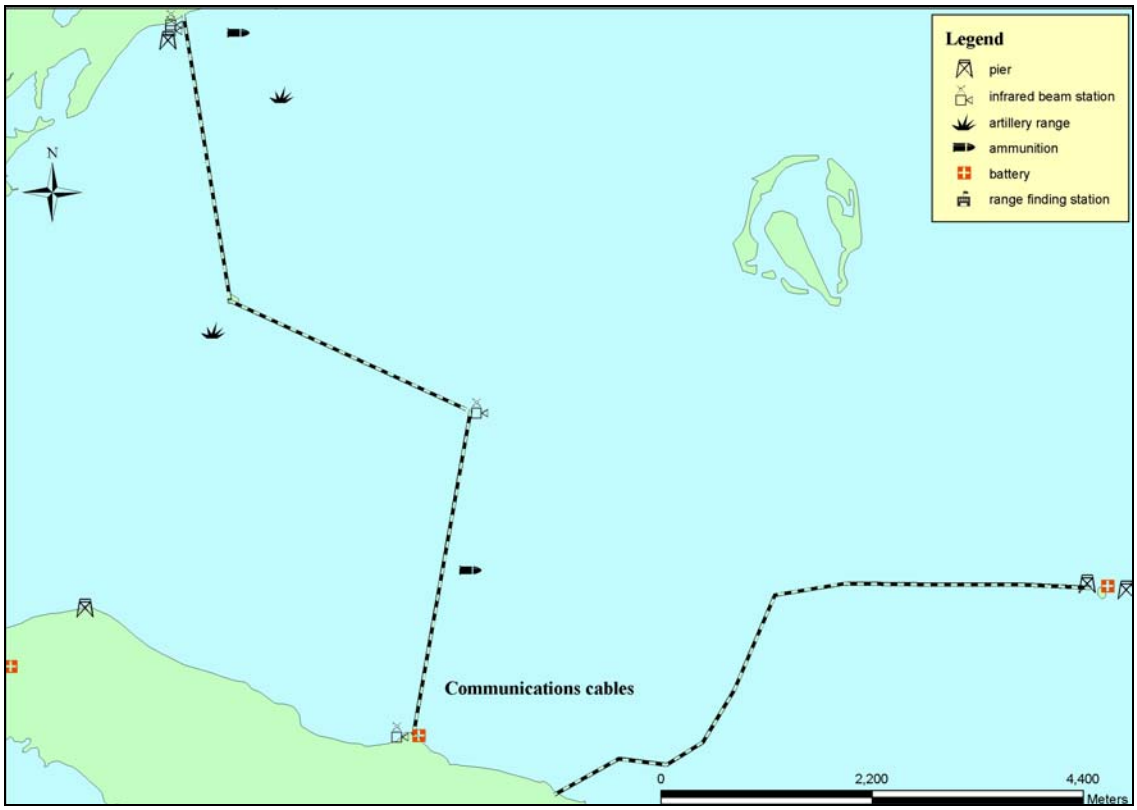

Figure 5. 29: Defence sites in southern Port Phillip Bay.

4) Cognitive Landscapes

A) Technological Advancement and Reactionary Behaviour as a Military Landscape Determinant

It can be seen from the abbreviated military history of the area presented above, that technological advancements played a vital role in the determination of military landscape locations. In particular the advances in gun technology and the associated increases in firing range have shaped military fortification placement around The Bay since the inception of the colony. The restricted firing trajectories of early guns led to the initial placement batteries close to the colony's heart of Melbourne, but meant the area needed additional protection due to the open geography of Hobson's Bay. This problem was solved with the introduction of a progression of individual blockships, to guard the area not covered by the guns at Pt Gellibrand and Sandridge.

The introduction of steam powered ironclad ships in America led to the calls for that technology to be introduced in Victoria, and the ironclad *Cerberus* was ordered from Britain. In the

interim, innovations such as the gun raft *Elder* were introduced to supplement the defences until the *Cerberus* could be brought out from England in 1871. Even though developments in Armstrong and other gun types guns led to greater firing distances, delays in obtaining suitable guns, along with subsequent questioning of their safety record, led to batteries being further developed at Hobson's Bay in preference to The Heads (Pasley 1865a:62).

Even when the colony obtained its own ironclad, it now also had to defend against ironclad technology, which was relatively immune to shore-based gunfire of the time. This led to the adoption of the torpedo minefields in 1877 to defend the channel approaches to Port Phillip (Figure 5.30). When Armstrong RML guns again increased in range and armour piercing pointed projectiles (Palliser Shot in 1863) led to the vulnerability of ironclads, they were successfully applied at Victorian coastal batteries (Jervois 1879; Kitson 1987:5.4; Nicholls 1988:180-1). From 1878 onwards fortresses were seriously considered for The Heads region, and the guns at Queenscliff were replaced with these larger gun types (Figure 5.92). Work also began on the construction of a network of new forts at The Heads in 1879, which included revolutionary new artificial island forts (which had recently been used in England) designed to stop heavy cruisers (Kitson 1987:6.1), and were effective as they could bring guns closer to the battlefield but were not subject to sinking (as in warships). The installation of the railway to Queenscliff allowed troops to be ferried to those positions within an hour of the alarm being raised. By 1882 further innovative designs to fort construction which focused on camouflage and the use of earthen mounds to deflect incoming rounds were introduced locally. These technological advancements were reflected in the new low profile batteries, sand parapets and the disappearing gun (the first prototype of 8" gun was commissioned for Victoria -Kitson 1987:4.5). Furthermore, the increased penetrative power of rounds led to bombproof covers on gun positions (e.g. disappearing gun covers) and associated pillboxes.

The use of torpedo minefields bred a new strategy where teams of mine clearance units would sweep an area in advance of warships (Kitson 1987:3.3). The invention of the Whitehead Torpedo in 1877 also led to renewed threats to ironclad technology, which were then was faced with quick mobile torpedo boats that could easily attack shipping before fleeing. To counter these threats, in 1884 the Colony of Victoria purchased three torpedo boats, a torpedo launch and two new gunboats to chase down attacking craft. New Nordenfeldt machine guns were also installed at the South Channel Fort, and on some gunboats, as the large guns were considered insufficient to target these new faster craft. New searchlight technology was also introduced to

target any of these fast craft attempting a passage through the channels at South Channel Fort and Queenscliff by 1886 and later at all the other forts by 1892. Electrically operated minefields were introduced by 1888 to guard the channels.

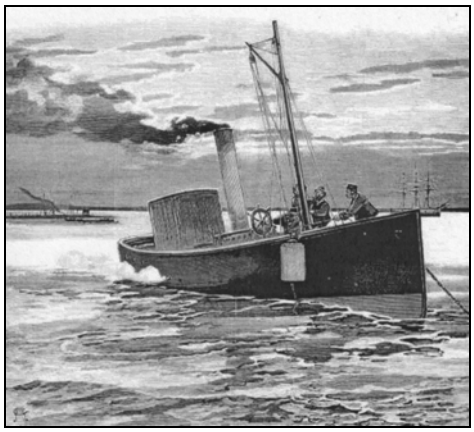

Figure 5. 30: "The *Miner* laying torpedoes" (Sleap, 13/5/1885, IAN, SLV Collection).

The introduction of the new 4.7" quick-firing (QF) Armstrong guns at South Channel Fort in 1889 was a world first and enabled more rapid concentrated fire over a larger area (Kitson 1987:4.7). This development further reduced the need for concentrated fortresses in the area, and was quickly installed in other batteries by 1893 (Fort Franklin). As time went on, larger guns were introduced to even higher fortresses to provide coverage both inside and outside The Bay in 1885 (i.e. Eagles Nest), and some fortresses were made redundant as gunfire trajectory ranges increased from other forts (e.g. Popes Eye 1894; Swan Island and South Channel Forts 1909).

By 1908, the focus of defence had moved to the establishment of a Navy; with the Royal Australian Navy formed in 1911. This led to concentration of defences at the very extremities of The Heads, and in seaborne power. The potential battlefield then began to move further offshore, resulting in the gradual dismantling of coastal fortifications (besides those at Pt Lonsdale, Pt Nepean and Queenscliff) and The Bay defence fleet between 1911-late 1930s.

World War II saw the partial reinstatement of defence facilities at The Heads, but the focus now had moved to offshore defence from German raiders, submarines and minefields, with onshore defence directed mainly from a landing attack, which was to be countered by tank traps and barbed wire entanglements in addition to the artillery from the forts. However, the attack on Pearl Harbour in 1941 saw the potential of air power for long distance attacks. Anti-aircraft guns were installed in the local football field (see Figure 6.37), along with two 4.7" guns at Crows Nest Battery to combat

this threat, along with new guns at Fort Pearce, and Cheviot Hill. The comparative differences in gun technology at Queenscliff since 1860 are shown in Figures 5.31 -5.34, and the changes in defence landscapes as gunnery ranges increase over time are demonstrated in Figure 5.35. A summary of all the forts in Port Phillip is outlined in Appendix C-8.

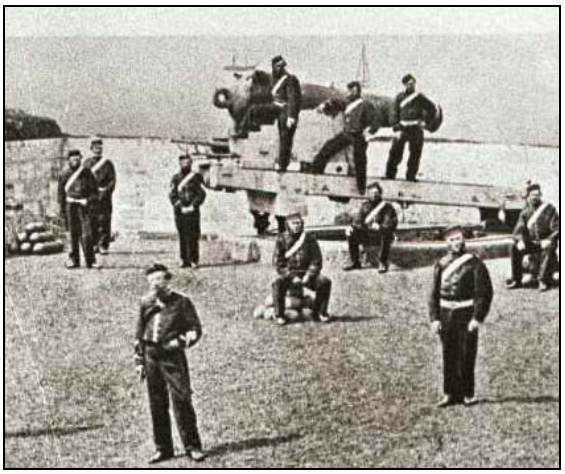

Figure 5. 31: Bluff Three 68 pr Gun Battery in 1866 (Photo PH2, QHS Collection).

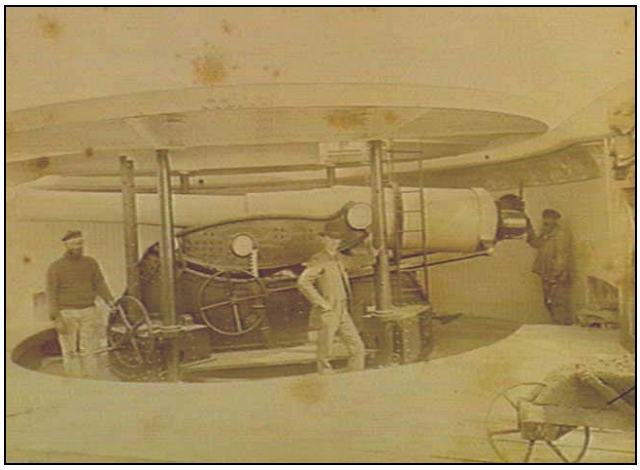

Figure 5. 32: 8" HP BL Disappearing Gun at South Channel Fort (Photo: Kirton, 1892, SLV Collection).

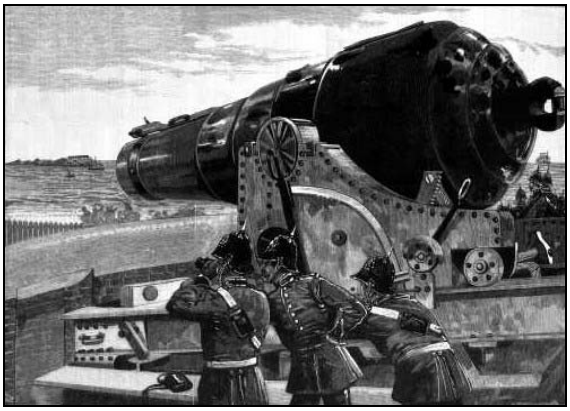

Figure 5. 33: 9" Gun at Queenscliff (AS, 4/5/1885, SLV Collection).

Figure 5. 34: Mark VII 6" Gun at Fort Queenscliff (Image an007181, SLV Collection).

The effects of changes in gun technology on the military landscape between 1877 and 1908 can be compared to the changes due to the introduction of aircraft from 1914-1945 (Kitson 1987: 2.2). The removal of two Mark VII guns from Queenscliff to Pt Lonsdale reflected the increased threat posed from long range offshore guns mounted on warships. Furthermore, the advances in military technology (such as submarine warfare) saw the development of additional new

technologies which were tested in The Bay during this time including the infra-red beam and indicator loop to detect passing submarines or mines.

Technological advances still continue to shape the defence landscape of The Bay and Victoria, and include the British Intelligence and Australian Security and Intelligence Organisation listening posts, the latter of which is still stationed at Swan Island [LID].

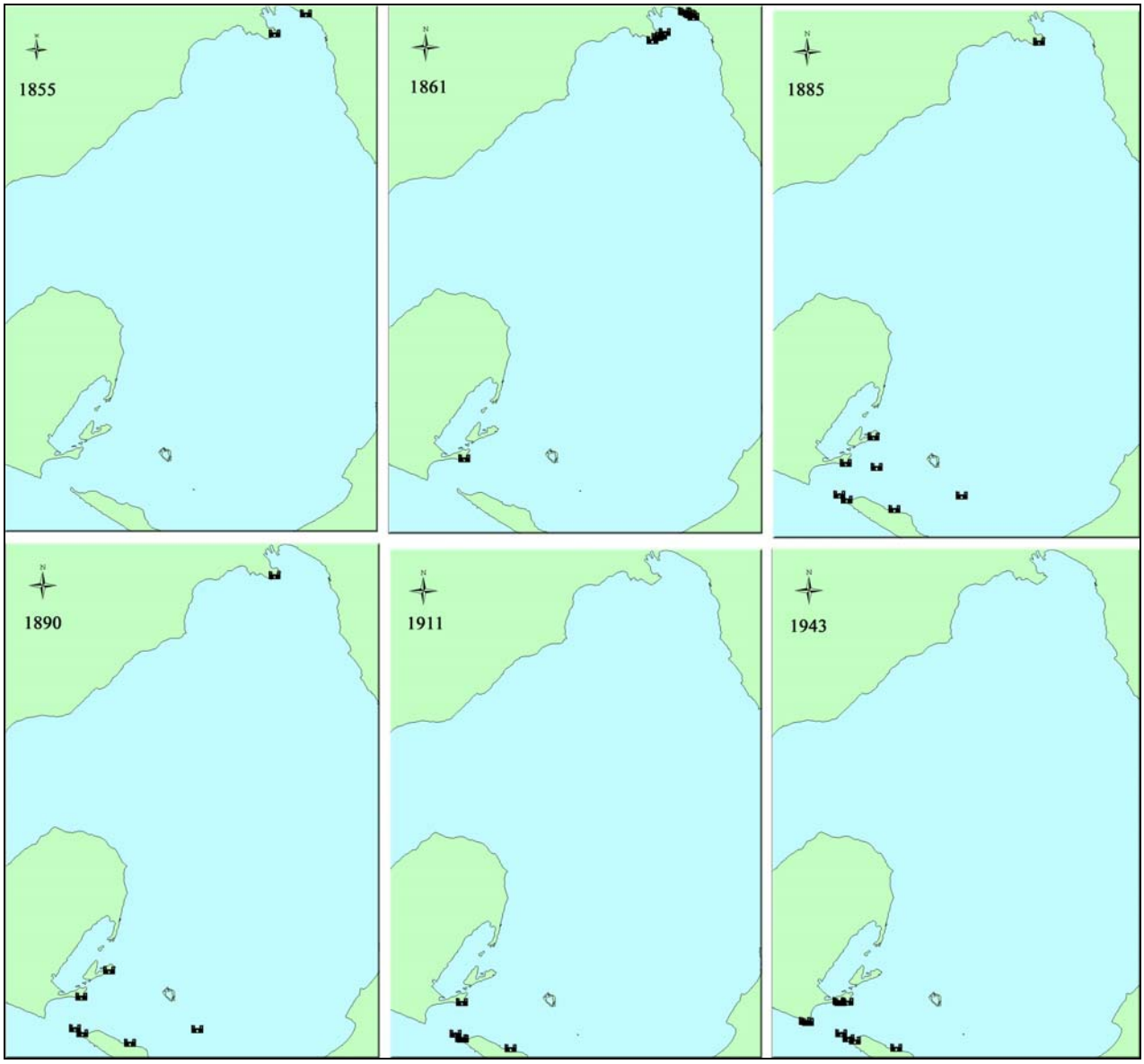

Figure 5. 35: Changing defence landscapes of Port Phillip Bay.

B) Frontier Defence Landscapes and War Strategies

The frontier nature of the Victorian colony, demonstrated by its existence on the periphery of both the British Empire and the Australian colonies during its early development, generated the need to establish its own defence independent from the motherland. The stationing of the defence networks at Hobson's Bay appears originally to have been undertaken due to technological limitations in artillery firepower, but also to install a sense of law and order in the often raucous colony. The transferral of the British Army Military headquarters to Melbourne in 1854 may have reflected early administrative concerns of an armed insurrection, particularly after the period associated with the Eureka Stockade uprising in that same year, and reveals strategies that kept the military under the scrutiny of the government closer to Melbourne. Crime was rife in Melbourne at the time, and gold transport vessels were often robbed while at anchor in Hobson's Bay, while concerns were also expressed about the arrival of ex-convicts in the colony (Sutherland 1888a:136,333; Draper 1900:1-6). It was therefore logical to base military sources close to the metropolis where they were both needed and could be controlled, and this might also explain the late installation of the military railway to Queenscliff.

The later movement of the defences away from Melbourne may also reflect changing attitudes to, and increasing confidence in the defence forces (and their loyalty to the Crown) and the presence of more localised police forces. The progression of defence installations away from the central seat of power over time was archaeologically evident by the spatial distribution of the forts over time (see Figure 5.35). This is an important observation, as when combined with the archaeological observations of defence installation characterisations, it may be possible to identify probable central power bases in frontier scenarios.

It has been demonstrated above that Victoria frequently led the way in the introduction of new military technology, not only in the Australian colonies, but often in the world. Victorian military strategies regularly introduced state-of-the-art military technology that had only recently been invented or trialled. The gun barges at Hobson's Bay, use of ironclad steam vessels, the continued introduction of new artillery technology, torpedoes and electric minefields, Whitehead torpedoes and torpedo boats, Nordenfeldt machine guns and searchlights all constituted some of the earliest adoption of these technologies outside of Britain. Furthermore, in some cases the Victorian colony actually instituted the prototypes of

several types of guns (e.g. the Zalinski Dynamite Gun – Billet 1996:84-87) and ammunition types (e.g. studless palliser shot - Hawkins 1888:251) or were the first in the world to adopt their use.

Although the first widespread use of electrical submarine minefield technology was first introduced in the United States and Canada and gradually developed in the 1860s and 70s (Perry 1965), it was not used outside of England in other colonies until 1873. However, this technology was being deployed at Hobson's Bay from 1867 and at The Heads from 1879 onwards (Kitson 1987:6.2, 7.2). Additionally, the installation of the 4.7" gun at the South Channel fort pre-dated the installation of these types of guns in coastal batteries in England by a year. The South Channel Fort represented a unique example of the incorporation of several new military technologies, and was the first example of a low profile sand parapet island fort in the world. In particular the development of the prototype of the 8" disappearing gun by Victoria for use in coastal batteries, which had been rejected by the British War Office as too cumbersome, led to its widespread use and other modifications in size throughout the world after it was successfully used at the South Channel Fort (Kitson 1987:4.5, 6.1). Furthermore, the *HMVS Cerberus*, now considered one of the forerunners to the modern armoured battleship (Herd 1986:2), was commissioned by Victoria in 1865 (Verdon 1865:41-2; Sutherland 1888a:461).

Despite several accidents during the use of this new technology (e.g. the explosion of the 6" BL HP gun at Queenscliff - Brownhill, 1990:643), these were considered par for the course for bypassing the official testing procedures normally undertaken by the Imperial military authorities:

> The simple cause of the accident was that none of the officers knew that a tube could be exploded by slamming the breech block…In their desire to obtain the latest and best armament, the Colony had purchased guns that had not passed the experimental stage with Imperial military authorities. Consequently, when the guns arrived here...the then officer commanding artillery had to draw up a drill for working and firing them (Age 18/5/1891, as cited in Perry 1973:45)

It can be seen from the above discussion that although Victoria was a veritable frontier to the British Empire and the Australian Colonies, it has been demonstrated that in the mid to late nineteenth century it was at the forefront of military technology. The use of these new technological developments and defence tactics demonstrates that this remote colony was a depository, instigator and user of new innovative defence developments, often long before

they were effectively tested and tried by the more conservative British Crown governments. The use of these new innovations indicates a willingness by the Colonial government to adopt unproven or insufficiently tested hardware and/or to circumvent established testing procedures (possibly in an attempt to reduce defence costs or reduce risks of invasion from more sophisticated military powers) than more centralised powers who were already better protected by their established conventional defences.

This has important ramifications for the study of defence networks worldwide, as new technology and innovative ideas may first be evident on the fringes of society rather than within the central metropolis as would be expected. This suggests that new military technology is more likely to be used on a frontier landscape, where the greater risk of invasion necessitates more widespread adoption of new technology to reduce those hazards. Although this observation has not been further explored here, initial observations of other frontier colonies (e.g. introduction of alternative ironclad technology, submarine and torpedo warfare during the Civil War in America - see Roscoe and Freeman 1956; Scharf 1996; Murphy 1998) suggest that there may be analogous trends elsewhere. Therefore it is possible that the archaeological discovery of new defence technology (and/or indicators of military hardware mishaps) may in itself signal the edge of a frontier landscape archaeologically.

Furthermore, although it is noted that frontier colonies are also more likely to inherit obsolete or old military hardware from Imperial powers (e.g. *HMCS Sir Harry Smith, HMS Nelson,* the *J* Class submarines, and obsolete guns), these discard behaviours will also be indicative of frontier behavioural defence strategies, and will probably be more indicative of post-conflict periods when excess military hardware is being discarded. These two conflicting situations present an interesting dichotomy, where state-of-the-art and redundant technology may exist side by side in frontier scenarios, and this dual occurrence may in itself be a frontier landscape indicator.

C) Episodic War Scares and Changing Attitudes to War

It is clear that the theatre of war has progressively moved further offshore over time as advances in warfare technology have taken place. This has led to a marked change in attitudes to defence over time. The importance of The Heads area as a strategic target was recognised very early on by Colonial newspapers:

> Port Phillip Heads is becoming rather an interesting locality, from continuous arrival and departure of vessels, and it will of course become much more so, when the extra lighthouse is erected, the electric telegraph at work, to say nothing about the quarantine station. Of course, we shall have to erect two guardian fortresses, bristling with cannon, but no such item appears in the estimates. (GA 12/11/1852:2)

Paranoia was clearly a factor that influenced the development of the Port Phillip Bay defences. In the mid-to-late nineteenth century there was undoubtedly a state of panic in the colony regarding defence, and these were only heightened by the continual war scares which often local citizens to panic and in many cases arm themselves. Furthermore, news of every technological advance in military hardware brought trepidation to the community, who sorely felt their extreme isolation from the motherland. Several local volunteer forces were organised throughout the colony, which, under the guidance of appropriate officers, were largely responsible for defence until the 1880s when permanent troops were engaged.

Every key upgrade of the defence systems around Port Phillip and Queenscliff can be traced to either to war scares or advances in technology (Appendix C-9). The Russian scares of 1853-56, 1870, 1879, and 1885, along with the threat of war with America in 1861 all saw major periods of defence construction around The Bay. In particular, the late 1870s and 1880s saw a flurry of activity that bordered on panic. The railway was hurriedly constructed to Queenscliff to allow troops to be immediately despatched from Melbourne in an emergency. Dod (1931:94) recorded the activities at Fort Queenscliff in 1882 (see Figure 5.36):

> Plans for the erection of the...brick wall which now encloses the fort, for digging the moat inside, and...the keep…were rushed along as if an enemy was expected to arrive at any moment. I can remember seeing Sir Peter Scratchley…tearing around with a small army of subordinates... putting as much energy into the work as if it were necessary to finish it in twenty four hours.

The desperation to finish the defence works were often echoed in local newspapers: "Time and tide waits for no one, and the proposed fort (at Popes Eye) must be gone on with at once" (QS 3/4/1886). Several papers indicated the perception that war with Russia was imminent:

> Not that we want to be considered alarmists, but those about to build on Queenscliff should remember that Russia is increasing her fleet in the Pacific. It is only a question of time. (QS 13/8/1887)

When another scare occurred in 1888, it prompted all the defence garrisons to be mobilised. The defence networks were highly criticised at the time, as the forts at Pts Nepean and Franklin had been almost completely dismantled, presumably having either been replaced by the longer

range of the gun at Eagles Nest, or were in the process of upgrading their guns (Age 2/7/1888; Argus 2/7/1888; O'Neill 1988:45).

By the time the forts at The Heads were finished they were the most formidable defences in the southern hemisphere (QS 23/12/1882) and were known in the 1880s as "the Gibraltar of the south" (O'Neill 1988:39), which must have led to some degree of security for the colony. However, concern was again expressed about the lack of available men to operate the guns during the Easter war games in 1892 due to recession and government cutbacks:

> Thursday's operations were confined to Queenscliff and Nepean Forts, the VA and Engineers not being strong enough to man all the forts. This is a serious matter, as should a hostile fleet attack the defences at The Heads some of the forts will be virtually wiped out of action and at the mercy of the foe. To bring up the militia garrison batteries will take time, and an attack, if made, will be without warning. Major Umphelby is constantly practicing the officers and men under his command at a carefully prepared scheme of defence of The Heads might prevent a catastrophe as described, but what with a complicated armament, scientific and elaborate gear, largely distributed command, paucity of officers and men, the task is a severe one. (QS 26/11/1892)

Figure 5. 36: New heavy battery at Queenscliff (13/5/1878, SLV Collection)

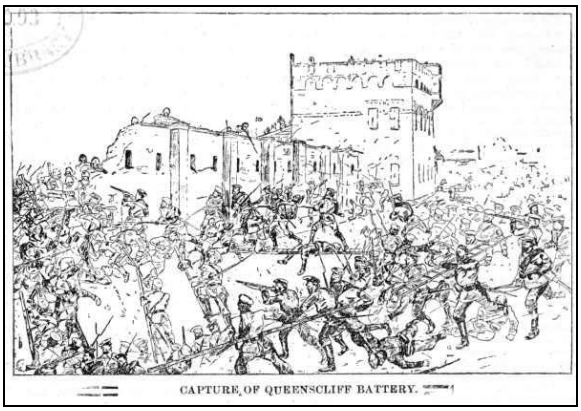

Figure 5. 37: Scenario of the capture of Queenscliff Battery (IAN, 1/12/1893, SLV Collection)

The replacement of some militia forces (Port Phillip Battery Corps) in 1892 with a limited force of permanent soldiers was greeted with trepidation, and several speculated scenarios of potential Russian invasions of Melbourne was presented in the local newspapers (QS 22/7/1893; Figure 5.37) which seems to have been a common reaction in popular literature around this time (see Mullen 1883; "An Old Colonist" 1883). It may also have served to isolate the community somewhat from the defence forces through their exclusion from military service.

However, fears of war appear to have quickly faded after this time. Newspapers which formerly supported the defence networks, were now openly hostile towards the expenditure outlaid for their construction. When the Popes Eye Fort became redundant by 1890 due to improvements in gun technology based on Swan Island (Tate 1982:73; Kitson 1987:2.2, 6.5), a local newspaper lamented the waste of public funds spent on what it called:

> …a useless heap of stones representing thousands of pounds thrown into the sea. No doubt about it, the past governments have had a high time squandering the public's cash, and we think that if Christ came to Melbourne he would fall upon his knees (QS 28/7/1894).

It later openly criticised the works on the moat around Fort Queenscliff and Popes Eye as white elephants:

> The war scare which occurred about twelve years ago afforded many a constructive lesson to the Government…the Queenscliff Fort...and Popes Eye Fort. It was probably the knowledge of these two impregnable and wonderful defences…that induced …the Czar to throw up the sponge and stay all warlike proceedings. This was the only good thing which this great outlay of public money ever did…excepting providing a haven of rest for weary seagulls, and the ditch as a cowcatcher to prevent wandering cattle from entering and nibbling at the legs of artillerymen as they are drilled at the guns. (QS 2/4/1898, as cited in Tate 1982:78)

It appears that with the installation of an effective defence system, citizens were now becoming blasé to the role of the defence forces and warfare in general in the town. The complacency of Queenscliff residents to the threat of war was remarked upon in 1908:

> Queenscliff residents seldom realize what this would mean to them. In an action at The Heads the town would probably suffer more than the fort… Out at sea our large buildings stand out very prominently, and these would probably become an aiming mark by which the enemy would, judging by the effect of their shell fire on them, be enabled to estimate the range required to pump their projectiles into the defences. It is therefore sincerely hoped… that the day is far distant where we shall be awakened to hear the dreadful booming of an enemy's cannon at our gates. (QS 25/4/1908)

Annual Easter war games saw the town overrun by military each year, with constant firing of the artillery and testing of the submarine mines. The environment of games for 1886 was described as such:

> Visiting dignitaries fired the four torpedo charges at The Heads, producing four superb fountains of water, and then the vessel Miner simulated the effects of a vessel detonating a mine, when it deliberately struck the circuit cable and set off the mine. The seashore trembling and vibrating as an immense volume of water leapt about 200 feet into the air. A mock night invasion was practiced on the Sunday Night. More explosions were set off in front of the Doctor's Jetty the next day, much to the delight of the spectators present. (QS 1/5/1886)

Furthermore monthly gunfire practice was a regular occurrence from the 1880s onwards (QS 29/3/1890, 16/5/1891, 3/2/1894, 22/8/1908). Along with mine and torpedo testing (QS 29/3/1890) in the West Channel until at least 1907 (HOA), and machine gun practice (QS 25/3/1893), the noise and shockwaves pervaded throughout the entire town. The boom of continuous gunfire exercises and looms from fixed searchlights became a way of life in Queenscliff [CA; CS; GW] which probably further desensitised locals to the threat of warfare:

> When the 6" guns would practice, you would hear this bang and everything would rock. We had a dresser with cups on hooks and the cups would jump off the hooks. This went on back to at least the 1880's, and since I can first remember. The guns were a part of life. In the 1930s tugs would tow targets for the guns to fire at, and they would often nearly hit the tugs too. No [we didn't lose our windows with the gunfire] it didn't happen. Even people living close [to the Fort] didn't lose windows. They only used to use half charges for that reason. When new buildings were built at the fort around 1936, they were built with gaps between the window frames so they wouldn't break. [GW]

In the twentieth century, Queenscliff residents were well aware of outset of periods of conflict, as first shot in each World War was fired from The Heads [DS]. Searchlights were used during WWI and WWII to illuminate incoming shipping (O' Neill 1988:52), and the Pt Nepean lights were reported to be so bright that one could read a newspaper on the beach at night at Queenscliff (Cronin, cited in Tate 1982:153). Night time searchlight practice was undertaken at Queenscliff in WWII with planes from Melbourne or Geelong, and during the day the planes towed targets for anti-aircraft practice [GW]. Artillery gunnery practice was also conducted during the 1940s (Tate 1982:147, 150). Following Pearl Harbour, the threat of aerial attack became a tangible reality, and as many guns had already been taken for scrap from the forts or removed to Darwin to reinforce its defences, local Engineers fabricated mock guns out of telegraph poles which were mounted on the gun positions to deceive the enemy (Ward, cited in Tate 1982:154).

Even though the presence of war pervaded all aspects of everyday life in Queenscliff, there was marked complacency amongst the community regarding hostilities, particularly during WWII when the dangers from German enemy shipping were closer and more tangible than ever before (Tate 1982:99). It appears that the defence paranoia instilled on the township since its inception, may have caused the community to become blasé about the dangers. Even during WWII, the Queenscliff citizens were complacent about the war being centred in Europe and the Pacific, and that the township was immune from hostilities (Wane 2003:36). The war was a distant threat to soldiers based at The Heads, and moral was often low from long periods

scanning the horizon for vessels or planes that did not appear (O'Neill 1988:56). A WWII artillery soldier stationed at Pt Nepean recalled:

> No, we never thought we were under imminent threat, we were just doing a job. The only threat was when the rations didn't arrive…But no thought of war. (Stillman, cited in Tate 1982:156)

Many other residents echoed the same attitude. When asked what people thought of the extensive defence networks and their possible effect on the community as a target, [CA] replied: "you accepted it. You were brought up with it…Even during the war, you didn't know there was a war on...there was a war on, but it was not here". This sentiment was reinforced by [GW]:

> It was a lot of fun…we had regular air raid practice where we had to run to slit trenches... it was a bit of a joke really to us kids…I don't know how the adults felt at the time, they never talked about it. One thing they did say, was that if Swan Island (mine depot) was ever hit, Queenscliff would go. [GW]

The physical effects of the gunfire practice seem to have been widely accepted within the community, despite the disturbance to residents. The most obvious effects on the community were the visual prevalence of military hardware in the region. There were very observable reminders of the war in Queenscliff:

> The back beach was closed off from 1942 until the end of the war. There was barbed wire from the cliffs all the way around to Cottage by the Sea. There was a big gun emplacement behind Maytone [Guesthouse] during WWII. A bloke was shot at Crows Nest during WWII, and then dragged down into the water, even though the other guards at the base heard the noise and saw the shot. They returned fire at the man, but didn't catch him. [GW]

Although this event sent repercussions through the community, and the effects were mainly felt by the children:

> After the soldier was shot at Crows Nest, my brother and I were terrified whenever we had to go to the toilet of a night, as the toilet was outside. [JP]

This starkly contrasts with viewpoints of other communities on the Western Victorian coastline, which was subject to mining from German minelayers, where Hunt (1999:30) observed that "people were nervous, with all sorts of rumours floating around. Three Navy minesweepers were anchored in Loutit Bay…and they were evidently sweeping for mines laid by German and Japanese minelayers in the shipping lanes off Cape Otway". Gun firing and marching practice was also undertaken around the town, which Hunt (1999:29) thought was: "trying to instill a bit of confidence into the local townspeople". This suggests that the defence facilities of Port

Phillip provided (to some extent) a degree of perceived security that was reflected by nonchalance of the local community to possible invasions.

It is clear that the paranoia experienced in the nineteenth century was well removed from the community by the twentieth century, even though the conglomeration of defence facilities and other structures and services made this area a very strategic target indeed. The removal of the war theatre offshore appears to have led to a culture of antipathy towards the military as the war threat diminished, and they were thought of more as a curiosity and/or annoyance in later years, as compared to a previous necessity. The resident's eventual exclusion from involvement in the army through voluntary service (in the nineteenth century) was eventually reflected in changing attitudes to the army, who were later seen as interlopers to the town.

5) Discussion

This chapter has provided a summary documentary history of defence in Port Phillip Bay, upon which to examine the expansion of the military landscape. It has been shown that the defence landscape was driven historically by ongoing advances in technological innovation and was highly influenced by political strategies (both local and international), which were based on economic protective policies or strategic alliances. These factors led to a highly dynamic and evolving military landscape which resulted in the reservation (and later subsequent abandonment) of previously important military areas as each technology became redundant, and led to the eventual advancement of the theatre of war into the maritime landscape further offshore. Of interest here was the plotting of the installation and removal of these technological developments into and out of the landscape, and also the impact of exclusion of the local population from parts of those regions (see below). This dynamic and episodic nature is an important signature of military landscapes.

The presence of new technological developments may also indicate or typify the archaeological signatures of frontier military landscapes, and that this dynamism is recognizable in the changing fabric, style and nature of the archaeological record both temporally and spatially. Many new types of defence sites and their subsequent archaeological signatures (some of them seemingly insignificant) have been identified that characterise previously unrecognised components of military life, all of which have great applicability for examining the military presence elsewhere where documentary records are less informative.

Foreign political upheaval and tensions have been shown to have marked effects on local defence strategies, and have introduced cognitive components of external landscapes into local community perceptions. This observation further suggests that even localized defence landscapes form part of a much wider international forum, which demonstrates the different nested levels at which landscapes operate, and the transposition of new technology and practices from one area to another.

The military's almost universal use of land and sea demonstrates a borderless conception of the potential arena of war, where the distinction between the two mediums is limited only to the mode by which each is managed. This continuum of the defence battlefield that straddles both land and sea (and often disparate/ isolated continents) is significant, as it further demonstrates the interconnectedness of marine and terrestrial landscapes in the military mindset.

Furthermore, these same landscapes of war have demonstrated the multivalency of perceptions that existed side by side in the township. On one hand, there was the angst and paranoia of the defence personnel in their rush to finalise their preparations for war, which in response seemingly spurred on a nonchalant, almost carefree response in the local civilian population to the actual threat of invasion (especially in later years as the arena of war moved further offshore). The seclusion often isolated the local residents, not only physically from the potential battlefield, but also cognitively from the threat of war. It has also been shown that perceptive attitudes to warfare were episodic, and that the same sites which once inspired so much confidence and were admired for their symbolic protectionism/paternalism, were later denigrated as fool hardy wastes of money. This aspect demonstrates the temporal dynamism of landscape values, and the short periods within which they can change.

Defence landscapes often existed as exclusionary regions for the civilian population, where areas of both sea and land were off limits. These empty prohibited spaces presented an intimidating political message to potential enemies, but they also symbolically transmitted the power of the military to and over the local population. Exclusionary practices were materialised in restrictive behaviour and compartmentalization of the landscape presented a powerful tool that characterised the military presence, both for civilians and their own personnel. Attitudes of exclusion towards local involvement in defence will be seen to be a key determinant in the construction of the various community landscapes and relationships within Queenscliff, which will be discussed further in Chapter Eight.

The continued presence of the military in this area has obviously shaped the structure of the various community landscapes, through its exclusion from certain areas, its physical and sensory imposition on the residents, and its influence on the perceptions of the town as a target. The defence landscape has had significant impacts on the formulation of other maritime landscapes within the area, through the definition and enforcement of exclusionary areas, and which will become evident in the forthcoming chapters.

It is notable that defence force landscapes were evident in rich documentary historical accounts that outlined the technological aspects of the warfare machine, and were abundantly evident in substantial and robust archaeological remains of the former military facilities. However, the transitory nature of the defence personnel in the township often curtailed any deep ethnographic or traditional investigation of the military culture itself, resulting in an impersonal landscape that was often devoid of individual insight and any time depth outside of official historical customs and practices. On a smaller scale, defence personnel differentially experienced landscape based either on hierarchical status associated with rank, or geographically dependent on their role within the forces (i.e. naval vs. army, artillery vs. submariner miners), which was reiterated by the lack of knowledge of practices and procedures outside their own physical workplace area and occupational speciality. This situation produced many individual landscapes perspectives that were often difficult to access due to the inherently hierarchical, compartmentalised and transient nature of the defence forces structure and personnel. This situation highlighted the multivalency of defence landscapes, which existed on many different levels both officially and personally. Furthermore, it also demonstrated the restrictions in data sets that might potentially be available to access some defence landscapes, which were predominantly informed by documentary and archaeological data sets.

In the next chapter I will explore the township of Queenscliff from another perspective, that of fishing. The social mechanisms that drove the generation of fishing landscapes will be explored in further detail, along with how these might be archaeologically expressed, and what data sources might inform of them.