THE UNIVERSITY OF WESTERN AUSTRALIA

SURVIVING THE "CURE":

Life on Bernier and Dorre Islands under the Lock Hospital Regime

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School of Anatomy and Human Biology
Discipline of Archaeology
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‘Archaeologists: the only people

who like living their lives in ruins.’

(Unknown)

Photograph on Cover Credits: Unknown Author. Women on Dorre Island. c1911. Battye Library at Concession Number. 21085P

ABSTRACT

Between the years 1908 and 1918 two islands off the north-west coast of Western Australia were used as 'Lock Hospitals' to incarcerate Indigenous West Australians who were deemed to have syphilis. Men and women were held separately on Bernier and Dorre Islands respectively. Indigenous people diagnosed with syphilis were forcibly removed from their homelands in public health measures ostensibly designed to limit the spread of disease from the Indigenous people to the colonists. It is clear from historical documentation and oral histories that while few of these individuals actually had syphilis, they were experimented on and kept in an inhospitable and resource-deficient environment until they were either declared cured by the European doctors or died on the islands.

Little is known of how the European doctors, nurses, workers and their families or the Aboriginal patients lived on the islands – how the Aboriginal patients survived and actually recovered from disease and how the Europeans lived in an environment with few familiar resources. Historical documentation indicated that the Aboriginal people were encouraged to live 'naturally' on the islands and that Europeans were to live as best they could. Many questions remain, however, about how two different sets of people with different ideologies and knowledge of the island environment drew sustenance from it – how they used it to obtain food, water, fuel, and medicinal treatments in order to survive and continue their ways of life. This research looks at the ways of life of the people who lived on Bernier and Dorre Islands during the Lock Hospital period and also explores the issue of the use of medical models such as the Lock Hospital Scheme as a means of social and economic engineering and control of native populations.

Archaeological site recordings and surveys, which were conducted during two field seasons each of approximately ten days, included recording sites and artefacts, photographing material remains and general surveying of the research area. This research confirmed the existence of the Lock Hospitals, the Aboriginal campsites, the Europeans' houses and revealed a plethora of artefacts pertaining to each of these groups of people.

From the analysis of the data they yielded, it was seen that the Europeans had been equipped with the latest delicate and expensive ceramic ware, imported foodstuffs,

personal objects, building materials and medical supplies. The limited objects associated with Aboriginal sites were confined to domestic and local animal bones, marine shells, highly fragmented bottle glass, ceramic earthenware, government-supply corrugated iron and traditional flaked stone and glass tools.

Spatial analysis of the remains of the hospital and campsites on Dorre, the island on which females were held, leaves the impression that the site was set up either with great insensitivity to Aboriginal values or as a deliberate attempt to control inmates through institutional hospital design. For example, the mortuary was positioned so as to overlook the living areas of sick patients and the hospital and ward area were surrounded by a wall of dunes. The analysis of the remains on Bernier Island, which accommodated the men, gave the appearance of being more functional, with many open areas. Like many European architectural designs of the time, the European quarters on both islands were positioned in the best geographic vantage points, overlooking the hospital area with aesthetically pleasing views and a cooling breeze from the ocean in the height of summer.

Differences were seen in aspects of spatial use, natural resource exploitation and hospital layout between the two islands. On Bernier Island male patients lived and worked in open areas near the hospital sites and exploited a relatively small range of the natural resources available on the islands. There is evidence that they continued to practise traditional tool making. On Dorre Island female patients lived in discrete sheltered areas hidden from view of the hospitals and collected a variety of resources available on the islands. These differences may have arisen from economic determinants of the time such as who was needed to provide cheap labour in the European workforce, the time each gender group spent incarcerated on the islands, and attitudes towards the ‘purveyors’ and ‘victims’ of disease.

Results of the research indicate clearly that both European and Aboriginal people made use of the limited resources available on the islands; the Europeans using them mainly for building materials and the Aboriginal people for subsistence. Both relied heavily on natural island resources for water, however.

While historical and oral records describe Bernier and Dorre Islands at the time of the Lock Hospital Scheme as a picture of ‘misery, horror unalleviated and tombs of the living dead’ (Bates 1938:96-97) there are signs that the Europeans lived a moderately

comfortable lifestyle and that the Aboriginal women and men confined to the islands kept hold of their cultural beliefs, traditions and some small and occasional measures of independence. However, there are also indications of a darker side to the scheme - suggesting that the 'Lock Hospitals' could be considered along the same lines as prisons and other controlling institutions with high mortality rates, poor living conditions and the use of patients as possible subjects of scientific experimentation.

The Lock Hospitals and associated Indigenous and European sites on Bernier and Dorre Islands offer invaluable information on the European medical environment and general views on the Indigenous populations around the turn of the twentieth century. The sites hold knowledge of a combined story of European and Indigenous interaction under a medical environment. There are substantial and largely uncontaminated archaeological sites on both Bernier and Dorre Islands of significance to the fields of archaeology and human biology as well as to the history of all Western Australians. The stories that come out of this research should contribute to a better understanding of the period in which they operated. By documenting the significance of these sites, this research highlights the need for their ongoing preservation and protection for future research and as a reminder to the general public of a time, place and world view different from their own.

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I would also like to thank those who are reading this thesis, as the human past is a shared story – it belongs to us all and from it we can gain valuable insights into how the past affected those who were in it, those who choose to study it and those who choose to cherish the information, the antiquities and the stories that come out of it. The Western Australia Lock Hospital Scheme is one of these stories and by reading it you give meaning to the Aboriginal and European men, women and children who lived their lives through it.

DECLARATION

This thesis is submitted in partial fulfilment of the requirements for the degree of Combined Master of Forensic Science/Doctorate of Philosophy within the School of Anatomy and Human Biology, Centre for Forensic Science and the School of Social and Cultural Studies, Discipline of Archaeology at the University of Western Australia.

I, Jade Louise Stingemore declare that the content of this dissertation is all my own work, except where the contributions of others are otherwise stated.

Jade Louise Stingemore
March 2010

TABLE OF CONTENTS

Appendix G

Published Papers on the Lock Hospital by author

LIST OF FIGURES

LIST OF TABLES

Chapter One

INTRODUCTION

Chapter One

INTRODUCTION

Chapter One

INTRODUCTION

Just after the turn of the twentieth century, the Western Australian government formulated a scheme whereby Indigenous people with syphilis and other venereal diseases were collected from their communities across the state and taken to Bernier and Dorre Islands in Shark Bay, Western Australia. The islands were effectively used as 'Lock Hospitals'. The term 'lock' meaning 'bandage', was often applied to hospitals used for the treatment of venereal diseases following the closure of lazar (leper) hospitals with the decline of leprosy (Webster's Dictionary 1998). Indigenous Australians judged to be 'syphilitic' between the years 1908 to 1918 (Jebb 1984) were held there until deemed cured. These actions were justified as public health measures to limit the spread of disease from Indigenous Australians to the colonists. It is likely, however, that public health measures like the Lock Hospitals ostensibly introduced to control stigmatised diseases such as syphilis and leprosy, inadvertently, or by design, had an even greater impact upon the health and welfare of the Indigenous populations than the introduced diseases themselves. I would also argue that the Lock Hospital Scheme also had a less benevolent agenda than that put forward publically, sharing the attributes of prisons, workhouses, asylums and concentration camps under the umbrella of 'total institutions', places that are designed to control subject populations.

Around the turn of the twentieth century syphilis in all its forms was held to be a major problem in many parts of the world. Then, as now, it was strongly stigmatised, referred to as 'evil' and 'a loathsome misery' (Jebb 1987). Europeans with the disease were reluctant to admit they had it. Furthermore, uncertainty in the diagnosis of diseases presenting symptoms similar to venereal syphilis, such as yaws, endemic syphilis and granuloma increased the difficulties of limiting its spread. Today, syphilis is cured by the use of penicillin, but during the Lock Hospital period there was no known cure. Only the symptoms of the disease were treated.

Previous research on the Lock Hospital Scheme on Bernier and Dorre Islands has concentrated on estimating the impact of the Lock Hospital Scheme on Northwest Aboriginal communities through the analysis of the numbers and types of people taken and their fates once removed from their homelands (Jebb 1984, 1987; Mulvaney 1989; Stingemore 2002). These studies also considered the role of some of the changing economic factors across the period, including fencing and the sinking of

bores, which altered the way of life of farmers and the need for Aboriginal labourers in the pastoral industry in Western Australia.

Previous research found that while the Lock Hospital Scheme, however indirectly, may have had some effect in reducing the incidence of disease in the Western Australian community, it had very little positive impact on those who were actually sent to the islands. More than 40% of Aboriginal people sent to the Lock Hospitals failed to return to their homelands (Stingemore 2002). Large numbers died and were buried on the islands (Jebb 1984; Mulvaney 1989). Seventy percent of deaths were unrelated to the condition for which people had originally been institutionalised (Stingemore 2002).

No assessment has been made of the impact in terms of dislocation, loss of cultural heritage and eventual breakdown of the traditional way of life on their local groups or the wider community of the removal of Aboriginal people caught up in the scheme from stations or communities. Nor have the separate and interacting ways of life of the European health workers and the Aboriginal patients who were sent to the islands been studied. Some records and documents relating to the Lock Hospital Scheme exist, but they are incomplete, in some cases contradictory and, as with all historical documents, produced to suit the underlying agenda of those doing the writing, in this case the European colonisers. The main aim of my research is to develop as clear a picture as possible of the reality of life on Bernier and Dorre Islands through an analysis of archaeological material.

I ask what life was really like on the islands, not only for the Aboriginal patients, but also for the other people sent there, such as the European doctors, nurses and stockmen and the children of both communities. I address the question of how the lifestyles of these different groups varied and the possible reasons why.

RESEARCH QUESTIONS AND IMPORTANCE OF THE STUDY

This broad aim of this project is to develop as clear a picture as possible of the reality of life on Bernier and Dorre Islands for the different people sent there, the European inhabitants and Aboriginal patients. In particular, I aimed to determine through archaeological analysis whether the life this revealed was like that depicted in the historical records. This study also considers the extent to which living conditions may have contributed to the toll of morbidity and mortality of Indigenous people removed

to the islands. It also seeks to determine the potential of the islands to supply its inhabitants with the water, shelter, warmth and nutrients required to survive, let alone to recover from disease. It considers how well-equipped the different groups were to make use of the resources the islands offered and how the European workers and aboriginal patients interacted and the nature of this interaction. On overarching aim also looks at how the historical and archaeological evidence along with the theoretical framework for understanding similar institutions can provide insight into the intent of Scheme. An incidental aim of this research is to examine the forensic implications: to determine if possible whether this scheme can be considered an injustice by the standards of the time and the standards of today.

A number of different background issues have to be explored in order to do these aims justice. To this end the wider field of research into the existence and distribution of venereal syphilis and similar diseases amongst Indigenous Australians prior to European colonisation will be discussed. The epidemiology of venereal diseases in the first century after colonisation and the effectiveness of treatment policies instituted in that time in reducing the incidence of venereal disease are other issues entwined with this project. An estimation of the impact of the Lock Hospital Scheme on Western Australian Aboriginal communities through an analysis of the numbers and types of people taken and their fates once removed from their homelands is another factor that needs to be considered. Some of these issues have previously been explored but my research ties in all these ideas in order to understand how the Indigenous patients and the European staff lived on the islands during the scheme and how the background issues raised above inform the systematic archaeological survey of the islands' sites and environment. This research will provide archaeological data on Indigenous Western Australians and their way of life in a European-controlled medical environment.

This project is a combination of archaeological, forensic and human biological research, which attempts to address the wider issue of the impact of supposed new or introduced diseases on Indigenous populations and the effects of the medical measures introduced to control them. In particular, it looks at how government approaches such as the Bernier and Dorre Islands Lock Hospital Scheme worked in terms of 'treating' the problem of disease, and the effects they had on both the Aboriginal patients and the European staff involved. It has the potential to extend our knowledge, not only of the lives and backgrounds of the people forcibly removed at

the time, but also to begin to provide an understanding of the impact on contemporary society of past actions at a time in history when there was a failure to acknowledge and understand the fragility and complexities of the way of life of the Indigenous people.

This was a time of great significance to Indigenous people, of which details may be unknown or forgotten. This research may help to clear up some concerns of the living descendants of patients as to whether injustices took place.

SOURCES OF DATA

The sources of data used in this work are of two major types: historical information and that derived from the archaeological site survey and recordings.

Historical information was used to gain a contemporary view of the Lock Hospital Scheme. Some historical records were available for open public access. Other documents were accessed through the Health Department of Western Australia and the Department of Indigenous Affairs. Records were obtained from the Alexander Library, Battye Library, Western Australia State Records Office, Aboriginal and Torres Strait Island Commission Library and from private collections. A plethora of data pertaining to removal of people to the islands, medical records, Lock Hospital reports, correspondence from the state government and Protector of Aborigines, station owners and local government was available to address the questions, although it was not always complete or of the highest quality. At this point, it needs to be mentioned that medical terms and quotes used in the sources will be left in their original context, as 'changing the terms to reflect modern usage not only makes primary source records difficult to interpret and understand, but also distorts the intentions of the people involved in past events' (Briscoe 1996a:2). Limitations on the use of data controlled under the Privacy Act of 1988 which prevented the use of names of patients or their medical issues needed to be considered, as well as ethical issues involved in research concerning Indigenous communities.

Archaeological surveys of the Bernier and Dorre Islands Lock Hospital sites and Aboriginal camps were undertaken in two field seasons. Written and oral evidence was collected and records made as to whether surface archaeological material was visible or not for each site. All archaeological sites were plotted onto maps and descriptions and illustrations made of sites where structures were visible. Photographs

were taken of artefacts found at each site and the locations at which they were found, as indicated by global satellite position (GPS), noted. Once data were collected they were analysed in the Centre for Archaeology at the University of Western Australia to address the aims of the research. Identification of artefacts was achieved by comparison with known samples and historical documentation.

After separate consideration of the individual significance of structures found on each of the islands, comparisons were made between the evident use of the sites on Dorre Island, primarily used to confine women, and on Bernier Island, used to confine men.

ORGANISATION OF DISSERTATION

The next chapter of this thesis reviews the literature concerning the public health background of the scheme. In particular, it examines the mindset and ideologies of the public and government officials with respect to stigmatised diseases like syphilis, diseases that have historically been confused with syphilis, the set up of the Lock Hospital Scheme, the collection and treatment of patients. The overall achievement of the scheme itself, previous research into the scheme, comparisons with other institutions and the theoretical frameworks for the Lock Hospitals being considered 'total institutions' are also considered in this chapter. Chapter three describes the study area, the islands of Bernier and Dorre. Chapter four and five discuss the methods and theories of the historical methodology. Chapter six presents the historical data and describes how people may have survived on the islands. It reviews the resources the islands have to offer Indigenous people and Europeans, the possible knowledge each group of residents may have had that enabled them to exploit the natural resources and proposes ideas as to how each group could have survived. Chapter seven discusses the archaeological methodology. Chapters eight and nine present the archaeological results from the two islands while chapter ten compares the islands. Chapter eleven discusses the findings of the research and chapter twelve presents the overall conclusions.

SUMMARY

The nature of the Lock Hospital Scheme in Western Australia and the health policies which controlled it have not previously been analysed quantitatively nor has a detailed analysis of the people affected by the scheme been carried out. There is a need for a multi-disciplinary study uniting the analysis of archaeological data, forensic

implications and biological evidence. This study offers an opportunity not only to understand the lives of different sets of people living in the same place at the one time, the suitability and effectiveness of the treatments offered and the effect of health policies on the Indigenous and European communities, but also offers an understanding of a time of great significance to the combined history of Indigenous and European people in Western Australia.

Chapter Two

SYPHILIS, PUBLIC HEALTH MEASURES , THE LOCK HOSPITALS AND TOTAL INSTITUTIONS

Chapter Two

SYPHILIS, PUBLIC HEALTH MEASURES AND LOCK HOSPITALS

INTRODUCTION

In order to understand the underlying issues of the Lock Hospital Scheme in Western Australia this chapter will look at the control of public health by governments in Australia and the wider world, the mindset behind the ideologies of stigmatised diseases like syphilis, the setup of the Lock Hospital Scheme, the collection of patients, the treatment of patients and the overall achievements of the scheme.

PREVIOUS RESEARCH INTO THE WESTERN AUSTRALIAN LOCK HOSPITALS

Previously studies of the Western Australian Lock Hospitals have focused on the effects of syphilis on the individual, the conditions of the Lock Hospitals and the effects of the collection of 'syphilitics' on the individual communities from which they were taken (Jebb 1984, 1987; Mulvaney 1989; Briscoe 1996a; Stingemore 2002). Such research has looked at the role that public health measures played in the breakdown of indigenous social structures. Much of this research concluded that the biological impact of introduced disease, while important in the breakdown of the traditional way of life, probably did not play as great a role in that respect as that of the controlling policies of the colonising medical establishment. Previous research has concentrated on historical records relating to reports of syphilitic people in the north west of Australia, Lock Hospital records, and general correspondence of the time. In order to determine the types of individuals taken from their communities and sent to the Lock Hospitals these researchers investigated the demographic and related social impact of the collection of people on Indigenous communities, as well as the reasons for particular people being collected. They assessed the likely impact that removing these particular groups from stations or communities would have had on the group or the wider community in terms of dislocation, loss of cultural heritage and eventual breakdown of the traditional way of life.

Jebb (1984, 1987) and Stingemore (2002) considered changes over time in the incidence and prevalence of syphilis with a mind to determine the effectiveness of control through the Lock Hospital Scheme. In particular, they assessed whether the reported disease for which people were incarcerated on the islands was indeed venereal syphilis. To do this they considered reported symptomatology, the kinds of people (doctors, police, station owners and so on) making the diagnosis, the types of Indigenous people, in terms of age, sex, and location of origin who were diagnosed as 'syphilitic', the patterns of commitment to Lock Hospitals and the outcomes for the internees of incarcerations in the Lock Hospitals.

The results of this research suggested that the nature of the diagnosis, the people who were diagnosed and then collected, and the duration of their incarceration varied over time and with sex, age and geographic region of origin of the people involved. While before 1908 the diagnosis of syphilis/venereal disease predominated, granuloma was the predominant diagnosis made during the Lock Hospital period, independently of who made the diagnosis (Stingemore 2002). Females, especially those aged over 60, were collected more frequently than males (Jebb 1987) particularly in the Pilbara and Gascoyne-Murchison regions and more people were taken from these areas than from any other part of the State (Stingemore 2002). Females were retained at the Lock Hospitals longer than males, despite similar diagnoses, and recorded 'cure' rates (Stingemore 2002). Seventy percent of deaths on the islands were unrelated to the condition for which people were incarcerated (Stingemore 2002). More than 40% of people sent to the Lock Hospitals failed to return to their homelands (Stingemore 2002).

Briscoe (1996a) provided empirical data useful for understanding the magnitude of the Lock Hospital phenomenon, providing the basis for estimates of the potential impact of these health policies on cultural continuity, resource earning capacity and reproductive potential of the Aboriginal people affected. The history of the scheme goes some way towards explaining the Aboriginal distrust of the European medical environment in Western Australia. The implications emerging from these studies are that disease itself, the attitudes that are associated with it, the policies introduced to control it and its impact on the larger community all play a complex and intertwined role in any given society.

DISEASES AT CONTACT IN AUSTRALIA

Introduced tool traditions, practices, ideas, and contemporary visits from Indonesian fisher people to northern Australia, support the view that Australia had contact with other parts of the world before European arrival. The arrival of the dingo and the appearance of the Australian Small Tool Tradition at approximately 4,000 years ago provide further support for this assumption (Lourandos 1997). Archaeological materials such as pottery, glass, Dutch coins and foreign plants (tamarind trees) found in places such as Anuru Bay where Macassan trepang industries took place and dated to approximately the seventeenth century, also provide evidence for Australia having contact with the rest of the world long before its European colonisation (Mulvaney & Kamminga 1999:414-5). All these contacts brought the possibility of disease.

Most noticeable, the introduction of diseases into Australia was seen in the eighteenth century when Indigenous groups with no apparent immunity to particular infections like smallpox and influenza were decimated by disease. It is generally agreed that the outbreak of smallpox among Indigenous Australians shortly after the arrival of the First Fleet was a consequence of its introduction by the new arrivals (White n.d.).

> Other epidemics, such as scarlet fever and measles, which wrought havoc among the native tribes, also appeared to have been unknown amongst them prior to the advent of Europeans; and the same may be said with regard to gonorrhoea and consumption – the two diseases which have perhaps proved more effective in the decimation of the race than any others (White n.d.).

The European migration brought cholera, typhoid, whooping cough, smallpox, measles, consumption and venereal diseases (Briscoe 1996b, 1996d, 1996e, 1996f, 1996g), while leprosy appeared to come into northern Australia with the Chinese influx to the goldfields and pearling industries in the late nineteenth century (Davidson 1978).

According to Mohammed (1999) the key factors in the spread of diseases were colonial conquest, the intensified interaction between the Aborigines and Europeans and the dislocation of people. However, the initial spread of many of the introduced diseases to Indigenous Australians may have been stopped by the lack of large urban centres and temporal and spatial limitations on contact with the outside world (Mohammed 1999). Eventually however, the poor hygiene in the environments

occupied by Indigenous people, even in traditional bush camps, meant that almost all suffered from infectious diseases (Briscoe 1996f:4).

SYPHILIS AT CONTACT

Unlike smallpox and influenza, which both Europeans and Indigenous populations attributed to the arrival of the Europeans (Campbell 2002:15) the time when syphilis first arrived in Australia is not known. However, it is accepted that Europeans did bring venereal syphilis to Australia, as it was entrenched in the European populations at the time of initial colonisation. What is not known is whether or not this was the first introduction.

Webb (1995:146) proposes that

> although it is unlikely that syphilis was in Australia precontact it is possible there were sporadic introductions in northern parts of Australia. Transmission may have been facilitated by contact with Asian, Indonesian and Macassan traders and also the first visits of Europeans including the Dutch, before the first colonist arrived.

Other forms of diseases historically mistaken for 'syphilis' have been in Australia for a considerable time, and evidence for their persistence exists today in Aboriginal populations. Webb (1995:135) suggests

> there is no doubt that a form of treponemal disease, as well as yaws existed among Australia's Aboriginal population in some areas of central and northern Australia prior to arrival of Europeans ….However, no one is sure how widespread this disease was or how long it has been in Australia.

Historical accounts also conclude that diseases described as syphilis were present in the Indigenous communities. Cunningham (1827:45 in Webb 1995) stated that

> I have often observed the men, too, labouring under the eruptions of the skin resembling syphilis, and open tumours also in their groins apparently of the same nature; but time with them cures all disorders.

In 1833 Sturt (1833:124-125) also recorded that

> …the most loathsome diseases prevailed throughout the tribes, nor were the youngest infants exempt from them. Indeed so young were some, whose condition was truly

> disgusting, that I cannot but suppose they must have been born in a state of disease; but I am uncertain whether it is fatal or not in its results, though, most probably it hurries many to a premature grave. How these diseases originated it is impossible to say. Certainly not from the colony, since the midland tribes alone were infected. Syphilis raged among them with the most fearful violence; many had lost their noses. And all the glandular parts were considerably affected.

Other recorders like Beveridge (1883:22 cited in Webb 1995:152) also suggest similar things.

> It is supposed that venereal disease amongst the aborigines is entirely due to Europeans, … long before the advent of the white man it was one of the vilest scourges this …people had to bear. The probabilities are that the trepang hunting Malays and Chinese first introduced it on the northern coast, centuries ago, whence it spread from one tribe to another, until at last the foul diseases became a national calamity.

Love (1936:203) stated that,

> venereal disease, both indigenous, and, alas, introduced by some white men, add to the tale of suffering.

Watson (1968:53) suggests that,

> men had brought syphilis and venereal disease to the Aborigines, who had little or no resistance to the infections, which were at that time unknown to them.

PROBLEMS WITH THE TERM 'SYPHILIS'

The biggest problem with the historical records is the confusion as to the disease the early recorders were actually describing.

> Early observations and descriptions of disease among Aborigines cannot be considered firm evidence for the presence of venereal syphilis and other forms of treponemal diseases (Webb 1995:156).

Campbell (2002:5) suggested that eighteenth and nineteenth century observers who left written descriptions of symptoms were new to indigenous diseases, and often attributed the symptoms they saw to the diseases with which they were more familiar like venereal syphilis. It is easier to explain something in terms of something familiar, than create new definitions of novel diseases. Furthermore, most of the observers

were not medical practitioners and not even completely familiar with the symptoms and manifestations of venereal syphilis (Basedow 1932:177).

DISEASES COMMONLY REFERRED TO AS 'SYPHILIS'

Historically, the term 'syphilis' has been applied to venereal syphilis, the treponemal diseases (yaws, pinta, bejel), granuloma, leprosy, skin infections, common sores and even the common cold. Treponemal diseases and granuloma have been the most frequently confused with syphilis.

Before the arrival of Europeans, Australia was made up of many different environments and groups of people, making it possible for more than one treponemal disease to exist. Cross immunity of the treponemal diseases makes it unlikely that more than one form existed in the same area and population, however (Cannefax *et al.* 1967).

The palaeopathology, origin and epidemiology of the treponemal infections, venereal syphilis, non venereal syphilis (bejel), yaws and pinta have been sources of considerable controversy and disagreement (Steinbock 1976:86). While it has been argued that the treponematoses can be regarded as four separate diseases arising from infection by four different, though morphologically identical, organisms (Hackett 1975:229-230) it is held that there is only one organism, and that differences seen in infected patients arise from environmental differences (Hudson 1965a,b; 1961). The four treponemal diseases are so similar as to be almost indistinguishable and the blood test reactions for the disease are the same (Abbie 1969:87). All are produced by the same subspecies of the *Treponema pallidum* bacterium with similar DNA homology. The organism itself survives in many different types of environments and can only be killed by exposure to oxygen, or desiccation (Steinbock 1976:92).

Venereal syphilis is normally acquired in adulthood and today is 1.5 times more frequent in men than women (Hegyi *et al.* 1997; Kwan *et al*. 2008). It is generally passed on through the reproductive system. As a result it tends to favour and survive best in civilised, urban, promiscuous groups (Pugh 2001). Venereal syphilis has no climatic restrictions but is generally not found where other forms of treponemas predominate (Steinbock 1976:91).

The symptoms of venereal syphilis mimic those of the other treponemal diseases in that they may affect any tissue of the body. Syphilis starts with a primary lesion, which is usually on the genitalia but can be wherever the infection entered the body (Hudson 1961). A few weeks later, after the organisms spread throughout the body, secondary lesions develop (Hudson 1961). The individual feels unwell and has a variety of symptoms including tiredness, headaches, fever, swollen lymph nodes and possibly eye disorders (Chapel 1980). If untreated, syphilis can leave distinctive marks on the bones (Williams 1932; Hackett 1963, 1975; Hudson 1964, 1965a, 1965b) but 65% of all syphilitics individuals die with no skeletal evidence of syphilis (Rosahn 1946:109) and 50 to 70% live out their entire life without progressing to the later stage.

Yaws, commonly termed 'boomerang leg' (Hackett 1936), is accepted as the oldest treponemal disease, being found in tropical and subtropical areas. It is a disease of childhood transmitted both directly and indirectly through minor abrasions (Garner *et al.* 1973:606). Transmission is promoted by overcrowding and poor hygiene (Pugh 2001). This disease is rife in the Indigenous populations of Australia (Webb 1995:135) and was recorded as a separate disease from syphilis in historic times.

In endemic syphilis, also termed *bejel* in Syria, *bishel* in Iraq, and *belesh* in Arabia (Hudson 1961:1; Fine 2002), the spirochete effectively exploits the ecology of early urban life by taking advantage of the frequent cuts and sores on the legs of children (Steinbock 1976:91). This disease is acquired before sexual maturity and thrives in close contact populations (Pugh 2001).

Granuloma Inguinale or Donovanosis is a contact disease known to mimic not only syphilis but yaws and leprosy (Hickenbotham and Cleland 1909). It is a relatively rare disease seen in small endemic foci in tropical and subtropical areas (Williamson Boucher and Mauders 2001). It is caused by the bacterial organism *Klebsiella granulomatis* (Williamson Boucher and Mauders 2001; Richens 2001). It is often associated with other venereal infections and, because the usual site of involvement is the genital region, it has been called a venereal disease. It occurs in Indigenous Australians in rural and remote communities (Hickenbotham and Cleland 1909; Kwan *et al*. 2008), manifesting itself as genital ulcerations. Its peak incidence is in the 20 to 40 years old age group (Williamson Boucher and Mauders 2001, Kwan *et al*. 2008).

It is possible that many people actually have more than one of the above diseases, but only express the symptoms of one (Cannefax *et al.* 1967). Because the diseases produce similar bone pathologies it is hard to differentiate them in the archaeological and historical context. For the purposes of this study it may not have mattered which disease patients had as just being labelled as 'syphilitic' was justification for incarceration.

RECORDS OF SYPHILIS IN ABORIGINAL POPULATIONS

From historical records (Cons 255. Unnumbered files 1907/8 (Appendix A)) it can be ascertained that 987 individuals across Western Australia were recorded with diseases like syphilis in the period around 1906. Of these, 566 were females, 247 were males and 174 were of unknown sex. They ranged in age from less than 1 to 90, the majority being more than 60 years old. Most of the individuals reported by station owners, police and medical officers to the government were from the Pilbara (44.7%) and Gascoyne-Murchison (23.5%) regions. Fourteen percent were from the Kimberley and 12.4% were from the Goldfields. Very few were from the south or inland Western Australia (<6%). There were significant differences in the proportions of males and females from each region, probably due to the economic usefulness of people in each region for cheap labour (Jebb 1984, 1987; Stingemore 2002). The period of increased reporting of syphilis coincided with the decline in the need for Aboriginal workers and their families in the pastoral industries as properties were fenced and bores sunk to provide permanent sources of water for stock (Jebb 1987:26). Unfortunately, the precise homeland location (town, homestead, community) was recorded for relatively few (<30%) individuals.

Fencing also increasingly affected traditional Indigenous ways of life by restricting and disturbing food sources and the Indigenous people that followed them. That is, the period of downsizing of the pastoral workforce coincided with a time in which many Indigenous people were becoming dislocated from their land and greater pressures put on them for survival. The government had either to spend more money on the pastoralists to provide rations for the dispossessed, or do something else with them.

The government first attempted to provide rations, but this soon became expensive, and the task of distinguishing between 'deserving' and 'non deserving' rationees

increasingly difficult (Jebb 1987:34). While the number of people obtaining rations in the north west in 1900 was 248, it gradually increased over time to 556 by 1907 (Annual Reports of Aborigines Department 1901-1907 in Jebb 1987:35). It was also noted that the government was increasingly responsible for providing the Indigenous population with medical treatment as well as rations (Jebb 1987:49).

THE PROBLEM OF SYPHILIS AT THE END OF THE NINETEENTH CENTURY

Syphilis was a major problem at the turn of the twentieth century, as is evident from the number of venereal Lock Hospitals established. There were even publically displayed posters warning against syphilis (Figure 2.1).

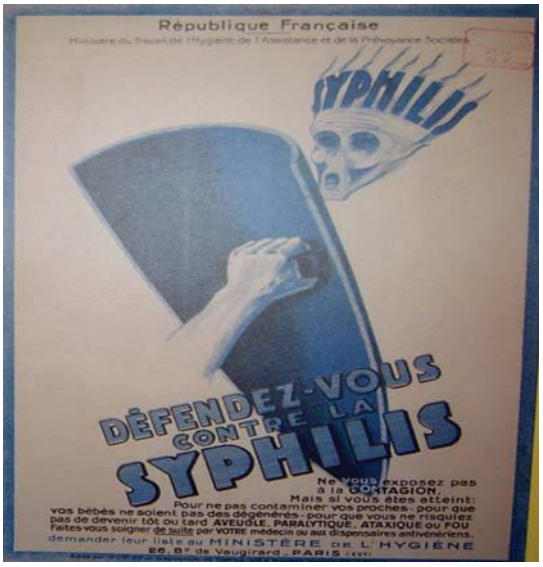


Figure 2. 1. Common posters found throughout the world portray the stigmatisation of syphilis and that defence was needed against the disease (N.A. 1910) (Courtesy Melbourne Museum Exhibit December 2007).

In western societies venereal disease, especially syphilis, is regarded as a shameful condition, a moral as well as physical degradation (Morton 1966:7). The stigma has meant that people have been reluctant to admit to having the disease and afraid of being found to be syphilitic. The fear of disease at the period covered by this study was reflected in the use of graphic terms such as ‘horrible’, ‘loathsome’, ‘private parts missing’, and ‘face eaten away’ in its descriptions (Buckley 1908; Gale 1908b).

Because syphilis was regarded as a shameful disease, minority and marginal groups such as the Aborigines came to be viewed as the source of disease and a focus placed

on biological difference, with the implication of genetic weakness as the cause of poor health outcomes (Mark and Worboys 1997:1-18). European images of Indigenous people living in Australia were 'negative and degrading'. The words 'stone age' and 'primitive' were often used in reference to them (Berndt and Berndt 1984:6).

The Aborigines Department, the police and the 1905 Aborigines Act produced and reproduced the idea that Aboriginal people were a racially distinct group, one which was in need of an inordinate degree of state control to 'protect' them (Jebb 1987:10).

Reports of police, district medical officers, pastoralists and other Europeans coming in contact with the Aborigines at the turn of the twentieth century created the impression that there was an increase in venereal diseases, especially syphilis, and that it was becoming a problem in the northern Aboriginal population and European bushmen (N.A. (Officer in Charge Roebourne) 1908).

In October 1899, H.C. Prinsep, the Chief Protector of Aborigines, wrote to Premier Forrest drawing his attention to the fact that venereal disease was rife in Aboriginal populations (Aborigines Department 1899). Reports of the increasing incidence of venereal disease continued throughout the early years of the twentieth century and in 1907 the Nullagine police officer, Constable Gray, reported that 'syphilis was rampant throughout the district and the usual applications of eucalyptus oil and painkiller were not having any effect' (Gray 1907). By the middle of the second decade of the century there was widespread concern about the apparent increase in the incidence of venereal disease across the north west, in particular in Broome, the Ashburton area, east of Carnarvon, Marble Bar and Laverton (Adams 1908; Cons 255 Unnumbered files 1907/8 (Appendix A)).

Although it seems obvious, given the levels of venereal disease in Europe at the time, that syphilis in the proper sense of the term was spread to Aboriginal populations by European colonists and greatly aggravated by a shortage of European women on the frontiers of white settlement, it proved convenient to blame the morals of other races for the spread of the disease (Mulvaney 1989:184).

The attitude towards sexuality at the time, and the prejudices against the Indigenous populations meant that Aboriginal women were blamed as the purveyors of the disease. In the early stages of venereal diseases in Western Australia, reports

attributed the disease to the immorality and 'prostitution' of Aboriginal women with white males, 'Asiatics' and 'Afghans' (N.A. (Protectors) 1907). At King Sound it was reported that 'not a single woman could be found, if in contact with Asiatics, who did not suffer from a loathsome venereal disease' (N.A. 1901).

The solution to the problem was addressed by segregating Aboriginal women. Aboriginal women or girls under the age of sixteen were forbidden access (between sunset and sunrise) to certain areas used by pearlers (Aborigines Act 1905, section 41, 42). Prinsep in 1899 stated

> that the growing prevalence of venereal disease amongst the Aborigines in some places compels me to suggest that our curative efforts should be assisted by legislation with the object of preventing them, in their own interest, from loitering in towns and other places where it exists.

However, a number of Europeans questioned the idea that 'Asiatics' were responsible for disease in the Aboriginal population (Aborigines Department 1907). G.P. Gale, Chief Protector in 1909 rejected the idea on the grounds that they had been engaged in the pearling industry long before the appearance of the disease (Jebb 1984:72). This argument must have been accepted, as neither the Asiatics nor Afghans were mentioned in the Contagious Amendment Bill passed in 1915.

The 1905 Aboriginal Act also contained a series of new acts, which included the prohibition and control of sexual contacts between non-Aboriginal men and Aboriginal women by restricting Aboriginal movements into towns and certain other areas (Neville 1947:47).

The key element of these acts and of Contagious Diseases Acts in Western Australia and throughout the British Empire was the compulsory examination of women suspected of being diseased (Kaminsky 1979:78; Smith 1990). Such women were either ordered to be examined on the spot or liable to detention. Police did not have to prove that a woman had engaged in sexual acts in order to send her to a Lock Hospital (Smith 1990).

Common to many of the Contagious Diseases Acts in the world, especially in the British Empire, no measure was taken to make males undergo treatment for venereal diseases nor was imprisonment forced upon them if they failed to undergo

examination or treatment (Levine, 1996: 588). In those cases where men - usually associated with military campaigns - were incarcerated, the duration of their stay was short, to enable them to return to duty as soon as possible (Roy 1998:22).

During the nineteenth century attempts to control sexually transmitted diseases centred on the control of prostitution, the assumed origin of the infection (Roy 1998:22). In European colonies prostitutes and others (usually Indigenous women) were bound under law to present themselves periodically to Lock Hospitals for examination by the medical officer in charge. For example, under the Madras Lock Hospital Scheme police were empowered to bring women suspected of being prostitutes to the Lock Hospitals for inspection (Hodges 2005: 384). Women found to be diseased were detained until cured (Kaminsky 1979:79).

The prescribed length of incarceration for disease was similar throughout the British Empire at the time, probably due to the types of cures being applied. Under the Contagious Diseases Acts infected people throughout the British Empire, particularly those deemed prostitutes, were to be interned in Lock Hospitals for a period not exceeding nine months (Walkowitz 1980:2).

Because of the prejudice against women in the Contagious Diseases Acts, rebellion was common. Prostitutes effectively exploited the weakness of the Contagious Diseases Act in Madras by not turning up for inspections at the Lock Hospitals (Hodges 2005:385). Women filed many petitions over the years requesting exemption from registration, deregistration, change of domicile, and the like (Levine 1996:603).

BIRTH OF THE BERNIER AND DORRE ISLAND LOCK HOSPITALS

In 1892 it was suggested that ‘the two islands off the coast of Carnarvon, Dorre and Bernier Islands, be made Aboriginal reserves where Aboriginal people who were not part of the pastoral industry could be rationed’ (Aboriginal Protection Board 1892). This recommendation was not acted upon in the nineteenth century, possibly because on its own it was not supported by the public, but by the early twentieth century, with the rising incidence of disease in the Indigenous community, the removal of people could be justified. The growth in importance of the principle of isolation as a public health measure at the time was significant in elevating an unfavourable scheme which

simply removed Aborigines from pastoral lands for economic reasons to a movement that attracted favour, funding and political and public support (Jebb 1987:50).

The idea of isolating Aboriginal people for the purposes of medical treatment was first proposed in 1906 by J.R Hickenbotham (District Medical Officer at Carnarvon) who went on to write a number of scientific papers on the issue of granuloma in the Aboriginal populations. The suggestion was quickly reinforced by other District Medical Officers in the state (Bates 1938:97; Jebb 1987:61-62). These men took the debate on the venereal disease problem beyond the enforcement of legislation controls on inter-racial sexual contact into the sphere of a medical solution to a public health problem (Jebb 1987:61-62). After 1907, when it was realised that the problem of syphilis and other venereal diseases could no longer be ignored (Watson 1968:53), the Chief Protector of Aborigines recommended that Lock Hospitals should be established to restrict their spread (Mulvaney 1989:185).

In October 1907 Bernier and Barrow (not Dorre) Islands were temporarily reserved for use as Lock Hospitals (NA 1907), with a Carnarvon pastoralist who had a lease on Bernier Islands being compensated 1000 pounds (Mulvaney 1989:185). Dorre Island was not initially considered for the scheme as it was recorded as being barren with few resources (Lovegrove M.B. 1907; Robert 1972). The scheme was seen as modern and progressive, where treatment and eventually a cure would be provided for Indigenous Australians.

Nevertheless, many people objected to the scheme, believing that it would be of no benefit either to the Indigenous or European communities. Fred Lovegrove (an uncle of one of the doctors who would live on the island) suggested that the diseases could be lessened simply by controlling sexual contacts between whites and Aboriginal people (Jebb 1987:57). Notwithstanding these suggestions, the Aborigines Act: Section Twelve of 1910 (Colonial Secretary 1910) determined that

> Any Aborigines found to be suffering from venereal disease shall be removed and kept within the boundaries of the reserve at Bernier Island for care and treatment.

In 1908 the Aboriginal and Medical Departments opened the Lock Hospitals on Bernier Island. The first patients of unspecified sex arrived on Bernier Island on 6 October 1908 on the boats ‘Venus’, ‘Anthos’ or ‘Shark’ from the mainland port of Carnarvon (Bates 1938:97; Mulvaney 1989:185,189; Watson 1968:45). Barrow

Island was to house the men in subsequent years, but after the difficulty of moving patients between the mainland and Bernier Islands in the first year of the scheme, plans for use of the more distant Barrow Island were dropped. Barren Dorre Island, closer to Bernier Island, was used instead to house women and the men were left to reside on Bernier Island. Men were housed at the northern end of Bernier Island at Hospital Bay and the women at White Beach Landing, two thirds of the way down the east coast of Dorre Island (Mulvaney 1989:185).

COLLECTION METHODS

In 1908 the Chief Protector of Aborigines for Western Australia at the time, C.F. Gale, issued a letter to all Protectors and Officers in Charge of local police stations instructing them to provide the age, sex, names and transportation costs of Aborigines in their areas who were on the relief lists and suffering from syphilis or other forms of venereal disease (Lawrence 1908; Gale 1908a). Letters were returned from all over the state.

The collection of potential inmates was primarily determined on the basis of nomination by pastoralists, whose selection appears to have been as much guided by their economic interests as the evidence of disease (Jebb 1987:86). In areas where Aboriginal people were highly valued by employers, segregation and isolation of those affected was less readily accepted by European employers, for fear of losing ‘cheap’ workers. Many categories of people, such as stockmen and Aboriginal males in the European workforce, were therefore never treated and continued to spread disease, while women or long term sufferers of syphilis were immediately and unceremoniously removed from their communities and sent to the Lock Hospitals. ‘This meant that women whose age was reckoned at ‘over 40’ were prime targets whilst those who were deemed unlikely to survive the journey were allowed to die at home’ (Jebb 1987). Jebb (1987) indicated that the first groups of Aborigines to arrive on the islands were old, visibly diseased or labelled as ‘known syphilitics’. People already displaced from the pastoral industry were the prime targets for collection by police and made up the majority of the islands populations.

As the Chief Protector of Aborigines wrote in 1911,

> Women were the focus for medical treatment … to stop Aboriginal women becoming reinfected: men were primarily taken to the islands as strategy in the preventing process.

By 1911, as it became clear that local treatment failed, station owners were more willing to support the scheme for both males and females. Later still, however, pastoralists grew sceptical of the scheme as Aboriginal people either failed to return, having died on the islands, or were re-employed on other stations after being set loose at ports hundreds of miles from their collection points (CPA 1929).

Special expeditions were sent into the Gascoyne, Ashburton and De Grey districts to bring in Aborigines for examination at coastal ports. The involvement of police in the collection, transport and treatment of the subjects of the Lock Hospital Scheme led to great distrust of medical inspection by the Indigenous population. No surprisingly, it was recorded by the police, pastoralists and inspectors that many fled into the bush when inspections occurred (Refer to numerous reports at Battye Library, SRO. Cons 255 Unnumbered file 1907/8). Jebb (1984) suggests this was not surprising, given that any able to walk were chained in the same manner as criminals. Figures 2.2 and 2.3 are unprovenanced photographs from the north of Western Australia depicting what the chaining of Aboriginal people taken to Bernier and Dorre Islands may been like.

Figure 2.2. Unprovenanced photograph depicting collection of Aborigines by chaining. Note the man at the left supporting the weight of the spare chains and heavy padlock (Battye Library, 7816B; Mulvaney 1989).

Figure 2.3. Unprovenanced photograph depicting collection of Aborigines at Wyndham 1905 by police (Battye Library, 7816D; Mulvaney 1989).

The rationale for using neck chains was that the physical makeup of the Aborigines made chaining by the wrist or ankle ineffective. The neck-chains bound those collected in close proximity to one another, promoting cross infection as well as obvious discomfort (Mulvaney 1989:188). Police were normally equipped to collect up to fifteen prisoners and it was common for them to walk their captives from place to place until this number was assembled (Mulvaney 1989:188).

> The collection methods were neither humane nor scientific. A man, unqualified except by ruthless and daring and helped by one or two kindred spirits, toured the countryside, raided native camps and by brute force "examined" the natives…..the diseased were seized upon….chained by the neck…. marched through the bush in search of further syphilitics (Watson 1946:112).

Many people died on the weeks-long journey to Carnarvon. As men and women camped together, it is perhaps not surprising that all appeared to have venereal disease once they reached the islands (Watson 1946:112; Watson 1968:54; Mulvaney 1989:189). On the boat trip to Bernier and Dorre Islands 'all suffered from sea-sickness, weakness and fright' (Bates 1938:102).

Towards the end of the Lock Hospital Scheme, Aboriginal people thought to have minor cases of venereal disease were not collected, but treated on the spot, as this was recognised as being cheaper and more convenient.

TIMES AND PLACES OF COLLECTION

The wide distribution across Western Australia of locations from which people were collected under the Lock Hospital Scheme is evident from Figure 2.4. In some localities, such as Carnarvon, up to 50 or more people were taken from their communities while in others a single individual was removed. In the locality of Bangemall (see Figure 2.4) 26 women were collected in both 1908 and 1911 from what could have been a group consisting of fewer than 100 people. Unfortunately, inaccuracy of the records and the exclusion of Aboriginal people from censuses before 1904, and even as late as the 1960s, prevent accurate determination of the proportions of communities removed during the period of the Lock Hospital Scheme.

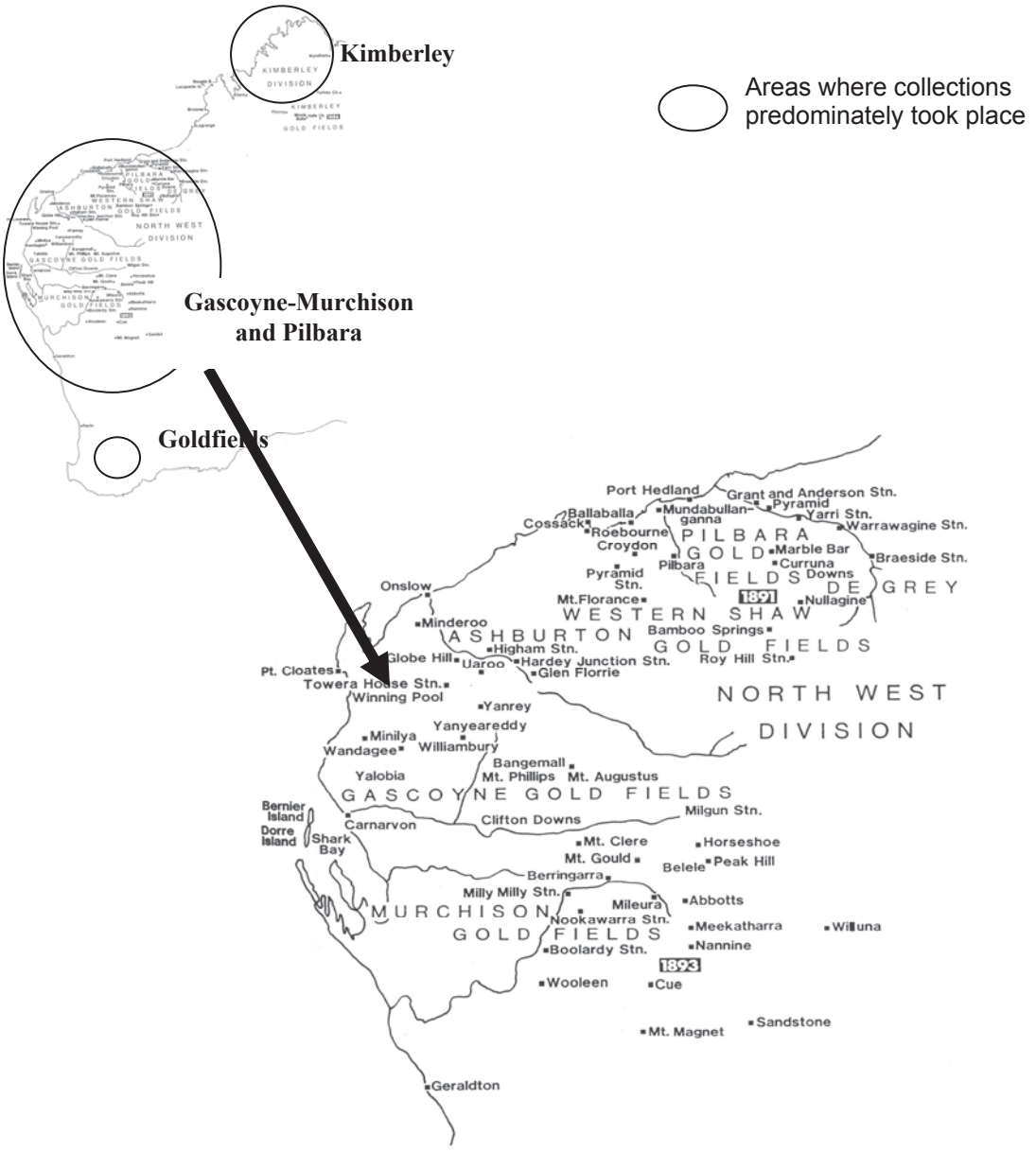


Figure 2.4. Collection Places across Western Australia (Taken from modified version of Jebb 1987 in Stingemore 2002).

Different areas of Western Australia and particular years within the period between 1908 and 1919 were targeted for the collection of patients for the Lock Hospitals on Bernier and Dorre Islands. Before 1908 very few people were collected. In 1908 and 1911 two major collections took place (Figure 2.5).

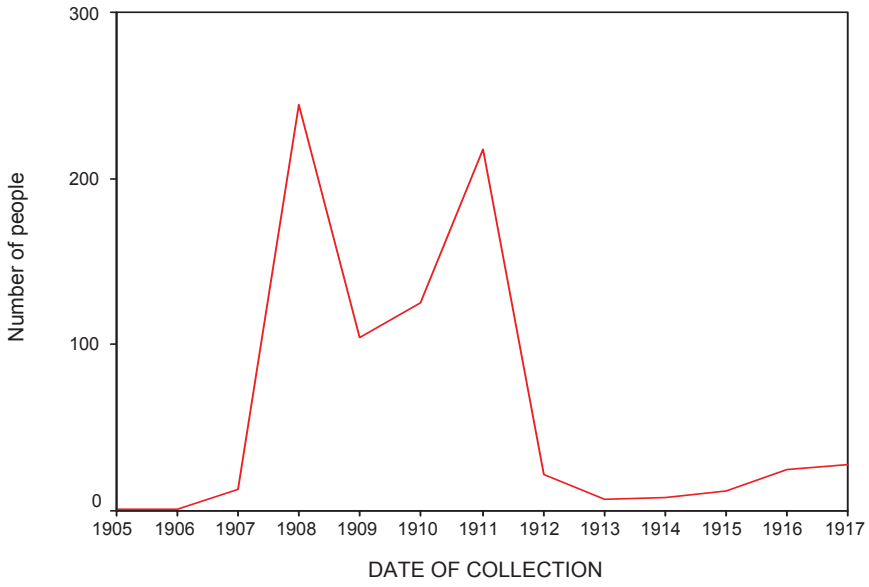


Figure 2.5. Frequency of collections over time (Taken from Stingemore 2002).

The high rate of collection in these two years is thought to relate to the substantial funding given to the scheme at these times. Spending was as high as 4000 pounds and 6000 pounds in each of these years (Mulvaney 1989:189), during which buildings were erected, and specialists brought to the islands to address the problems of syphilis.

Biases in reports of disease and collection rates observed in both Stingemore's (2002) and Jebb's (1987) studies reinforce the suggestion that some factor other than medical status was involved in the decision to collect individuals for transport to the islands. It is possible that the epidemiology of 'syphilis' was affected by patterns of location or sexual habits that are not observed today, but it is difficult to imagine a disease ecology that affects women more than men, changes its incidence with age more in women than men in some regions, but has the opposite effect in others, or one which changes its regional pattern radically over the few years between an initial survey and the time of implementation of the Lock Hospital Scheme. Jebb (1987) suggested that economic interests played an important role in the diagnosis of syphilis in these years.

Disease was reported from the Goldfields, Kimberley, Gascoyne-Murchison, Pilbara Lower West and South West, but it seems that females taken from the Pilbara dominated the first major collection in 1908, while the Goldfields yielded most male patients in 1911(Figure 2.6). Drastic reduction in collection occurred in 1912 in all regions (Figure 2.7) and the last collection of Aboriginal people for the Lock Hospitals was made in 1917.

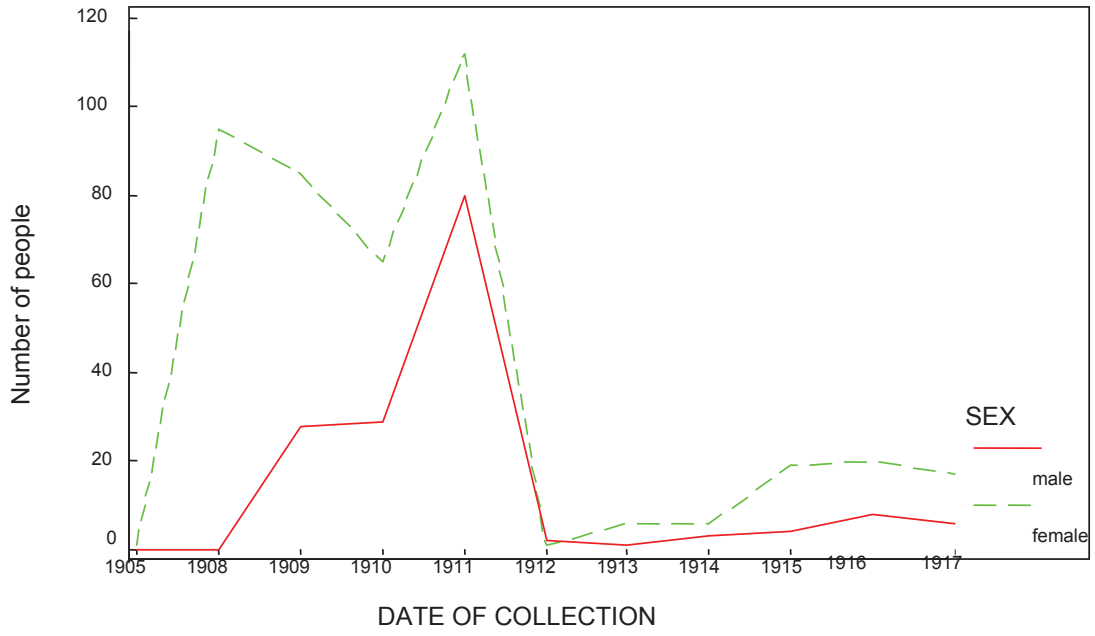


Figure 2.6. Male and female differences in dates of collection (Taken from Stingemore 2002).

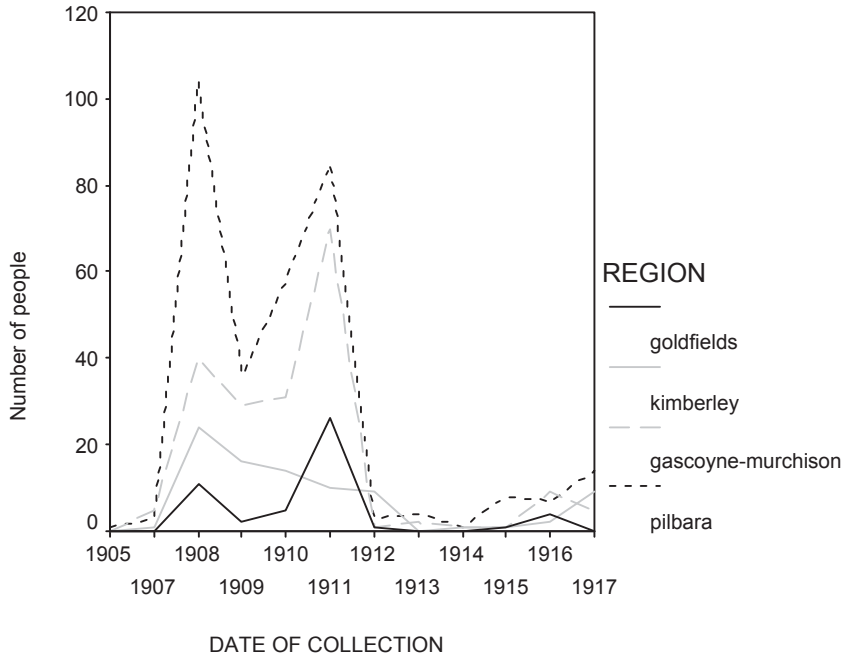


Figure 2.7. Collection over time of people from different regions (Taken from Stingemore 2002).

Both Stingemore's (2002) and Jebb's (1984, 1987) studies show a high proportion of older females in particular, taken from pastoral areas such as the Pilbara and Gascoyne-Murchison. In some areas more people were sent to the Lock Hospitals than had previously been recorded with having the disease. Similar proportions of males and females were recorded with having the disease prior to collection, but the majority of people at the islands were females. In Jebb's (1987) study 72% of Lock Hospital patients were female and 28% males while Stingemore's (2002) study found 67% females and 33% males.

The sex differential in the rate of diagnosis of syphilis in males and females revealed by previous studies (Jebb 1987, Stingemore 2002) does not reflect the modern situation in which the disease affects more males than females (Hegyi *et al.* 1997; Kwan *et al*. 2008).

The imbalance in males and females identified as diseased was greatest in the Kimberley with a ratio of males to females of 1:9 and 1:4 in the Pilbara (Stingemore 2002). The difference between the size of collections in the Pilbara and other regions was largely made up by differences in the number of females. Only in the Goldfields did the number of males identified as diseased exceed the number of females (Figure 2.8).

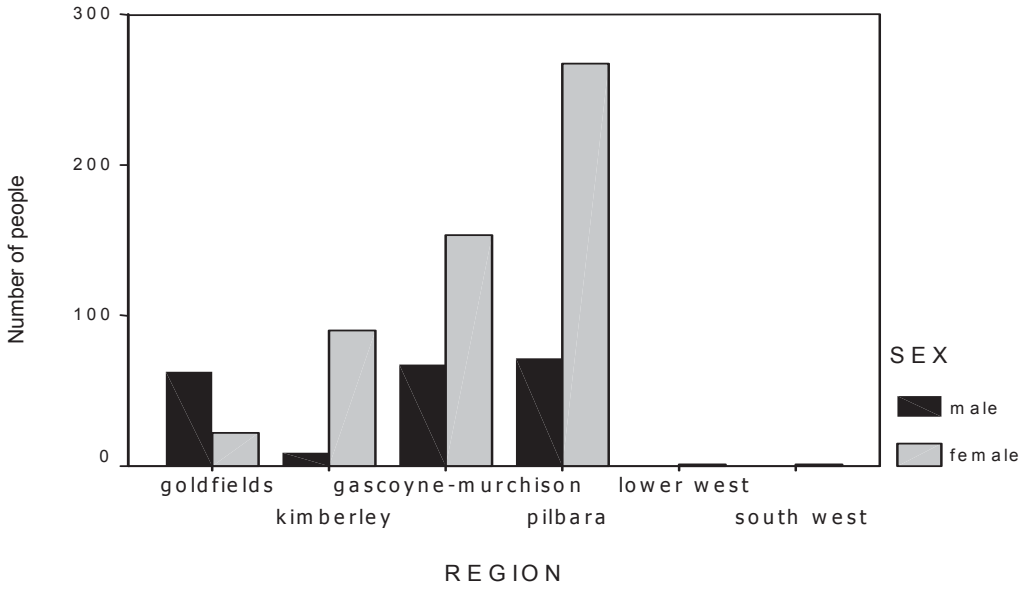


Figure 2.8. Region where Indigenous Australians with disease were recorded. Includes data before and during the Lock Hospital Scheme (Taken from Stingemore 2002).

The same economic motivations did not hold for the Goldfields. Aboriginal males were not favoured in the mining of gold as they were thought to either steal the gold

or to cause too many problems to be worth the cheap labour while Aboriginal communities around mining areas may have posed a threat to the smooth running of operations. Labelling Aboriginal males as diseased could have been an easy way to eliminate potential problems.

While records obtained before 1908 suggest that 'syphilis' was most prevalent in the Wheatbelt, no individuals from that region were ever recorded at the Lock Hospitals. On the other hand the records from before 1908 also indicated that there was no disease in the Kimberley, Gascoyne-Murchison or the Pilbara, and yet these regions make up the majority of the homelands of the inmates at the Lock Hospitals (Table 2.1). The Goldfields was the only region in which similar proportions of disease were recorded before 1908 and at the Lock Hospitals.

The closeness of the Pilbara to the islands and hence the relative ease of collecting from this region may have contributed to it being the prime source of collections. While early reports from Broome suggested that the local Aboriginal people were decimated by venereal disease, very few from this more distant region were actually recorded at the Lock Hospitals.

Table 2.1. Distribution of cases recorded as diseased before 1908 and at the Lock Hospitals (Stingemore 2002).

	Males			Females		
Location	Sample With Disease	Recorded with disease pre 1908	Sent to Lock Hospital	Sample With Disease	Recorded with disease pre 1908	Sent to Lock Hospital
Goldfields	56	3	53	13	1	12
Kimberley	7	0	7	78	0	78
Gascoyne-Murchison	62	0	62	144	0	144
Pilbara	64	1	63	244	0	244
Lower West	0	0	0	0	0	0
Wheat Belt	18	18	0	12	12	0
South West	4	4	0	3	3	0

It may not have mattered to the government that the people recorded as diseased were not the same as those sent to Lock Hospitals. All that mattered was that the general statistics showed that they were fixing the problem, by collecting at least as many people with the disease as had previously been reported.

DURATION OF INCARCERATION AND OUTCOME FOR PATIENTS

Aboriginal patients lived on the islands in what was described as a somewhat 'alfresco' (West Australian 1909) lifestyle until they were either diagnosed as cured and sent back to the mainland or died. The 60% rate at which inmates were reported as discharged cured in Stingemore's (2002) study is only slightly lower than that reported by Jebb (1987) (71%). Table 2.2 shows admission, discharges and deaths of Aboriginal patients over the period of the Lock Hospitals.

Table 2.2. Admission, Discharges and Deaths of People Sent to the Islands (Jebb 1987:183)

Date	Admissions			Discharges			Deaths		
	Females	Males	Total	Females	Males	Total	Females	Males	**Total**
1909	68	-	68	-	-	-	8	-	**8**
1910	72	57	129	31	10	41	25	5	**30**
1911	98	83	181	85	68	153	32	18	**50**
1912	43	18	61	36	19	55	9	8	**17**
1913	22	10	32	31	14	45	10	3	**13**
1914	42	14	56	28	16	44	9	5	**14**
1915	39	15	54	14	9	23	11	5	**16**
1916	24	8	32	23	8	31	6	1	**7**
1917	18	4	22	25	7	32	6	-	**6**
1918	-	-	2*	-	-	26*	-	-	**8***
Total	**426**	**209**	**637**	**273**	**151**	**450**	**116**	**45**	**169**

* no breakdown of sex

The time that individuals spent in the Lock Hospitals differed significantly with sex (Figure 2.9) and with the region from which they were taken (Figure 2.10). Males were released as cured on average approximately six months earlier than females. Half of the males were released after seven months of incarceration and three quarters after 7.25 months (Stingemore 2002). It was 13 months before half and 15.5 months before three quarters of the women were released (Stingemore 2002). Ninety percent of inmates had been released by 16 months after admission, but the time spent at the Lock Hospitals ranged from less than one month to six years (Stingemore 2002).

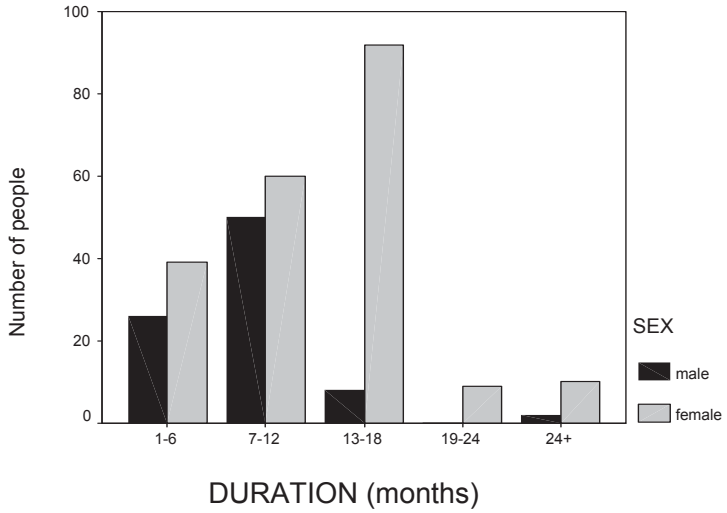


Figure 2.9. Duration of incarceration of individuals at the Lock Hospitals. (Taken from Stingemore 2002).

Males from the Goldfields and Murchison-Gascoyne had the shortest stays at the Lock Hospitals and women from the Pilbara the longest (Figure 2.10). Again, the reasons probably reflect the economic value of the individual.

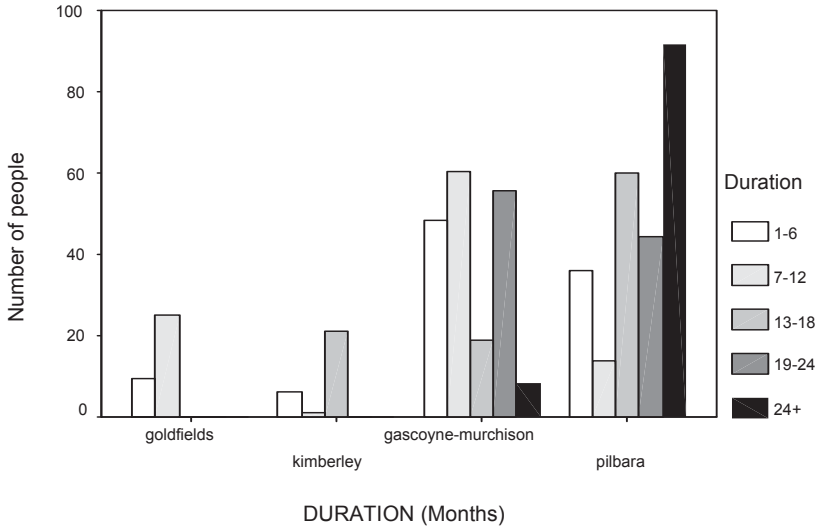


Figure 2.10. Duration in months of the time individuals spent at the Lock Hospitals, from different regions. (Taken from Stingemore 2002).

Seven percent (42) of all people taken to the islands were recorded as dying while at the Lock Hospitals (Stingemore 2002, original data taken from Pritchard 1929 a, b, c, d, e, f). In only 31% of these cases was death attributed to something relating to the condition for which they had been hospitalised (syphilis, granuloma, venereal disease) (Stingemore 2002, original data taken from Pritchard 1929 a, b, c, d, e, f). Senile decay was recorded as the cause of death in 12.7% of individuals and general debility in a further 8.5% (Stingemore 2002, original data taken from Pritchard 1929 a, b, c, d, e, f). Eighteen point three percent died of respiratory disease, 4.2% of disorders of the blood, 4.2% of renal failure and 4.2% of heart failure or strokes (Stingemore 2002, original data taken from Pritchard 1929 a, b, c, d, e, f). Eight and a half percent of people who died did so suddenly, when the doctor was absent from the island (Stingemore 2002, original data taken from Pritchard 1929 a, b, c, d, e, f) (Figure 2.11).

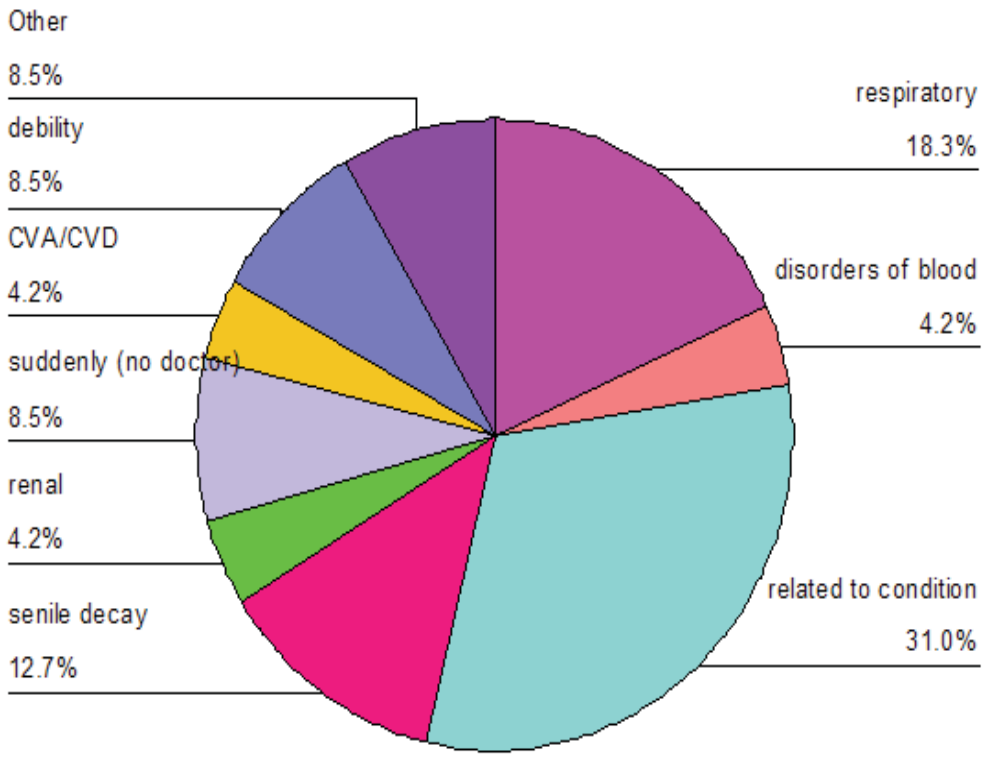


Figure 2.11. Recorded causes of death for patients at the Lock Hospitals (Taken from Stingemore 2002, original data taken from Pritchard 1929 a, b, c, d, e, f).

More than 40% of individuals who were sent to the islands never returned to their homes, having died on the islands, been re-employed elsewhere or sent to other hospitals for treatment (Jebb 1987) (Figure 2.12). It has been claimed by various people that during the whole Lock Hospital Scheme over 800 patients were treated, with admissions totalling 635 and deaths 162 (Mulvaney 1989:190). Many people were returned to the mainland from the Lock Hospitals after being found not to have

the disease and were left to make their way home, sometimes over hundreds of kilometres through other groups' territories (N.A. (Nurse in Charge) 1910).

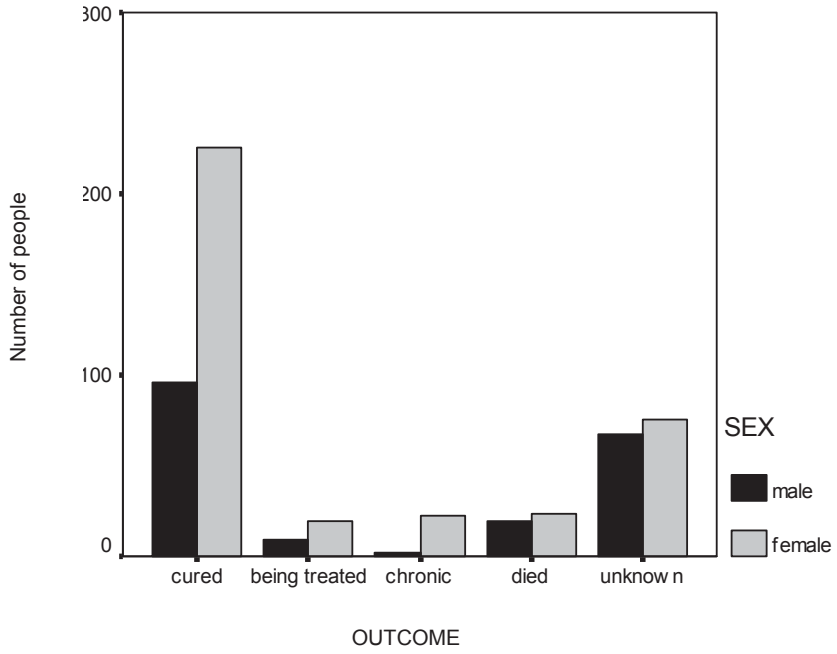


Figure 2.12. Outcome of individuals who were sent to the Lock Hospitals (Taken from Stingemore 2002, original data taken from Pritchard 1929 a, b, c, d, e, f).

The causes of death for the inhabitants of the islands point to the poor conditions in which Aboriginal people were actually living. Daisy Bates (1938:98-99) wrote,

> When I landed on Bernier in November 1910, there were only fifteen men alive there but I counted thirty eight graves…. there were seventy-seven women on Dorre Island, many of them bedridden. I dare not count the graves there. A frightful sight it was to see grey haired women, their faces and limbs repulsive in disease, but even more a frightful sight to see the young- and there were children among them.

ENGENDERING FEAR AND DISTRUST

Across the whole of Western Australia, the Lock Hospital Scheme engendered fear among the Aboriginal people: fear of being suspected of being diseased, fear of being taken away from the community that needed them, fear of being away from the people close to them, fear of never returning home and fear of being experimented on. A number of songs pertaining to the Lock Hospitals published by the Ngarla people illustrate the fear and distrust of the scheme.

Going to the Lock Hospitals

Making lots of rattling noises, gobbling up the many miles, humming a tune,
the truck is carrying us along.
Hey! I didn't realise there were so many of us going to Murrkanya.
'I wonder how we will fare. Will we go home better, or will we go home to die?'
Memories, look at those shady red gums.
Their tops will still be swaying in the breeze for us when we are ready to go home to convalesce.'
(Taken from Ngarla Songs by Brown and Geytenbeek 2003).

Mr Neville

Well fancy that, he's been keeping it for ages for me,
this really old worn-out antique stuff from way back.
He's been hoarding it,
carefully nursing these beaten up old chattels from Carnarvon.
Well never mind, I'll down this mouthful.
Later on my neck might recover.
(Taken from Ngarla Songs by Brown and Geytenbeek 2003).

These data suggest that the Lock Hospitals did not provide adequate facilities for Aboriginal patients, let alone erase the emotional traumas arising from collection, isolation and treatment (Jebb 1984:80). Bernier and Dorre Islands have been named as places of death, loneliness and racial suppression of the Indigenous people by local Indigenous people (Malgana). Stories of life on the islands, including those concerning medical experimentation with new drugs and surgical treatments added to their stigma. Daisy Bates (1938:96-97) on her visit to the islands in 1910 described conditions as follows.

> Dorre and Bernier Islands: there is not, in all my sad sojourn among the last sad people of the primitive Australian race, a memory one-half so tragic or so harrowing, or a name that conjures up such a deplorable picture of misery and horror unalleviated, as these two grim and barren islands off the west Australian coast, that for a period, mercifully brief, were the tombs of the living dead.

In 1910 Watson (Watson 1918 cited in Mulvaney 1989:190) described the islands at the time as inhabited by

> broken and helpless pieces of humanity who lay still all day and looked out across the bleak expanse of sand dunes, under which they were destined to be buried, and thought regretfully of their beloved and far-away bush.

The Lock Hospitals were distrusted and questioned by the few amongst the European population who knew of them. The South Australia Government reported in 1911 that

> The Western Australian Lock Hospitals are a crude form of hospital which falls very far short of the conditions at Adelaide Hospital or a country hospital.

Mulvaney (1989:185) has suggested that in reality, the Lock Hospitals were natural prisons for their reluctant inmates. Annual reports acknowledged that the death rate of one in four was high, but emphasised that many patients were critically ill at the time of their admission (Mulvaney 1989:190; NA 1905).

At the start of the Lock Hospital Scheme simple cases of syphilis were supposed to be treated locally and only really bad cases sent to the hospitals (Gale 1908). That is, some of the initial bias in who was actually being sent to the hospitals may have been the reason for the poor outcomes of patients.

It has been suggested that in times of famine and epidemic Lock Hospitals may not have represented such a bad option. In many countries the Lock Hospitals (Hodges 2005:393), like jails (Davis 2001:40) could be seen by their inmates as marginally preferable to disease- ridden relief and work camps. This was never the case for the Western Australian Lock Hospitals, however. There was neither famine nor epidemic fatal disease prevailing at the time, and many people would have preferred to die in the bush than be taken to the Lock Hospitals (Jebb 1987; Bates 1938:99).

TREATMENT AND DIAGNOSIS

Today, syphilis is cured by the use of penicillin, which eliminates the organism responsible for the disease, but during the period of the Lock Hospital Scheme there was no known cure and treatment was purely symptomatic. Prior to the invention of penicillin in the 1920s, many treatments were based on the administration of heavy metals such as mercury, bismuth and arsenic compounds (like Salvarsan or 606) which, failing to cure the disease (Pritchard 1911), permitted continued transmission. It was commonly thought at the time that syphilis was a moral disease that needed a moral cure.

PRIOR TO LOCK HOSPITALS

The early twentieth century saw an abundance of medical texts describing venereal diseases and their remedies. Many of these texts were specifically designed for nurses and emphasised that they were the front line of treatment at the hospitals (Miles

2002:293). It was not until the causative organism of syphilis was isolated in 1905 and the Wasserman blood tests introduced in 1907 that a degree of diagnostic certainty was attained. It was really not until after 1910 that microscopy and serology came into general use throughout the British Empire, however (Roy 1998:21). Before this many cases of syphilis were either diagnosed as chancroid, missed altogether, or wrongly diagnosed (Roy 1998:21).

Before the time of the Lock Hospitals there was little medical treatment offered for venereal diseases in Western Australia apart from a charity system run by police and pastoralists (DMO, Marble Bar 1910; DMO, Newcastle 1909). As Jebb (1984:72) has suggested, treatment was often restricted to readily available remedies because medicines and medical practitioners were hard to distribute in remote areas and proper administration of medicine was difficult. Furthermore, Aborigines were discriminated against and refused treatment by medical practitioners (Cons 255. Unnumbered files 1907/8 (Appendix A)).

However, there is some indication that treatment did occur. Historical records clearly indicate that farmers, land owners, the police and travelling inspectors diagnosed disease and administered simple treatments (Cons 255. Unnumbered files 1907/8 (Appendix A)). In 1899 and 1900 G.S. Olivey was employed as a travelling inspector of Aborigines in the north. He was instructed to report on the 'general condition' of Aboriginal people, the prevalence of venereal disease and on changes in the Aboriginal populations (Olivey 1912). By this time the government already had a fair idea of the extent of the syphilis problem and responded to the increase in disease by distributing medicines to police and pastoralists. Olivey was not a qualified medical practitioner, but treated venereal disease with potassium iodide (DMO 1908), which at the time was thought to be effective. Olivey also used zinc based ointments, 'oxychloro', carbolic acid, washes of Epsom salts and sandalwood oils, none of which today is considered to be effective (Jebb 1987:61; DMO 1908).

Other treatments at the time included washes of zinc sulphate, purgatives, low nutrient diets, and nitric acid and bichloride of mercury (Smith 1990:213). It was still commonly thought that inspection, hospitalisation, treatment of sores and surgical removal of parts of the penis or labia infected with disease could overcome sexually transmitted diseases (Smith 1990:213).

In 1911 state regulations made it illegal for anyone other than a medical practitioner to treat venereal disease (Cumpston 1919). However, considering the remoteness of the north of Western Australia and the lack of qualified medical practitioners in Western Australia, the enforcement of this regulation in remote areas was unlikely.

AT THE LOCK HOSPITALS

Initially, a doctor, assisted by a matron, two nurses and a dispensary assistant were provided for the treatment of those sent to Bernier and Dorre Islands (Mulvaney 1989:189). The historical records suggest that there was no resident medical staff on Dorre Island for the last six years of its use due to lack of funding.

Initial treatment on the islands consisted of antiseptic washes and bathing and dressing of infected areas. Aborigines received three to four months treatment and were said to be detained on the islands for 'at least two years' to ensure reinfection did not occur (Gale 1908a, Pritchard 1911). As has been shown, however, the actual period of incarceration was considerably less than this for particular demographic subgroups. Due to lack of medicines, equipment and staff able to provide adequate treatment (Pritchard 1911) only a small number of patients on the islands were treated specifically for syphilis in the early years of the scheme.

The mainstay of syphilis treatment in the nineteenth century was mercury (Roy 1998:21) and other heavy metals (Willard *et al.* 1996). Oral treatments produced gastrointestinal side effects and courses of injections of mercury chloride or calomel were painful (Roy 1998:21). After 1903 'grey oil' or mercurial cream, which was alleged to be less painful, was introduced and remained in use till 1910 (Roy 1998:21). Courses of treatment were supposed to last for two years (Roy 1998:21). The arsenical preparation Salvarsan or compound '606' offered a breakthrough in treatment after 1909 (Quetel 1992:6, 14, 14O; Morton 1966:28; Price 1933:184). In some places this treatment was combined with intermittent injections of mercury creams (Roy 1998:22).

It is unclear from the literature whether all these treatments or just some treatments were used in the Western Australian Lock Hospitals. However, it was recorded that in January 1911 Steel (the islands' doctor) used Salvarsan to treat Aboriginal women in the late stages of disease (Steel 1911). As this was a new drug, with unknown effects it could be concluded that experiments were conducted on the patients (Mulvaney

1989:191). Historical reports also show that less severe cases were restricted to antiseptic washings of infected areas and patients were also instructed to bath in the ocean (Figure 2.13).

Figure 2.13. Dorre Island Bathers (Battye Library 2001).

Dr Pritchard, Dr Steel's replacement, immediately withdrew the use of Salvarsan upon his arrival on Dorre Island in May 1911, arguing that the women were worse after injections of the drug (Pritchard 1911). Other practitioners had also reported severe side-effects from the use of Salvarsan (Mulvaney 1989).

More severe cases were operated on. It was 'widely advertised that amputation of the genitalia was the only treatment for granuloma' (Cons 255. Unnumbered files 1907/8 (Appendix A)). Even Europeans in Western Australia at the same time period had genitalia removed as a form of treatment, 'a white man in Wyndham Hospital had half his penis amputated for the disease which he must have contracted from the Natives' (Buckland 1908). Aboriginal oral histories have spoken about hiding in the bush and dying there, rather than face an operation or injection (Mulvaney 1989:191; Bates 1938:99).

Whatever the approach, treatment on the islands remained ineffective. As Hickenbotham and Cleland (1909:144) remarked,

> Treatment of cases is long, tedious and disappointing. Mercury and iodide of potassium are absolutely useless…. In most cases operations will have to be frequently repeated… It is only by constant watching, persistent local treatment, together with frequent tinkering operations, that a fair proportion of success can be attained… it is a mistake to attempt too much at any one operation. The patient stands a series of partial operations better than a very extensive one… I have tried many and various local applications but all without benefit.

By 1911, the prevalence of 'syphilis' at the Lock Hospitals and in the Western Australian community, particularly in the Pilbara and Gascoyne regions, and that of the Aboriginal people remained at similar levels or, in some areas, worsened compared with the period before the introduction of the scheme (Cons 255. Unnumbered files 1907/8 (Appendix A)).

Syphilis is still a problem within Aboriginal populations (Kwan *et al*. 2008) in Western Australia today and it is likely that the incidence of the disease has increased over time. During an outbreak of syphilis in the Pilbara in 2008 outbreak control strategies implemented included alerting the region's medical staff, establishing a syphilis screening program and implementing empirical treatments for patients presenting with clinical features and their contacts (Kwan *et al*. 2008). The difference with this and the method used in 1908 for reducing the incidences of syphilis was that 1) there were regional medical staff 2) treatment was for those who showed clinical signs, not those suspected of disease and 3) treatment was given locally not in a quarantined location.

GRANULOMA NOT SYPHILIS

Misdiagnosis may have been one of the major factors contributing to the medical failures of Bernier and Dorre Islands in the eradication of the disease. It became increasingly clear to the medical staff that the disease affecting the Aborigines was something other than syphilis. In 1909 M.B. Lovegrove wrote,

> When the project of isolating Aboriginal people suffering from venereal disease was first implemented, it was believed that the disease from which they suffered was syphilis. Recent investigations, however, have caused this idea to be questioned and there is still much room for research. Though there are on Bernier Island a certain number of cases of undoubted syphilis, the majority of patients present anomalies in their clinical histories that are puzzling and to some extent disheartening.

Most of the diseases identified in the historical records as affecting the Aboriginal populations were unlikely to be syphilis. Firstly, there was no method of gaining some diagnostic certainty of the presence of treponemal diseases before 1907, or even later, in Western Australia. Secondly, neither doctors nor laymen had the resources to distinguish closely associated, but different treponemal diseases. Thirdly, there was a natural tendency in the novel conditions of early settlement to describe every disease in terms of more familiar diseases, in this case syphilis.

> Many of these early writers seemed obsessed with the idea of something venereal and gave prominence to the lesions in the genital regions (Black and Cleland 1938).

In 1909 Hickenbotham and Cleland suggested that 'the disease observed in the indigenous populations was a virulent type of syphilis modified by its occurrence in a long isolated race of mankind'. They noted that it had not been observed before puberty and was located in the genital region (Hickenbotham and Cleland 1909). That is, whether knowingly or not, they were postulating an effect of syphilis upon a 'virgin' population. From this point, people started to call the disfiguring and genital diseases they encountered a 'type of syphilis'. There was perhaps a tendency to group all conditions which engendered disgust under the most derogatory of labels.

Eighteenth, nineteenth and early twentieth century explorers commonly mistook yaws, which was widespread in the Pacific Islands and Australia, leprosy and granuloma for syphilis (Miles 1997; Mansell 1910; Webb 1995:156; Campbell 2002:5).

It becomes quite evident that the symptoms described in the records, like 'syphilis-face and cheek eaten away, exposing teeth and gums', 'syphilitic hand' and 'legs affected' do not match those commonly associated with venereal syphilis today. Most are consistent with modern concepts of yaws, leprosy or cancer.

While there were undoubtedly many diseases represented at the Lock Hospitals, the predominant disease does appear to have been infective and transmissible, with the usual mode of transmission being sexual intercourse (Lovegrove M.B. 1909). Cleland (1908) states that diseases he saw in the Indigenous populations were 'gonorrhea and ulceration of the pudenda with more or less granulomatous growths', venereal

diseases and granuloma. The ages of people affected by the disease ranged from a boy of 12 to an old man whose age was unable to be determined (Cleland 1908).

The disease represented at the Lock Hospitals probably was not one contracted in childhood and unlikely to be yaws, endemic syphilis, or congenital syphilis, as very few children were taken to the Lock Hospitals. Fewer than half a dozen were recorded over the whole scheme. Considerably more are present in historic photographs, though some may simply have been brought in with their parents. It is also possible that the lack of children at the Lock Hospitals may be explained in terms of their likelihood of being collected. Children may not have been checked for a disease that was thought to be sexually transmitted, or they may have been collected for some other reason (such as having 'mixed blood') and taken elsewhere to missions or residential government schools.

Hickenbotham and Cleland (1909) were of the opinion that the ailment from which most Aborigines suffered was a variant of yaws, the most likely candidate being ulcerative or infective granuloma. At the time, Hickenbotham and Cleland (1909: 144-145) concluded that granuloma was an 'extension' of a known disease, syphilis, showing different manifestations in Aboriginal women from those in the European men with whom they cohabited.

Between 1915 and 1926 granuloma was also known as 'dog pox' and 'nigger pox' and, although acknowledged to affect Europeans, came to be seen almost exclusively as an Aboriginal disease.

> The worst disease prevailing amongst the natives has nothing to do with the white population. There is a peculiar disease known as granuloma, which does not generally affect whites. Therefore the whites cannot be blamed for that (N.A. 1936).

Today we know granuloma is not a treponemal disease (Williamson Boucher and Mauders 2001; Richens 2001), but during the Lock Hospital Scheme it was commonly thought to be. The uncertainty of the relationship of granuloma, syphilis and yaws to one another aroused interest and medical funding from the Aborigines Department. During the years 1907 to 1909, Western Australia and the Lock Hospitals emerged as a centre for epidemiological research. A research bacteriologist even worked on the islands for some months (Mulvaney 1989:189).

During the period 1909 to 1912 medical research and journal correspondence failed to identify the true nature of 'ulcerating granuloma'. In a letter to the Sydney Medical Congress, Dr Steel (1911) wrote that his research had proven inconclusive in determining the nature of granuloma or its effective therapy. In 'no instance' had it been cured, though surgical excision rather than syphilitic therapies offered the 'best chance' of achieving a 'permanent result' (Manson 1966:590-595).

From 1908 until 1909 the frequency of reports of granuloma and syphilis/venereal disease were similar (Figure 2.14). Between 1909 and 1911 there was a sharp increase in the reports of granuloma and a corresponding fall in the diagnosis of syphilis/venereal disease. The reports of both diseases decreased from 1912 to 1914. From 1914 to1917 the reported incidence of granuloma rose again.

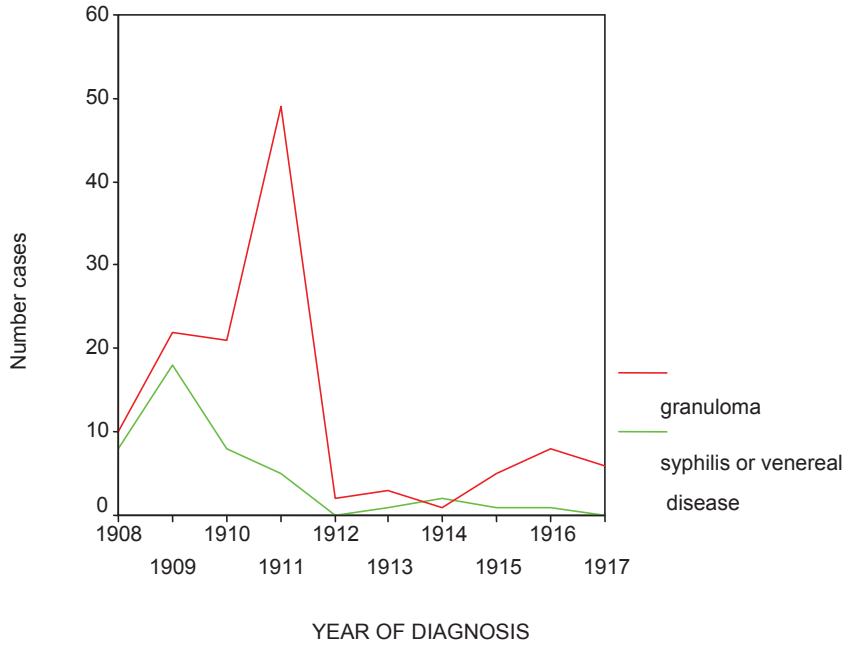


Figure 2.14. Frequency of diseases diagnosed as granuloma or syphilis/ venereal disease over time. (Taken from Stingemore 2002).

In 1919 Neville wrote as follows:

> Granuloma was apparently considered to be infectious or contagious, and it was thought that it would spread amongst whites unless the natives were completely isolated…experience seems to have so far demonstrated the fact that this particular form of venereal disease is peculiar to the native race, and no case appears to have yet been discovered amongst whites.

Once it was accepted by the public that granuloma was predominantly an Aboriginal disease, subsidisation of treatment by Medical Departments ceased, as did its mention

in venereal disease reports. Falling interest in the disease led to the end of the Lock Hospital system.

FAILURE OF THE LOCK HOSPITALS

The most obvious interpretation of the pattern of collection of Aborigines for the Lock Hospital Scheme over time is that by 1912 the scheme was successful in reducing the incidence of 'syphilis'. However, it is evident from correspondence of the time that this costly system did not work (Mulvaney 1989:193), not only for the reasons already outlined but also because treatments applied to the wrong conditions would have had limited efficacy even when appropriately applied and, probably, because of non-compliance with treatment regimes. European treatment was seen to have been ineffective for Aboriginal people, firstly, because they did not take the medicine given to them and secondly because

> the greatest difficulty will be experienced in attempting to remove the obstinate belief that all disease is attributable to magic influences or is brought about by the baneful manipulation of an evil spirit or an enemy (Basedow 1932:178).

It is rather a common theme that the Lock Hospitals did not fulfil what they set out to achieve. The Indian Lock Hospitals were described as having fallen lamentably short of what was expected when the system was put in place (Bulter Collection in Levine 1996:597). As an epidemiological measure, Contagious Diseases Acts and their successors failed largely because the measures were directed at only one sex (Roy 1998:23).

The Lock Hospital Scheme was not a well thought out plan. Only after the islands were in use was the logic of segregating only Aboriginal people, especially women, when others, such as the European stockmen, were free to spread the disease questioned (Jebb 1987; Neville 1919).

The scheme also failed because people were released from the hospitals uncured. Most released from the Lock Hospitals would still have been considered infectious in modern terms. Aboriginal people were generally released, not when they were actually free from disease but in groups or with their 'friends'. Fred Lovegrove (1909) begged in a letter to the Chief Protector of Aborigines 'not to leave one of a group behind or they will become ill on being left behind by their mates and die'. Women of

one group were released together to stop them 'pining for their mates' whilst a group of 22 male pastoral labourers were released because they were ready to work and were becoming difficult to control (Pritchard 1911). It was apparent that their health improved drastically as they returned to the mainland, closer to their homes.

By 1916 mild cases were being treated on the spot, on farms or towns. The incidence of venereal disease had seemed to diminish and success was claimed for the Lock Hospital Scheme. At this stage of the scheme the numbers being treated on the islands had decreased because fewer people were being checked for the disease and removed forcibly from their communities (Mulvaney 1989:193).

The scheme also failed because it was not sustained for a sufficient period to make an impact on the disease. Government funding and interest in the scheme decreased when it was established that granuloma probably posed little threat to Europeans. Lack of funding as a reason for the failure of many of the Lock Hospitals was prominent throughout the British Empire. The seeming ineffectiveness of the hospitals and the sense of injustice arising from the perception that while only the poor and unvalued members of society got these diseases, the rest of society was required to pay for them with money that could be spent on other things such as war or famine relief was probably why the government funds dried up.

At the Indian Lock Hospital it was said that,

> only because the government is interested in protecting European soldiers and sailors that it is warranted in spending public money this way. Towns that desire to protect their civil population ought to pay for it... (Home Dept 1868 in Dang 1993:187).

The Lock Hospitals' administrators in India proposed that special funds for their support be provided from fines inflicted on prostitutes (Dang 1993:176). The acceptance of this proposal indicated that the government was aware of the financial constraints faced by the Lock Hospitals (Dang 1993:176). One Lock Hospital in London (established 1746) performed concerts (both musical and plays) between 1768 and 1780 to raise money (Mc Veigh 1988). No doubt the annual performances at the chapel brought the Lock Hospitals a considerable income (Mc Veigh 1988:237). No similar exercise was undertaken to keep the Lock Hospitals on Bernier and Dorre Islands funded.

A.O. Neville (Chief Protector of Aborigines) stated in 1919 that the Lock Hospital Scheme to that point had been 'ineffective and expensive' (Neville 1919). In 1916 and 1917 Neville formulated plans to close the islands despite the fact that venereal disease was still present in the Indigenous communities.

The exact date at which the last patient left the islands is unknown, but the Bernier and Dorre Islands Lock Hospitals officially closed in 1918 and the 24 surviving inmates who were thought still to be syphilitic returned to the mainland to the 'Depot for Diseased Natives' in Port Hedland (Mulvaney 1989:193, Warren 2000). The Depot in Port Hedland also named Murrkanya by the local Aborigines was located between what is now Meiklejohn and Taplin Streets (Warren 2000). Port Hedland presented itself to government as one of the most suitable locations for the transfer of the majority of the patients. Given the town's status as a regional centre it was also seen as a favourable location for the establishment of a new Lock Hospital (Warren 2000). As with the island based hospitals, Port Hedland's hospital was to be established to cater expressly for the medical needs of Aboriginals, in particular those suffering from venereal disease (Warren 2000). By 1930, over ten years after the end of the Lock Hospitals on Bernier and Dorre Island and thirty years before the close of the Lock Hospital at Port Hedland, the Chief Protector of Aborigines described venereal disease among the Aborigines as being under control (CPA 19329).

SIMILARITIES WITH OTHER MEDICAL AND INSTITUTIONAL ENVIRONMENTS

Facilities for health treatment of Indigenous Australians during the nineteenth and twentieth centuries shared many similarities with other medical environments, institutions, missions and places of confinement, not only in Australia but in the wider world. A similar lack of medical attention, squalid living conditions, poor outcomes for patients, control over patients and racially medicalised prejudices were engrained in them all (Briscoe 1996h). Other examples of institutions that share characteristics with the Bernier and Dorre Islands institution are other Lock Hospitals (Fantome Island, Mandras Lock Hospital, London Lock Hospital, Indian Lock Hospital, Peel Island Lazaret), Aboriginal reserves (Palm Islands), missions (Flinders Island mission, Killipanna mission), asylums (Adelaide Destitute Asylum, Claremont Asylum, Magdalen Asylum) and places of overt incarceration such as prisons (Ross Female Prison) and workhouses.

Like in Western Australia, the Queensland government officials viewed sexually transmitted infections as the paramount health problem of Aborigines, and the Lock Hospitals were set up to control the spread of disease (Parsons 2008:42). Contagious Diseases Acts were set up in both states which included the provisions for compulsory notification of venereal diseases and the provisions of free medical treatments (Parsons 2008:43). However, these did not apply to the Aboriginal populations. Most Australian states favoured a voluntary treatment for Europeans however, the same could not be said for the Aborigines as any Aboriginal person suspected of having a venereal disease was quickly removed from their homes and transported to government facilities (Parsons 2008:43, 44).

The Palm Island and Fantome Island (part of the Palm Islands group) settlements were part of a number of schemes the Queensland Government used to concentrate the Aboriginal population, ostensibly to protect them from forced labour, under the Aboriginals Protection Act of 1897 (Briscoe 1996h). This Act authorised police 'protectors' to forcibly remove Aboriginal and Torres Strait Islander people.

Forty seven different tribal groups from throughout Queensland and the Northern Territory were represented on Palm and Fantome Islands, a situation which caused many problems and tribal differences. As in Western Australia with the Lock Hospital Scheme, fear spread as the population of inmates increased (Hunter 2000). Conditions were poor and the mortality rates reported as between 11% and 44% of admission each year (Lewis 1998; Fantome 2008:46), were as high as Jebb's (1984) and Stingemore's (2002) estimates for the Western Australian Lock Hospitals. Poor housing and lack of medical attention, clothing, bedding, water, and washing facilities contributed to the suffering of children and adults from malnutrition, alcoholism, skin diseases, tuberculosis, gastroenteritis, venereal diseases and leprosy (ATSIC 2000).

The Fantome Island Lock Hospital, which was designed for containing and controlling Aboriginal people suspected of venereal disease, was set up in Queensland in 1928 and closed in 1945 (Parsons 2008:41). Located 70 kilometres northeast of Townsville, the Lock Hospital illustrated the complexities of medical and racial segregation and highlights the merging logics of penal, quarantine, therapeutic and racial segregation of Aboriginal people (Parsons 2008:41, 42).

Collection methods were similar to those on Bernier and Dorre Island with the use of neck chains to walk detainees to ports from which they were transported by boat to the island (Parsons 2008:46).

Medical attention on Fantome Island was limited and it seems that medical officers only made occasional visits, with no medical personnel stationed on the island in the first five years of operation, due to the reluctance of the government to provide funding (Parsons 2008:45) as was recorded to be the case for Bernier and Dorre Islands.

It was established towards the end of the Fantome Island Scheme that many of the patients were suffering from yaws – not venereal disease (Parsons 2008:57) and the threat to European populations perceived to be decreasing.

Another similar institution was that of the Peel Island Lazaret which was established on a 160 acre reserve on the northwest corner of Peel Island (Prangnell 2002:31). During the 52 years of its operation there were 572 admissions and readmissions with up to 90 inmates housed in the lazaret at any one time (Prangnell 2002:31). Death rates on Peel Island were close to 50% with 250 people recorded as being buried in its cemetery (Prangnell 2002:31). As on Bernier and Dorre Islands a superintendent and his wife originally staffed the lazaret, but over time the staff grew to include an assistant supervisor, matron, doctor, four cooks, registered nurses and male attendants (Prangnell 2002:31).

The forced removal of Indigenous Tasmanians to Flinders Island in the nineteenth century also shares similarities with these Lock Hospitals and lazarets. The poor living conditions, including inadequate supplies of blankets and rations (only one pound of salt meat and one and a half pounds of flour) have been considered an attempt to eliminate Indigenous people (Turnbull 1948:155-156; Ryan 1996). There is evidence that from the outset, British authorities knew that conditions on Flinders Island were lethal (Madley 2004:176). While the colonial government may not have planned to kill large numbers of Indigenous people, they did little to stop mass deaths amongst those for whom they were responsible (Madley 2004:176).

It was not only Indigenous people who were incarcerated and subject to poor living conditions as, however. As Piddock (2004:172) comments in relation to the Adelaide Destitute Asylum which operated between 1849 and 1917

> Although there were opportunities to provide the best possible asylum environment, the reality was that the provisions made fell short of what was needed, and in turn reflects the effects of economics on the care provided for the mentally ill (Piddock 2004:172).

TOTAL INSTITUTIONS

Lock Hospitals, Aboriginal reserves, and hospitals all blur the line between public service and incarceration or imprisonment. Goffman's (1961) model describes systems that not only blur but cross this line as 'total institutions'. His term is used to analyse a range of institutions in which whole blocks of people are bureaucratically processed, whilst being physically isolated from the normal round of activities, by being required to sleep, work, and play within the confines of the same institution. Goffman applied the term not only to asylums, but also to monasteries, convents, prisons, reformatories, schools and less plausibly, to the servants' quarters of country houses, logging camps and merchant ships (Ignatieff 1983:167). Others also include slavery camps, prision of war camps, poor houses, missions, the armed forces, boarding schools, mine compounds (Davies 1989). Lock Hospitals, missions and leprosarium in Australian during the early twentieth century met the criteria for membership of this category. 'Total institutions' also resemble prisons, concentration camps and mental institutions (Long 1970:178-179). The definition of total institutions used in this thesis is one which Davies (1989:85) terms closed involuntary institutions, where inmates enter involuntary or by coercive force, once there are prevented from leaving, are forced to do tasks, and can not move within the hierarchy of the institution. Figure 2.16 shows where the Lock Hospitals would be situated within the range of the types of total institutions.

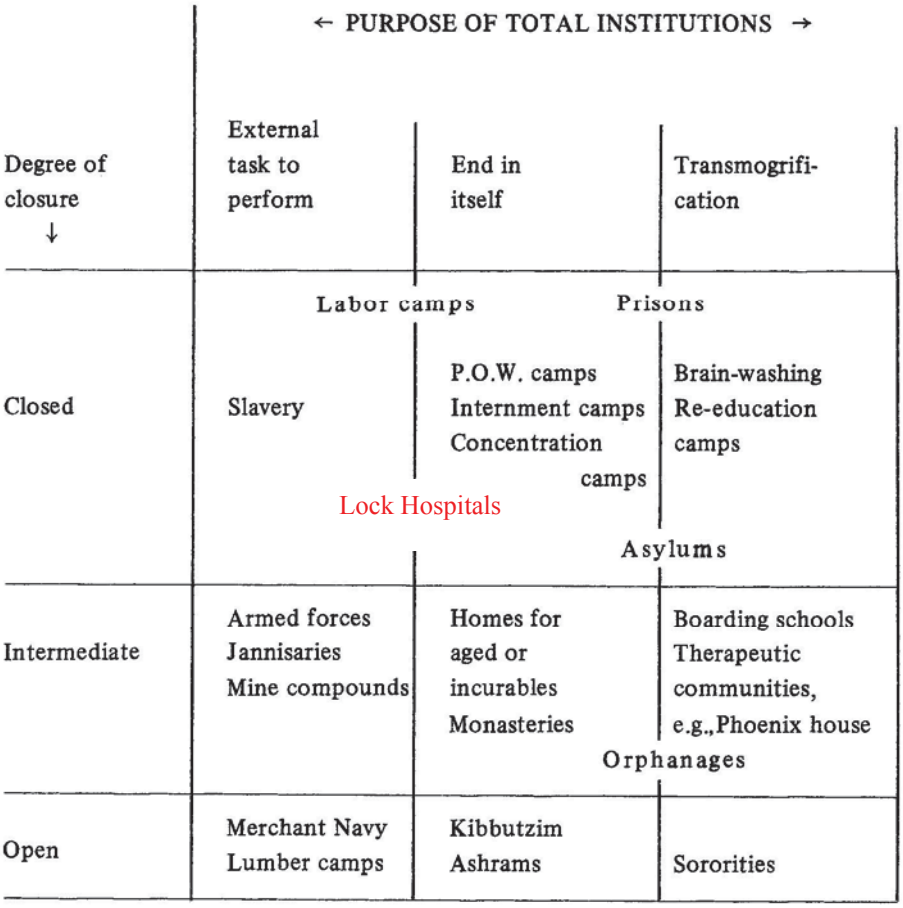


Figure 2.16. Davies (1989) breakdown of the types of total institutions. I have placed Lock Hospitals within closed systems, in which the purpose of the institution was an end in itself, with also some elements of forced manual labour.

The key characteristics of total institutions include:

- barriers to social intercourse with the outside, often built right into the physical plan, such as locked doors, high walls, barbed wire, cliffs, water, forests or moors
- breakdown of barriers between spheres of life (sleep, play & work)
- daily activities are carried out in the company of a large group and scheduled
- two different social and cultural worlds develop (staff and inmates)
- incentives are given for work (but does not have the same significance as on the outside)
- mortification of the self – ID#, uniform, channels of communication shut off
- rules are abundant, novel, and closely enforced and staff can discipline on things like dress, manner, social intercourse
- punishments are given out usually for rule breaking and usually more severe than would be given out in the outside world.
- prohibition of certain items
- release is part of a privilege system.

The continuity and discontinuities between the different total institutions is what Goffman originally discussed in his 1960 theory (Harcourt 2008). However, a common theme seen within total institutions is that they are marked by a basic split between a group of inmates removed from the outside world and a staff that is integrated with that outside world (Goffman 1961:7). This relationship between the inmate's world and the inmate's relation to the supervisory staff is explored in total instituions (Harcourt 2008). Total institutions also describe all forms of institution in which authority seeks a 'total' regulation of the inmates' daily life (Ignatieff 1983:167). Goffman (1961) defines total institutions as,

> Places of residence and work where a large number of like-situated individuals cut off from wider society for an appreciable period of time….the individual tends to sleep, play, work in the same place and under the same authority.

Goffman applied the term to institutions with manifestly different purposes and populations because he believed that institutional routines tended to grind out the same rituals of mortification and depersonalization, whatever their manifest purposes (Ignatieff 1983:167).

Critiques of Goffman's work have focused on the inability to see the common themes between the institutions (Ignatieff 1983:168). In practice, the concept of the total institution, and I one I am using throughout this research, is restricted to those institutions of the state such as asylums, prisons, workhouses, lock hospitals, missions, mental institutions and concentration camps - which have analogous populations - the poor, the dispossessed, the unprotected and the stigmatised - and which have analogous functions - incarceration, deterrence and rehabilitation (Ignatieff 1983:168).

Others have suggested that some missions and reserves reflect a form of slavery (Blake 1991; Koepping 1976) not a total institution. Many missionaries and anthropologists in the nineteenth and early twentieth centuries had similar views, if not expressed in the same terminology. Missionaries in Queensland (Sutton 2003:80) and people like Bates (1938) and Watson (1918) depicted Aboriginal reserves, Lock Hospitals and missions in this light.

While moderate commentators have suggested that missions and reserves should not be characterised as 'total institutions', as the powers of staff had less impact on

Aboriginal people than prisons and concentration camps (Trigger 1992:101), Lock Hospitals throughout the world were highly restrictive. Staff had the power to control the comings, goings and activities of patients. Although the etymology of 'lock' is from the bandages used to dress the wounds of lepers, the term reinforces the prison model to the public. I would argue that the Bernier and Dorre Islands Lock Hospital can be described as a 'total institutions' designed to control the Indigenous peoples as much as the wider network of prisons, reformatory homes for children, leprosaria, work camps, missions, reserves and Lock Hospitals widespread throughout Australia in the nineteenth and twentieth centuries.

It has been suggested that 'total institutions', in the form of missions, hospitals, reserves, and prisons throughout the world have represented repeated attempts at social control and power over Indigenous populations in colonies throughout the world (Sutton 2003:78; Long 1970:6). They represent an ordering of spatial exclusion necessary to appease apprehension of the unknown (Harcourt 2008) – that is, a place for those that do not fit into the Bourgeois society. Sutton (2003:81) noted that individuals placed in 'total institutions' are those targeted politically or the economically disfranchised. It has also been suggested that the shared rationale for creation of many institutions with attributes of 'total institutions' such as orphanages, destitute asylums, workhouses hospitals and prisons was to reform the poor, criminals and others with undesirable attributes (Spencer-Wood and Baugher 2001:4).

It seems that throughout history there was a need for total institutions as places for those that did not fit into society. These places changed name and supposed purpose as the indesirable disease, activity, malady came in vogue.

> Leprosy disappeared, the leper vanished, or almost, from memory; these structures remained. Often, in these same places, the formulas of exclusion would be repeated, strangely similar two or three centuries later. Poor vagabonds, criminals, and "deranged minds" would take the part played by the leper . . . . With an altogether new meaning and in a very different culture, the forms would remain—essentially that major form of a rigorous division which is social exclusion but spiritual reintegration (Foucault 1961:16).

It is also highly likely that if one of those interned was released from one form of incarceration, such as forced medical treatment, they may ended up in another form of incarceration such as a prison. Harcourt (2008) illustrates this was common within the 1930s to 1960s with prison and mental hospitals – it seems that people were

released from one and admitted to another. It may have been likely that those released from the Lock Hospitals found themselves in other institutions.

The idea of a monopoly is important in total institutions, monopoly over punishment, repression, and more generally over the reproduction of social order (Ignatieff 1983:170). Without a justified means, this could not be done. However, if a means could hide itself under say a term like health care, the government could control this social order.

Ignatieff (1983:168) argues that what happens inside the walls of these institutions is not as important as the historical relationship between the inside and outside and as such prisons, workhouses, asylums and reformatories are only of antiquarian interest. They only become significant historical subjects when they show us, in the extremity of their rituals of power, the limits which govern the exercise of power in society as a whole (Ignatieff 1983:169).

THEORETICAL APPROACHES TO UNDERSTANDING THE LOCK HOSPITALS

Piddock (2007:1) argued that the best methodology for understanding studies that look at a particular time in history where the both historical and archaeological records exist was the use of theoretical approaches to historical archaeology. Partly from a tradition of drawing extensively upon nonprimitivist historical anthropology, historical archaeology is also able to provide a bridge from prehistory to sophisticated archaeologies and anthropologies which do consider multiple levels of collective identity (including their relationships to national and supranational forces, modernity, capitalism, and global networks) (Frazer 1999:3). This approach looks at the Bernier and Dorre Island Lock Hospitals within the wider research on other medical and institutional environments, such as places of forced confinement, total institutions and the reasons for confinement based on race, gender and class. It also considers the wider view of power relations.

In most instances, the detailed intricacies of specific power relations have not been considered, nor the likely possibility that resistant discourses have been suppressed from official historical transcripts (Frazer 1999:5) and hence the archaeology is the only way to see these issues. For archaeology, this suggests that we need more

specific empirical studies that examine the minutiae of local relations of power but contextualize them (Frazer 1999:6) within a broader social field, employing a perspective that considers more than the immediate historical environment.

Moreover, few studies of confinement—in other words, research that explores the specific relationship between confinement and unemployment, or confinement and crime, or confinement and health-related indicators such as disease—uses a measure of coercive social control (Harcourt 2008). This study attempts to look at the reasons for social control on Bernier and Dorre Islands and how it relates to other, similar institutions.

No more than Harcourt's (2008) study is it the goal of this work to test hypotheses about the actual relationships between institutionalisation and other factors like unemployment, education, diseases. Rather, it is to reconnect social theory to empirical research, by using ideas of total insitutions and to think of confinement through the lens of the institution.

Goffman's (1961) 'total institutions' provides the theoretical framework for understanding the mechanisms of power and control perpetrated by those in authority by looking at performance and resistance as well as the concept of how these ideas are looked at in the understanding of space.

CONTROL THROUGH POWER

Foucault (1991) discusses the issues of control and punishment in institutions through power and paternalism. Historical archaeology has a particular role to play in exploring the unequal power relationships of production and consumption between individuals and collectivities and how these relationships are initiated, renewed, and altered through material culture (Frazer 1999:3). Since the politics of power and inequality play such an integral part of our physical experience of life and since they are integral to our understanding of power and social relations in the past, whether at a local community level or within broader regional, national and supranational forces, they deserve to be a fundamental aspect of our archaeologies (Frazer 1999:6).

Common to many institutions is the control over those interned. State legislation throughout Australia gave officials and missionaries almost total power of control

over the movements of Indigenous peoples (Sutton 2003:80). In Queensland at places like Weipa, Lockhart River and Mapoon, whole communities were removed by force to satisfy Queensland State Government mining interests (IDA Team *et al.* 1975 cited in Sutton 2003:80). Other political and economic interests were served throughout Australia under the umbrella of 'medical interest and protection'.

The Peel Island Lazaret was a paternalistically run institution. Paternalism can be defined as a set of behaviours that culminates in the exercise of freedom diminishing control by one person over another justified by reasons referring to the welfare, good, happiness, needs, interests or values of the person being coerced (Prangnell 2002:37). Control includes either formal or informal policing, the establishment of standards of behaviour such as timeliness and diligence and the power to punish groups or individuals for violations (Prangnell 2002:37). This might include attempts to reduce or control the immoral effects of alcohol, sex and irreligion.

One exception, to this was the Madras Lock Hospitals where images of prostitutes sunbathing on Lock Hospital verandas advertised the very excess that the hospitals and the acts sought to control (Hodges 2005:385). The apparent freedom given to patients in this case may reflect the services they provided military campaigns, the fact they were European themselves, or a ploy to decrease resistance to incarceration.

INSTITUTIONAL DESIGN AND SPACE

Archaeologists have long sought to understand the meanings invested in the organisation and arrangement of space, particularly in cases of institutions, which by their very nature are not documented or preserved in individual artefacts. Using spatial patterning or the purposeful design of architectural spaces to control, discipline, contain and reform is not new to the construction of institutions or their analysis new to archaeology. For some time archaeologists have evaluated architecture, artefacts and landscapes in terms of how material culture expresses the ideology of social reformers (Spencer-Wood and Baugher 2001:13).

Space does not exist as either a pre-given artefact nor as an afterthought and reflection of human deliberation but is integral to social action (Prior 1988:93). Space and society are not, therefore two separate realms of reality but are intertwined in a single order of existence (Prior 1988:93). In other words, it can be inferred that the

placement of particular structures in the landscape is intentional. It must also be remember that space is made up of a number of aspects: physical, mental and cultural.

Prior (1988:86) argued that many ontological and epistemological assumptions are embedded within current theorisations of space and advanced a number of arguments concerning the inter-relationships between forms of knowledge, social practice and physical design. He believed that schemes are best understood in relation to the distinctive practices of which they form a part. Other authors like Casey (1997) have looked at the conceptualisations of place and space in Western thought, in which a central theme is the increasing neglect of place in favour of space.

Prior (1988:87) emphasised the need to consider the role of the external structure of buildings, as well as their placement in relation to their role in social control. Access to space is hierarchically structured according to social function (patient, staff, visitor) and gender categories (Prior 1988:106). The majority of prime space is allocated to supervisors, less to keepers, even less to patients.

Architects and builders knew how to position buildings and spaces to get maximum control over populations. In many cases the design and positioning of buildings like mortuaries and cemeteries next to living accommodations, the placing of bars on windows and locks on doors are intended to oppress those institutionalised. Such features are commonly and conveniently left out of documents and photographs and plans do not always provide a true indication of the reality of spatial arrangement.

This jail-like character was particularly evident in the built environment of institutions and the spatial order of built structures. Institutional walls and surrounding seas are evidence of attempts to control inmates (Spencer-Wood and Baugher 2001:14). At Palm Island, Aboriginal people were locked in with boarded windows and barbed wire fences. Long (1970:106) describes dormitories secured with wire mesh and locked doors at night to keep the inmates in and others out.

At the Port Hedland Lock Hospitals small compounds (one each for men and women) were bounded by a 6 ft picket and meshed wire fence topped by 5 rows of barbed wire (Warren 2000). (Figure 2.15) These were tapered inward for added effectiveness (Warren 2000). The design of the compounds shows how apt the name Lock Hospital was (Warren 2000).

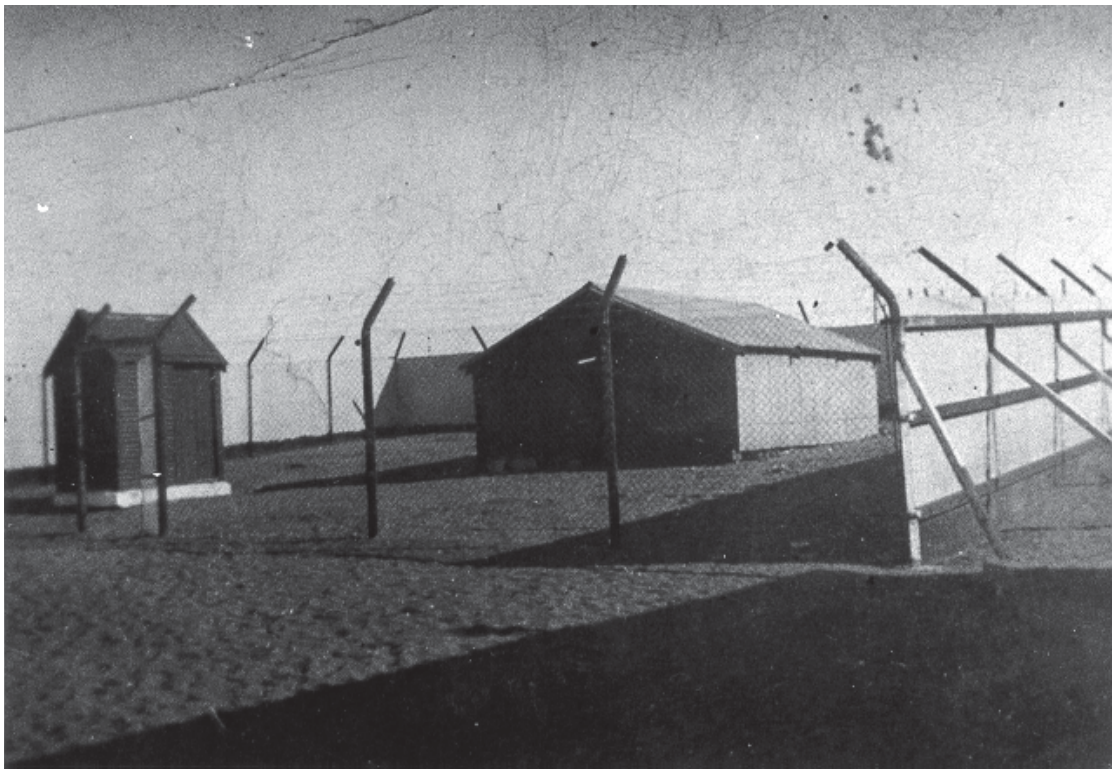


Figure 2.15. Photograph of accommodation at the Port Hedland Lock Hospital (Warren 2000). Note the barbed wire.

These hospitals and other institutions resemble Bernier and Dorre Islands in being established in isolated places, small enough to maintain control of the inmates, and usually surrounded by shark infested waters and rough seas which prevented escape (Briscore 1996h). At the time many of the schemes were conceived, the opinion frequently expressed was that incarceration on islands was less like jail, since there were no fences or walls (Connolly 1909). For Indigenous patients who had never before seen the ocean, an island could be considered as much a prison as an establishment with fences and walls.

Few studies address the issue of hospital or institutional design and even fewer look at the inconsistencies between plans and actual layouts. The differences between historical plans and the archaeological record can reveal changing objects of medical attention and the conceptualisation of disease and treatment. Hospital plans are essentially archaeological records which encapsulate medical knowledge (Prior 1988:93).

Casella's (1998) analysis of the Ross Female Factory, Australia, Piddock's (2001) analysis of the Adelaide Destitute Asylum, Australia and De Cunzo's (1995) analysis of the Magdalen Asylum, Philadelphia, USA and McClelland (1997) study of the Claremont Asylum all share the idea that architectural design sets out to control the

population in some way. Spencer-Wood and Baugher's (2001) discussion of these institutions concluded that the changes in reformers goals altered the use of each institution and to some extent its architecture. They likened the differences among institutions to coloured tapestry patterns sharing fundamental threads of ideology expressed in shared methods and architectural structures.

Other studies, such as those by Singleton (2001) have looked at the relationship between slave owners' control of plantation space and enslaved labourers' resistance of that control. In Cuban slave houses, slaveholders manipulated the spatial organization of plantations to their advantage in an effort to control the actions of enslaved workers (Singleton 2001:98). Cuban slaveholders, not only employed surveillance measures, but they also housed enslaved people in prison-like quarters (Singleton 2001:98). One such practice, discernible in extant ruins of plantation buildings, was the housing of enslaved people in prison-like quarters. These quarters were often locked at night, and carefully watched by guards (Singleton 2001:99). At one Cuban slave sites the most imposing feature was a masonry wall 3.35m high that enclosed the slave village (Singleton 2001:102). While the idea of enclosing slave houses behind a wall – higher than the average ceiling height of a modern house – appears an extreme example of a slaveholder's control over the living spaces of the enslaved, it may have been less severe (Singleton 2001:102) than for example an island. These archaeological, architectural and landscape studies have shown both direct and subtle ways institutions attempted to control plantation landscapes (Singleton 2001:105).

Another example of hospital design reflecting power is that of the Claremont Asylum, Western Australia. It was supposed to be designed as a functionally effective space for adequate care of patients (McClelland 1997:64). In reality, the design was more of an architectural achievement. It is interesting to note that Lovegrove (uncle of one of the doctors at the Bernier and Dorre Island Lock Hospitals) was part of the committee which commented on this design of the Claremont Asylum, disagreeing with the original design, on the basis that it had little functionality as a hospital. However, the more modern architectural design with giant lights illuminating the main buildings rather than the practical structure Lovegrove wanted went ahead. *The Sunday Times* on 12th March 1911, commented that 'the hospital's ward is an eloquent monument to the stupidity of the department that designed it' (cited in McClelland 1997:76).

In general, whatever their stated purpose, institutions have the same types of buildings, such as wards, living quarters, staff quarters, laundries, and kitchens. At many hospitals, for example the Destitute Asylums of Adelaide, the placement of buildings seemed to be based on where they fitted into available space, however, at others it is difficult to see why building placement was chosen other than for control.

It has been argued (Spencer-Wood and Beaugher 2001:4) that institutions such as orphanages, destitute asylums, workhouses, lock hospitals and prisons were created to reform the poor, criminals, sick and undesirable so they could perform useful roles in society. The spatial set-ups of institutions and hospitals, the controlled movement of peoples, forced labour, the use of time and the wearing of uniforms can be taken as further evidence of this.

CONTROL OF TIME, LOCATION AND USE OF UNIFORMS

Included amongst the devices implemented by institutions to control their inmates have been the placement of surrounding walls, specific required lengths of residence, and the compulsory wearing of uniforms (Spencer-Wood and Baugher 2001:9). Institutions such as the Ross Female Factory, the Adelaide Destitute Asylum and the Magdalen Asylum required inmates to stay at least 6 months, wear a uniform and not own personal items (Spencer-Wood and Baugher 2001:13).

Bells and clocks were often used in institutions to control the activities permitted during each temporal segment of the day (Goffman 1961; Spencer-Wood and Baugher 2001:9).

Many institutions were sources of cheap labour, affected by economic interest. Work was considered morally reforming and Indigenous people who could be trained to do this were one step closer to assimilation and one further away from their ‘primitive’ lifestyle. At Killalpaninna mission men, in addition to stock work, were trained in construction methods of mud brick, timber and galvanised iron sheet, blacksmithing and maintenance of carts and shoeing horses (Birmingham 2000:392). The focus on patient labour can be seen at the Adelaide Destitute Asylum in the way in which only men were moved to the new asylum which had provisions for employment in labouring tasks (Piddock 2004:174) and in the choice of first patients for the Claremont Asylum in Western Australia, which was based upon physical prowess and agricultural skills, rather than any clinical assessment of medical condition

(McClelland 1997:68). The detainees at Palm Island were sent to Fantome Island to build its new facility (Parsons 2008:45).

A critique of power though is how knowledge relates to environment, to social landscapes, is not determined strictly by the knowledge itself, but also by the carriers in which it is incarnate (Frazer 1999:4). To accept that power differentials existed in the past or, more explicitly, to accept the presence of inequality and domination in the past means understanding that resistance, as the other half of a dialectical relation of power, did also (Frazer 1999:5)

FIGHTING BACK – RESISTANCE

Foremost among power struggles is the concept of social power, particularly that of resistance. Social actors in inferior positions of power are too often left unexamined as are the decision-making by less powerful (Frazer 1999:4). Archaeologies that address resistance are, potentially, not just about writing power and agency into a neglected past, but, in a small way at least, are also about writing power and agency into a neglected present, and about writing hope into a future (Frazer 1999:8).

Despite every attempt to destroy aspects of undesirable behaviours by European institutionalisation, there is evidence that the institutionalised fought back, either by direct conflict, passive resistance, or by retaining their cultural beliefs and traditions, and some small and occasional measures of independence. At missions Indigenous populations were noted as responding either by embracing mission teaching, values and lifestyles, 'missionisation', or more commonly by resisting, overtly or clandestinely, and stubbornly retaining 'unacceptable' features of traditional culture (Birmingham 2000:400-401).

Through various forms of everyday and cultural resistance, enslaved people covertly challenged gruelling work routines and inhuman living conditions (Singleton 2001:110). For example at Cuban slave quarters, slave workers always found ways to resist planter hegemony (Singleton 2001:98). Cultural resistance was manifested in various ways, including song, dance, folktales, religion and medicinal practices (Singleton 2001:110).

In other situations certainly covert acts of resistance, such as feigning illness or misplacing tools, were certainly more commonplace than overt resistance (Singleton 2001:108).. Covert acts of resistance also had the advantage of taking place, yet going undetected by slaveholders and managers. The archaeological study of slave villages is most capable of uncovering evidence of covert, everyday resistance. In the archaeological study of plantation space, this form of resistance is most evident in modifications enslaved people made to their houses or yard areas (Singleton 2001:108).

Most historical and archaeologists retain their beliefs in the resilience of the Aboriginal culture and hence we should expect to see some evidence of retaining cultural traditions within the archaeology on Bernier and Dorre Islands.

Another interesting power and resistance relationship looks at the distinctions in which the labelling effects of state power had an important influence (Ignatieff 1983:169). Some of the questions that need to be addressed are as follows. Why was it important to label the Aboriginal people as syphilitic? Why was it important to label some groups of people more than others? Could this label ever be removed? Could it be removed for some people, perhaps based on their class, race and gender? What did the labeller and the labelled get out of it?

CLASS, GENDER AND RACE AS JUSTIFICATION FOR INCARCERATION

Lock Hospitals were emblematic sites where versions of colonial power and medical authority were produced and enacted. Lock Hospitals telescoped and re-articulated a series of relationships that the larger Contagious Disease Acts legislation throughout the British Empire sought to encompass – between coloniser and colonised, between state and subject, between men and women, and between disease and diagnosis (Hodges 2005:384).

Campaigns to arrest the spread of venereal disease in Western Australia, India, Britain and other parts of the colonial world became vehicles for reproducing attitudinal and judicial structures of power and authority (Jebb 1987:10).

> Analyses of venereal disease campaigns all grapple with the interrelationship of race, class and gender as explanatory categories of inequitable treatment (Jebb 1987:12).

In many instances disease became the yardstick by which to measure unruliness, as well as social distance (Levine 1996:603).

For many diseases, including leprosy and sexually transmitted diseases, policies were overtly discriminatory and inconsistent with best practice (Saunder 1990). Class and gender biases are overwhelmingly evident in the legislative approaches to prostitution (Howell 2000:323) and to the Contagious Diseases Act in many British colonies. They targeted the lower classes, with their 'animality' as an instructive contrast to bourgeois self-control. Systems of regulation depended on and codified well-entrenched gender ideologies which discriminated between men and women (Howell 2000:323). The lenient treatment of men, whose sexual urges were considered natural and for whom sexual license was justified, contrasted with the pathologising and criminalising of women (Howell 2000:323).

The Indian Lock Hospitals illustrated how the medical environment perceived and treated its subjects and how these perceptions were similar to those in place in England and in other parts of the colonial world (Hodges 2005:380). At the Madras government Lock Hospitals in India in the 1870s, arguments based on colonial and indigenous differences constructed the hierarchy in which Europeans occupied the top of the physical and civilisation evolutionary scale (Hodges 2005:380).

At the Fantome Island Lock Hospital Parsons (2008:41) shows that medical and racial segregation played a large part in incarcerating Aborigines in Queensland. Parson's (2008:41) also argues that white perceptions of Aboriginal sexuality (being that of immoral) and health (being that of unclean, unhygienic) contributed to government depictions of Aboriginal venereal disease as being in epidemic proportions. Parson's (2008:41, 42) also argues that disease diagnosis was being differentially applied across sub-populations, usually less scientifically when it came to the Aboriginal populations. Historical records at Fantome Island consisting of two large scale medical surveys found little evidence of venereal disease (Parsons 2008:42). In one year government statistics recorded only 17 cases of venereal disease yet the government still declared that Queensland was overrun with the disease (Parsons 2008:46). Moreover the merging of medico-moral and racial ideologies in the early twentieth century helped construct an inclusive vision of an epidemic based on pre-

bacteriological disease diagnosis procedures (Parsons 2008:42). This may also explain the large number of Aborigines in Western Australia being diagnosed by the police, pastoralists and others untrained in medicine.

As with other Lock Hospitals, the Lock Hospital Scheme for Indigenous people in Western Australia reflected their status as outcasts in their segregation, compulsory medical treatment and state control (Jebb 1984:69). Mulvaney (1989:193) sees the episode of Lock Hospitals as a classic case of a righteous society with double standards where race was involved (Mulvaney 1989:193).

Moreover, the use of medical segregation as a method to control venereal diseases amongst two specific groups – prostitutes and Aborigines – was indicative of the popular perceptions of both groups as immoral and potentially diseased: prostitutes by reason of their profession; Aborigines by reason of their race (Parsons 2008:44).

The development of a public health ethic and the increasingly separate nature of medical knowledge and the medical bureaucracy, influenced the formulation of the Lock Hospital Scheme (Jebb 1984:49). It appears likely that the rationale for the scheme was not simply to eliminate disease but to eliminate the 'problem' of the Aborigines themselves. The campaigns to arrest the spread of venereal disease in Australia became vehicles for constructing and reproducing attitudinal and judicial structures of power and authority.

> The Lock Hospitals were primarily a punitive solution to a medical problem that was distorted by social attitudes of morality. Segregation of diseased prostitutes removed the threat of disease to male partners while providing a means of control through state intervention (Jebb 1984:68).

The fact that the Lock Hospitals were not designed for Europeans reinforces the idea that the scheme was a way of 'locking up' the Aborigines.

> The Lock Hospital Scheme was the first Western Australian government attempt to deal systematically with Aboriginal health…. The government did not initiate Lock Hospitals in the white population even though they passed a Contagious Disease Amendment Bill in 1915 that provided for the compulsory notification of persons believed to be suffering from venereal disease (Jebb 1984:69).

There is no evidence in the numerous government files and reports, that the Aborigines Department seriously questioned its right to undertake the compulsory treatment and isolation of Aborigines (Jebb 1984:75). It seems that this Department assumed this was best for the Aborigines and the maintenance of health among the Europeans. Neville (1947:32), years after the scheme ended, suggested that caution needed to be taken when dealing with these issues.

> We ought be very fearful of the effects of our neglect. And so we are when it touches us closely we have shown that in our belated attempt to stamp out disease in the north. Money had been forthcoming for that. Why? Because we are afraid of disease spreading to ourselves, afraid the disease would lose us many useful workers.

IMPACT OF THE SCHEME ON ABORIGINAL PEOPLE

The chief objective of a hospital has been defined by Georgeopoulos and Mann (1979:296) as

> to provide adequate care and treatment to its patients (within the limits of present-day technical-medical knowledge, and knowledge of organising human activity effectively, as well as within limits that may be imposed by the relative scarcity of appropriate organisational resources or by extra organisational forces). Its principal product is medical, surgical, and nursing service to the patients, and its central concern is the life and health of the patient.

It has also been suggested by Georgeopoulos and Mann (1997:296) that

> In most hospitals many doctors and nurses see the hospital as a non profit institution dedicated to works of mercy where their immediate personal comfort and satisfaction are defined as less important than giving good care to patients and meeting a higher obligation to mankind.

It was clear that the Lock Hospitals fulfilled neither of these roles. Those who administered the Lock Hospital Scheme thought of it only in terms of the physical and not the social, emotional and cultural wellbeing of the Aborigines collected or that of their communities. The primary aim of the Lock Hospital Scheme was to ‘clear diseased natives from the Northwest’ (Commissioner of Police 1909). The ramifications of the scheme for the Aboriginal people’s way of life were never considered.

The greatest impact of the Lock Hospital Scheme arose from the physical removal of people from their communities. Aboriginal people completely removed from their group were useless to that society.

The effect of the operation of Lock Hospital Schemes throughout the world, especially those that involved incarceration of large numbers of Indigenous people of a single sex, threatened the very foundations of Indigenous society through loss of terms of knowledge, the next generation and cultural practice (Madley 2004:171).

Over most of Australia, population densities of Aboriginal people were low, but favourable environments with a wide variety of continuous readily available resources permitted areas of more concentrated occupation (Mulvaney & Kamminga 1999:69). Across the north of Western Australia groups who lived in such favourable conditions, particularly along the coast, may have contained hundreds of people while those in less favourable environments may have contained fewer than twenty. Unfortunately, the exact dimensions of the pre-European Aboriginal population of the northwest of Australia will never be known (Berndt and Berndt 1984). Past estimations of the Aboriginal population size have been unreliable due to misunderstandings of the term 'Aboriginal', and the limited context to which data concerning Aboriginal and Torres Strait Islander people are included in national surveys. Early government agencies' estimates of tribal statistics were generally based on guesswork (Australian Bureau of Statistics 2001). On the few occasions administration attempted to collect data systematically, people generally refused to collaborate with census takers, owing to their fear of the political intentions behind the census (Mohamed 1999:511).

The Census data of 1901 concluded that the total number of Aboriginal people in Western Australia was 6212, of which 2787 were female and 3425 male (Census 1901). In the north and northwest of Australia 2076 males and 1781 females were counted (Census 1901). Ages of Indigenous people were included in the 1901 Census, but 16% of people failed to indicate their age, and those who did gave a very rough estimate (Census 1901). Of those who did indicate age, most were described as older than 21 years with a few described as either 'really old or really young' (Census 1901). Unfortunately, the census did not include the number of people coming from each regional group and obviously the effect of removing people from each group would be different. Those who had smaller numbers in their groups initially probably

would have felt the removal of people more heavily. In some areas almost all the Aboriginal people were taken away while in other areas none or only one was collected.

Records of collections that took place in the East Murchison in 1910, state that 20 people identified as diseased from one camp were collected for the Lock Hospitals. That this many people were affected, from a group that probably contained no more than 50 to 100 people (Berndt and Berndt 1984: Love 1936), suggests a major impact on the community.

In 1909, Constable Fogarty reported '62 Aborigines in the Onslow district were syphilitic', out of a population of 190 adults living on stations. In 1909, 25 women from this group were removed and sent to the Lock Hospitals (Fogarty 1909). Most of these women stayed at the Lock Hospitals for over two years.

In 1908 it was recorded that the majority of 'old people' in the Bangemall district suffered from the effects of venereal disease (Macnamara 1908). Twenty-six women were collected from the Bangemall tin fields and sent to the islands. Of these only 16 ever returned to their homelands. In 1910, 35 Aboriginal people were collected from Peak Hill, of whom 27 were women (Gray 1910).

Across the whole of the north west the types of people most commonly taken away from their homelands were women of reproductive age or older. The subsequent lack of women in communities would have meant a loss of cultural continuity and a loss of the reproductive capacity of the group. By taking the older people away from their community, loss of traditions, as well as knowledge about the land, and where to find resources would be lost.

In the Goldfields, it was males were who taken away from their community. This also had the potential for an impact upon reproductive potential of the group, and to reduce the group's resource earning capacity from outside employment.

The fact that people from different areas of Western Australia, who had different values, customs and ideas were forced to live together on the islands illustrates the lack of understanding or thought for the Aborigines' cultural background that went into the devising of the Lock Hospitals. Burial grounds were said to be within sight of

the ailing patients (Bates 1937; Mulvaney 1989:190). The inmates probably knew that if they died on the islands they were to be buried there and that even in death they would not return to their homelands (Briscoe 1996b:1).

The lack of understanding by the administrators of Aboriginal beliefs relating to death appears to be profound:

> ..seeing many deaths, performing the last rites of preparing the bodies, sewing nine of them in blankets, closing their eyes in death and stretching their legs, for unless I happened to be present at the actual death they invariably doubled their legs behind the back, I could never get used to the frightful dirge, indescribably weird…. I tried every means of preventing this but in vain (West Australian 1910).

Some individuals were the only representative of their group and could not undertake traditional mortuary practices properly. People were called upon to bath, or feed or bury other people whose spirit would certainly 'haunt them' (Bates 1938:100).

EFFECT OF DISEASE VERSUS EFFECT OF COLLECTION

Previous research (Jebb 1987, Mulvaney 1989; Stingemore 2002) made evident the fact that the biological effect of the disease probably did not have as great an impact on the Indigenous Australians as the public health measures instituted to control it.

The form of treponemal disease and the cross immunity that exists between treponemal diseases (Cannefax *et al.* 1967) meant that the Aboriginal people would be unlikely to be as immediately incapacitated by the biological effects of introduced venereal syphilis as the 'virgin' populations first affected by the disease in Europe centuries earlier. Presumably, because of disease like yaws being endemic in the Indigenous populations (Web 1995, Hackett 1936) they had already come into contact with diseases like syphilis before, knew of their biological effects and may even have had traditional medicines and ways of dealing with the disorder which minimised its negative impact on daily life.

The diseases described as syphilis are not immediately incapacitating to the person who contracts them. They generally have long term effects, and people who contract them live to old age (Hegyi *et al.* 1997). Although they may have had gross disfigurements of parts of their bodies, Aboriginal people with these diseases were

probably still able to contribute to their community. It was only when Europeans started to realise that the Aboriginal people had a disease that might affect European society, that these infections had major effects on Aboriginal communities. The first impact arose from the stigma placed on the disease by Europeans. For the first time Aboriginal people with disease were being labelled immoral or unclean.

As Casella and Frederickson (2004:110) note,

> The conflict of Indigenous Australians is a particularly significant element within Australian culture and heritage. Engagement between white and indigenous Australia was often marked by confinement. Throughout the nineteenth and twentieth centuries 'Aboriginal management' often had the effect of institutional confinement, even if this was not the explicit intent of management practices. Thus for Aboriginal Australians, their sense of being Australian can often involve shared experience of missions, residential schools, hospitals, police lock ups and prisons – places that commemorate particularly institutional forms of confinement.

They suggest that the places for confinement of Aboriginal Australians, like those in the wider world, were destined to become ephemeral. Many of the sites were deliberately transformed to obliterate or conceal Aboriginal confinement and to reclaim the places for non-Aboriginal historical memory (Casella and Frederickson 2004:115).

Casella and Frederickson (2004:116) also suggest that sites that are intended to be ephemeral are nonetheless located in powerful local memories rather than physical remnants. The testimony of the Malgana people (the traditional custodians of Bernier and Dorre Islands), who granted permission to undertake this study attest to the truth of this conjecture.

SUMMARY

Disease has helped to shape the interaction between Indigenous peoples and the members of the settler community having most contact with them in Western Australia: the government protectors, missionaries, pastoralists and health workers (Briscoe 1996b). The Lock Hospital Scheme and other institutions can be used to understand this relationship and the role played by public health schemes in changing the incidence and prevalence of syphilis and the diseases which resemble it. It can

give clues as to what might be expected for the particular groups of people who were influenced by such schemes.

Chapter Three

BERNIER AND DORRE ISLANDS

Chapter Three

BERNIER AND DORRE ISLANDS

INTRODUCTION

This chapter examines the environment and geography, history, previous occupation and resources of Bernier and Dorre Islands.

THE STUDY AREA - BERNIER AND DORRE ISLANDS

Bernier and Dorre Islands lie exactly at the junction between the major climatic and ecological zones of northern and southern Western Australia, and on that account have a unique mixture of flora and fauna (Morris *et al.* 1991). They were gazetted as nature reserves in 1957 for the preservation of their mammalian fauna and together comprise Class A Reserve 24869 (Ride *et al.* 1962:5). They lie in the Indian Ocean at the northwest extremity of Shark Bay, 45 kilometres directly off the coast from the town of Carnarvon (Figures 3.1 and 3.2) (Mulvaney 1989:184). Located between $24^{0}44^{'}$S and $25^{0}17^{'}$S latitude and at 113^{0} longitude, the islands run parallel to the Australian coast approximately 80km out to sea. They are each about 26km long and 3km at their widest point with areas of 44 and 53 km^2 respectively, about 26000 acres (~10522 hectares) (Ride *et al.* 1962:5). They have been separated from each other for about 3000 to 5000 years (Ride *et al.* 1962). Rising sea levels and wave erosion some 8000 years ago left Bernier and Dorre Islands separated from the mainland and inaccessible to Aboriginal occupation without sophisticated watercraft (Churchill 1959) (Figures 3.1 and 3.2).

Topographically, the islands are flat pieces of land raised above the sea by cliffs. The islands are essentially the northern extensions of the Edel Land Peninsula and, as such are geographically similar to the surrounding Shark Bay region in being made of limestone with extensive overlying white sand drifts (Morris *et al.* 1991). A few beaches with sand dune systems extending some 100m inland are scattered around the coast on the eastern sides of the islands. The islands are surrounded by scattered reefs but offer a number of bays safe from the rough seas of the Indian Ocean. The only access to the islands is by watercraft, usually from the closest towns of Carnarvon or Denham.

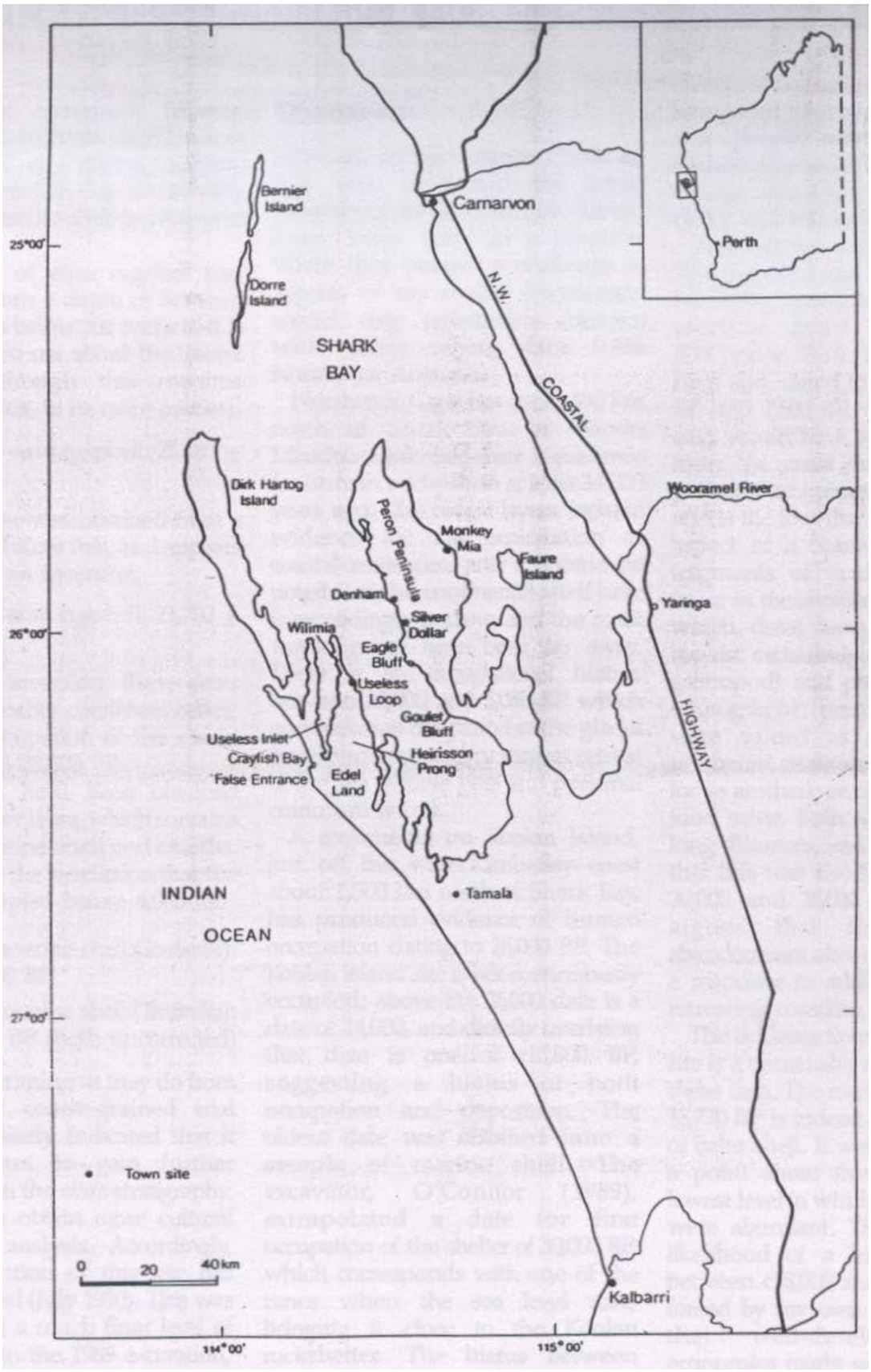


Figure 3.1. The Shark Bay and Carnarvon region including Bernier and Dorre Islands. (Taken from Bowdler 1990a).

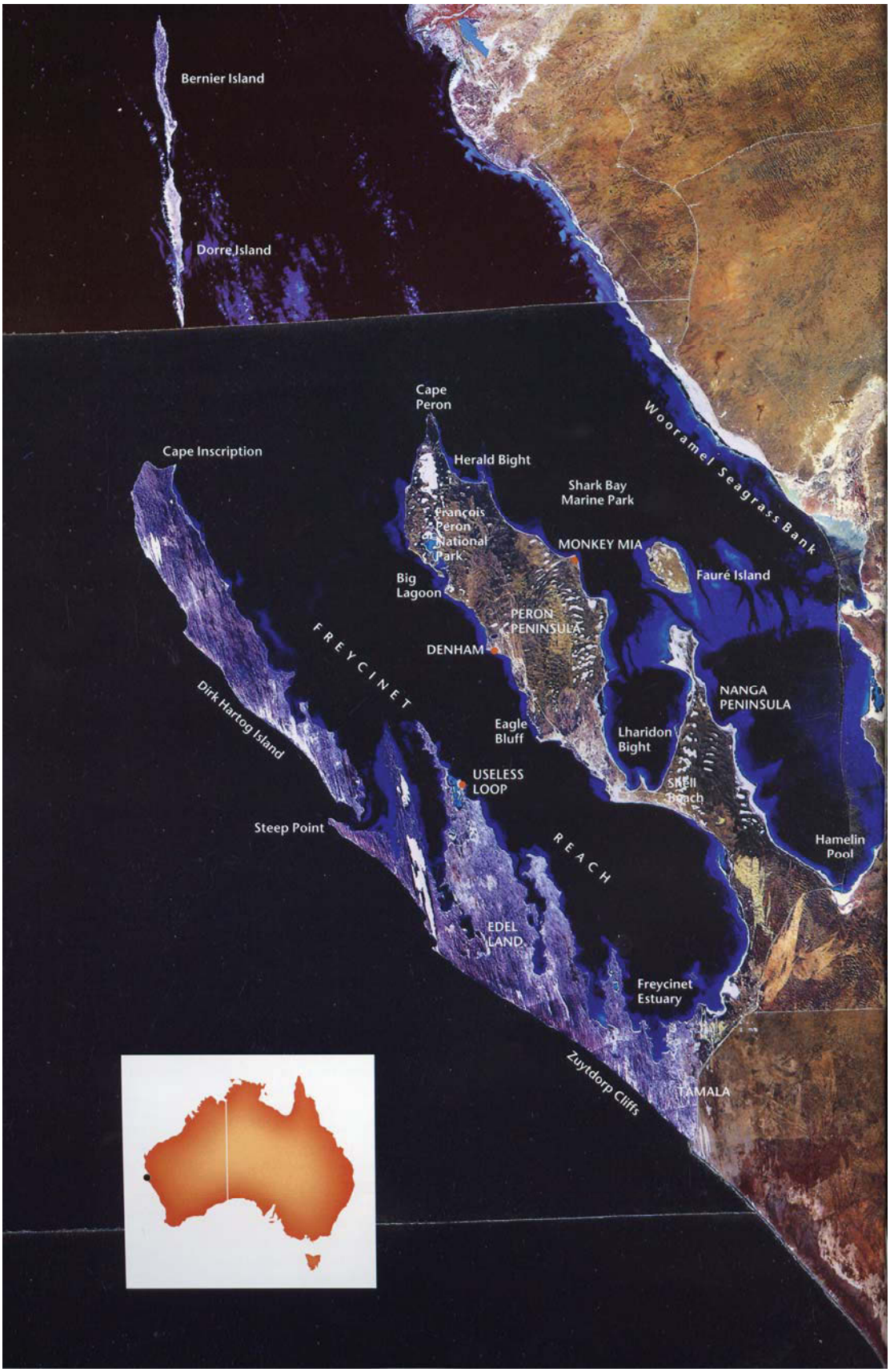


Figure 3.2. Landsat imagery of Shark Bay region showing Bernier and Dorre Island (top left) (Bailey 1991. Photo taken by Centre of Remote Sensing).

The islands have a dry, warm climate. Bernier Island received an average of 252 mm of rainfall per annum over the seven years monitored during the Lock Hospital Scheme (1902-4 and 1912-17). Approximately 80% of rain falls between May and August and annual evaporation is between 2000 and 2200 mm (Butcher *et al.* 1984).

The environment of the islands can be broadly divided into four categories; sandplain, consolidated dunes, unconsolidated dunes, and travertine rock formation (Figure 3.3). Figures 3.4 and 3.5 are photographs of the types of landscapes seen on the islands.

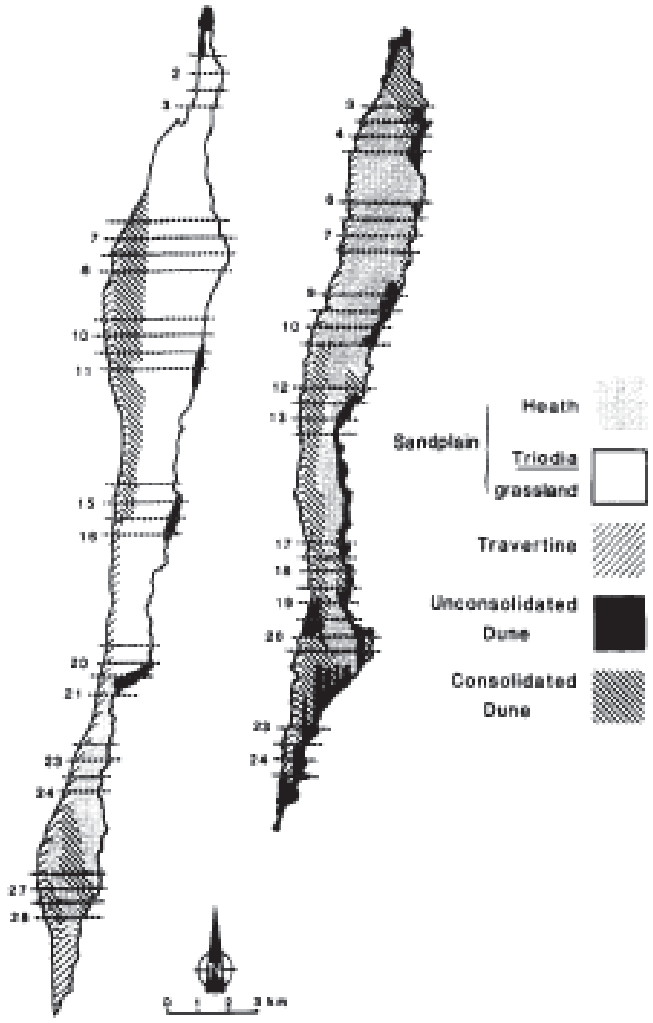


Figure. 3.3. Dorre (left) and Bernier (right) Islands showing landform and vegetation associations mentioned in the text. (Taken from Short and Turner 1992). Note: geographically Bernier Island lies north of Dorre Island, not east as seen in this figure.

Figure 3.4. Examples of the landscape of Bernier Island (Photographs taken by Stingemore 2005). From top: inland looking north across Lock Hospital site; view from boat looking west at Hospital Bay; inland of Bernier Island looking towards west coast of island; looking south west from hospital sites; looking south at dunes systems on Hospital Bay and looking north at Hospital Bay.

Figure 3.5. Examples of the Landscape of Dorre Island (Photographs taken by Stingemore 2004). From top left: looking south at bays on north eastern side of island; inland on Dorre Island looking south; view of eastern side of Dorre Island; view of White Beach Landing from boat; view of Hospital sites (walled dunes) looking south and inland looking north west on Dorre Island.

HISTORY OF THE ISLANDS

The two islands were initially named the 'Barren Isles' by Nicolas Baudin in 1801 and were subsequently renamed Bernier and Dorre Islands (Morris *et al.* 1991). Baudin was not the first explorer to comment on the bareness of the islands. Dirk Hartog in 1616 and William Dampier in 1699 (Morris *et al.* 1991) both described the islands as equally unimpressive. Dirk Hartog's voyage in 1616 included the first known landing on the islands. In 1696 William de Vlamingh surveyed and named Dorre Island (Robert 1972), dor being a Dutch word meaning 'dry' or 'barren'

(Robert 1972). During this expedition botanical samples were collected from the islands and a brief account of their natural history written (Spencer 1981).

The islands were not visited again until 1801 when the French scientific expedition on board the *Geographe* landed there. It has been thought that Bernier Island was named after the astronomer of this expedition, Pierre Francois Bernier though there are no sources to confirm this. The French also described the islands as desolate, inhospitable and lacking in water.

Baudin spent several days on Bernier Island collecting floral and faunal specimens (Cornell 2004). Peron also went ashore on Bernier Island on 29 June 1801 and provided interesting observations in his diary of the sandy soils and native plants and animals, both terrestrial and marine (Peron 1809). In 1818 the crew from de Freycinet's *Uranie* explored the area of Bernier and Dorre Islands (Marchant 1982).

King, on the HMS *Bathurst* collected specimens from the islands in 1822 (King 1827). Grey, who explored the northern coastline with three whaleboats in 1839, was put ashore on Bernier Island from the ship *Russell* on 25 February, stayed for three days, searched unsuccessfully for water and deposited some stores in anticipation of a return trip (Grey 1841). He landed on Bernier Island again on 20 March 1839 (Grey 1841).

OCCUPATION OF THE ISLANDS

While a number of different groups have used the islands over the course of their history, it is generally assumed that they were not occupied by Aboriginal people prior to European colonisation (Bowdler 1990b). Besides the visitation of the islands by explorers since the seventeenth century, the islands have been used for the collection of sandalwood, by the pastoral industry, and for the Lock Hospitals.

In 1839 Explorer George Grey was the first to try to establish a permanent depot on Bernier Island but encountered hardships and his attempt failed (Grey 1841). In 1860 Julius Brockman camped on the south end of Dorre Island whilst searching for pearl shell beds in the vicinity (Morris *et al.* 1991).

The islands were leased for pastoral use as early as 1864 (Fraser 1962; Ride 1962) but it was not until the turn of the twentieth century that Mr G Baston actually grazed sheep on Bernier Island. He built a house on the station, but his pastoral attempt was

abandoned within a few years. The island was subject to another pastoral lease between 1896 and 1907 (Morris 1991). Further grazing leases were granted in 1905, 1919 and 1924 (Morris 1991), though historical and archaeological evidence to date suggests that these were not taken up. Sandalwood cutters operated on Bernier Island in 1896 (Fraser 1962) and in the same year Tunney, a collector from the WA Museum, studied and took specimens of the island's mammals (Morris 1991).

From 1907 to 1918 the islands were used for the Lock Hospitals. During this period a number of Aboriginal patients, European workers and medical officers as well as numerous medical and other experts observed both the natural environment and the conditions of the patients and their ailments. Between November 1910 and March 1911 Bernier and Dorre Islands were visited by an anthropological expedition from the University of Cambridge, including Professor A.R. Radcliffe-Brown and Mr E.L. Grant Watson, to study the Aborigines (Ride *et al.* 1962:8).

A number of fires have occurred on the islands over their history. The extent of these fires is visible on aerial photographs of Dorre Island taken in 1959. The diary of Julius Brockman in 1860 gives a graphic account of the first documented fire on the islands (though it is uncertain which of the two islands it was) (Morris *et al.* 1991).

> The Island was high with spinifex which had never been burnt… There were thousands of wallaby. The wind was blowing a gale from the south and when I lighted a fire to camp, it swept the island bare for twenty two miles. On traveling to the north of the Island - I walked about the island, which was now bare as a sand patch and what were not burnt of the animals would have no food except seaweed until rain fell again.

A second devastating fire was reported on Dorre Island in 1908 (as a result of people from the Lock Hospital). Another in 1973, which was believed to have started from a discarded cigarette, burnt 60% of the island. None of the fires is thought to have affected the remains of the Lock Hospitals.

Since the time of the Lock Hospitals there has been no occupation or damage to the islands, only occasional visitation by fisherman and researchers. Today, permits from the Department of Conservation and Land Management (CALM) are needed to stay overnight on the islands. Custodianship of the islands belongs to the Yamatji (Malgana) Indigenous people who have the right to make decisions on any matters of research and infrastructure to do with the islands.

EARLY REPORTS OF RESOURCES ON THE ISLANDS

Early reports of the islands all described them as having few resources and to be of little value, which is probably why so many explorers observed the islands but did not stay. Even during the Lock Hospital Scheme, the Europeans' view of the islands was much the same. In June 1908, the Superintendent Medical Officer (Lovegrove. M.F. 1909) arrived at Bernier and described the island as

> …about 16 miles in length from North to South and averages one and a half miles in width. It is composed of limestone and the West coast is formed by high precipitous cliffs from the foot of which a reef runs out… The East coast is also rock bound… A range of sands hills runs parallel with the coast… The vegetation is coarse scrub, with some salt bush and wire grass and occasional clumps of box and sandalwood.

Dorre Island was described by Lovegrove. M.F. (1909) as the same type of environment and consisting of

> …a long narrow strip of land immediately to the South of Bernier and separated by a narrow but deep channel, ¼ mile in width at low tide, infested with sharks, strong current… 17 miles in length but barely averages a mile in width. Less timber, less water. Settlement built at white beach landing, 6 miles from the South end of the Island and 24 miles from Bernier landing.

A number of different resources are available on the islands. They are typical of those of a semi-arid environment however and not necessarily the resources Europeans needed to occupy the area.

RESOURCES AVALIABLE TODAY

Today Bernier and Dorre Islands are nature reserves for the conservation of flora and fauna and are two of the most important areas for mammal conservation in Australia. They support a number of rare mammals and birds extinct on the mainland, and offer a snapshot of pre-European ecosystems (Morris *et al.* 1991). Since the discovery of these islands naturalists have been visiting them to record, collect samples and interpret both the flora and fauna. The uniqueness of the area arises from its position at the boundary of two botanical provinces, the dry Eremaean and the moist South West (Morris *et al.* 1991) as well as the example it offers of island phenomena.

WATER

There are said to be no springs or natural reservoirs of fresh water on either island and rain is infrequent (Ride *et al.* 1962:26; Watson 1968:48; Mulvaney 1989:185). Evidence for the presence of windmills and wells on the islands during the period of the Lock Hospitals (Battye Library Cons 725B/22 and 3185B/43) casts doubt upon claims for the total lack of fresh water supplies as does the report by the explorer Grey that in 1841 he obtained a little water on the northern end of Dorre 'by suction from small holes in the rock and then spitting it into a keg'. Heavy dews may provide some fresh water during the night and early morning. Fishermen have also suggested that small wallabies drink water found on the beaches. Ride *et al.* (1962:26) suggests that this behaviour may indicate the presence of fresh water soaks, as quokkas on Rottnest Island show the same behaviour. The presence and quality of water on the islands was still questionable at the time of the field trip which formed the basis of this present study.

ANIMALS

The islands provide the last natural sanctuary for several mammal species that were once widespread on mainland Australia but are now threatened with extinction (Morris 1991). Five mammal species that occur on these islands are listed under State and Commonwealth legislation as endangered, that is, in danger of extinction if threatening processes continue. They are also on the World Conservation Union's Red List of threatened species. Re-introduction programs have given greater security for the survival of these species on Bernier and Dorre Islands.

MARSUPIALS

Marsupials found on Bernier and Dorre Islands include the Shark Bay mouse, western barred bandicoot, rufous hare wallaby, burrowing bettong, banded hare wallaby and the ashy grey mouse. These small animals are reported to be confined to the edges of the islands (Ride *et al.* 1962:13).

The Shark Bay mouse *Pseudomys fieldi* (also known as the Alice Springs mouse and the djoongari) (Figure 3.6) is the rarest of marsupials on Bernier and Dorre Islands. The Alice Springs mouse was thought to be extinct until its identity with the Shark Bay mouse was established. Currently Bernier Island is the only known location of this species (Morris 1991). Shark Bay mice appear to favour sand dunes located at cliff bases. They live on leaves, stems and flowers (Morris 1991). Nests are made

in shallow burrows, with various types of vegetation used as padding. The species appears to be solitary.

Figure 3.6. Shark Bay mouse (Photographs courtesy of DEC 2007 and Wells 1991 respectively).

The western barred bandicoot or *Perameles bougainville* is only found today on the islands of Bernier and Dorre (Figure 3.7). The species once lived on the mainland of Australia but lost its habitat to livestock and was killed off by predators (foxes and cats). The last record of the western barred bandicoot on the Australian mainland was in 1922 (Department of Environment and Conservation 2007). They are an endangered species with a declining population. They have pointed noses and large ears that point upwards (Australian Fauna 2004). Their fur is brown on the back of the body fading into an almost white shade on the underbelly. Creamy bars are present across the rump; there is also darker fur present on the face (Australian Fauna 2004). The western barred bandicoot digs out spaces under low shrubs and builds nests of grass (Australian Fauna 2004). It generally prefers to be alone and shows aggression toward other western barred bandicoots, but there are records of two western barred bandicoots in the same nest. Nests have one entrance/exit carefully hidden to avoid detection by predators such as birds of prey (Australian Fauna 2004). There are frequent records of nests being quite close to one another, sometimes under the same shrub (Australian Fauna 2004). Western barred bandicoots are nocturnal and dig for foods such as insects - especially beetles and crickets. Some small vertebrates are included in the diet of this species, as well as a variety of vegetation (Australian Fauna 2004).

Figure 3.7. The western barred bandicoot (Photographs taken by Australian Fauna 2004 and Morcombe 1991 respectively).

The Rufous Hare-Wallaby, commonly called the Western Hare-Wallaby or *Largorchestes hirsutus* is found currently only in the Tanami desert and on Bernier and Dorre Islands (Burbidge and Johnson 1983:199) (Figure 3.8). It is the rarest wallaby on Bernier and Dorre Islands. It was once widespread throughout arid and semi arid Australia (Figure 3.8). It occurs on both islands in most habitats, but is most abundant in the south of each. It burrows extensively on the inland sandplain and in the dunes. It is easily recognized by the hair beneath the base of the tail which is pale, framed by distinctive orange 'pantaloons' (Ride *et al.* 1962:63).

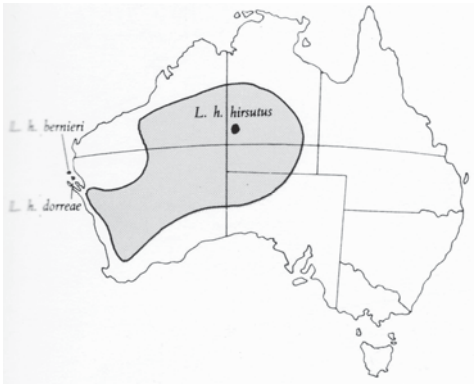


Figure 3. 8. An example of a rufous hare wallaby and its known range. Range denotes past distribution. (Photograph taken from Parer and Parer-Cook 2006) (Map taken from Johnson and Burbidge, 1995:318).

The burrowing bettong or *Bettongia lesueur* is a rat-like kangaroo occurring on Bernier and Dorre Islands and Barrow Island (Figure 3.9). Other common names are Lesueur's rat kangaroo, burrowing rat kangaroo, boodie and tungoo (Burbridge 1983:17). The burrowing bettong once had the largest geographical range of any Australian mammal (Figure 3.9). Its extinction in many areas has been related to the

introduction of the fox and cat (Burbidge 1983:188) and competition from rabbits for burrows (Short and Turner 2000). The bettong is nocturnal, sheltering during the day in burrows and warrens (Short and Turner 2000). It is omnivorous and forms strong social groups of one male and a number of females (Sanders *et al.* 1997). On Bernier and Dorre Islands bettongs are commonly found on the beaches and among the fallen rocks of the cliffs (Ride *et al.* 1962:57).

Figure 3.9. An example of a burrowing bettong and its known distribution. Range denotes past distribution. Today, only found on the islands of Shark Bay. Photographs taken by Stingemore 2004 (left), DEC 2007 (middle) and map by Burbidge (1995: 291).

The banded Hare-Wallaby or *Lagostrophus fasciatus* is only found on Bernier and Dorre Islands. It is the more abundant wallaby species on both islands with a population of about 3900 on Bernier Island and 3800 on Dorre Island (Short and Turner 1992: 157). The dark bands across the lower back and rump are distinctive (Ride *et al.* 1962:58). It was once widespread in semi-arid lands of south-west Western Australia, but no animals have been found there since 1906 (Short and Turner 1992:157) (Figure 3.10). This species depends on the shelter afforded by the low-spreading shrubs of *Heterodendrum oleifolium, Acacia coriacea, Acacia ligulata, Diplolaena dampiera,* and *Ficus platypoda* (Ride *et al.* 1962:57) which occur mainly on the dunes that form the spine of Dorre Island and the travertine of its west coast. Competition from rabbits and predation from cats and foxes may have also contributed to the decline of the species on the mainland (Department of Environment and Conservation 2007) though it is thought that the Banded Hare-Wallaby had become extinct on the mainland before the arrival of the fox in Western Australia. An attempt to re-introduce the wallaby to Dirk Hartog Island was undertaken in the 1970s but was unsuccessful due to predation by cats and the effects of intense drought (Department of Environment and Conservation 2007).

Figure 3.10 . The banded hare wallaby. Range denotes past distribution. (Photographs taken from DEC 2007). (Map taken from Prince 1995:408).

The Ashy–grey mouse or *Gyomys albocinereus* is also found on Bernier and Dorre Islands (Figure 3.11) but its presence on the mainland today is unknown. It is suspected that it is either rare or extinct. Its head and back are silver-grey, tinged with a distinctive fawn colour (Ride *et al.* 1962:72). It is slightly larger than a house mouse (Ride *et al.* 1962:72) and lives in extensive burrows along the sand dunes of both islands. These animals are generally only seen at night (Ride *et al.* 1962).

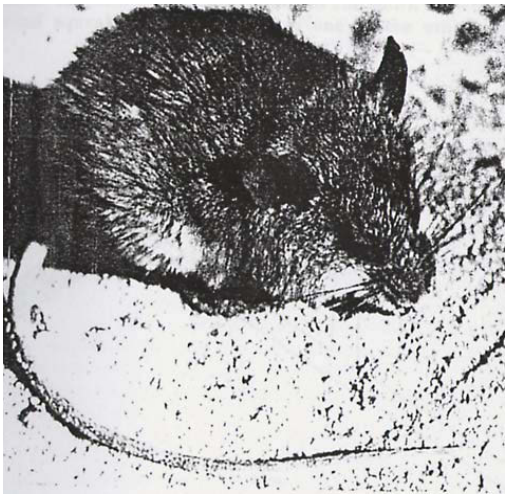


Figure 3.11. The Ashy – Grey mouse. (Photograph taken from Ride *et al.* 1962).

BIRDS AND BATS

The islands are protected breeding sites for a number of sea and shore birds (Morris *et al.* 1991) as well as bats. Bird species observed on the islands include the pied cormorant, which rests on the rocks offshore, the reef heron, the wedge tailed eagle,

white breasted sea eagle, ospreys, kestrels, pied oystercatcher, sooty oystercatcher, whimbrel, pacific gull, silver gull, crested tern, bronze cuckoo, barn owl, welcome swallow, Australian pipit, spotted scrub-wren, field wren, variegated wren, silvereye and singing honeyeater. The Australian pelican, white-faced heron, great white heron, large sand dotterel, red necked stint, turnstone, fairy turnstone, pigeon and crow have been recorded on the islands, but given their scarce recordings and other known habitats, are most likely visitors rather than occupants of the islands. Table 3.1. illustrates the birds observed on Bernier and Dorre Islands by Ride's expedition in 1959. Figure 3.12. is an example of a sea eagle's nest that was observed on Dorre Island. Figures 3.13 and 3.14 are example of birds found on the islands.

Table 3.1. Birds known to be on Bernier and Dorre Islands and those observed by the Ride *et al.* expedition in 1959 (Modified from Ride *et al.* 1962).

Species name	Common name	Observed on Islands by Ride in 1959
Phalacrocorax varius	Pied Cormorant	Dorre and Bernier
Larus pacificus	Pacific Gull	-
Larus novaehollandiae	Silvergull	-
Strerna bergii	Crested Tern	-
Numenius phaeopus	Whimbrel	Dorre
Haematopus ostralegus	Pied Oystercatcher	Dorre and Bernier
Haematopus fuliginosus	Sooty Oystercatcher	Dorre
Notophoyx novaehollandiae	White-faced Heron	Bernier
Pandion haliaetus	Osprey	Dorre and Bernier
Haliaeetus leucogaster	White-breasted Sea Eagle	-
Falco cenchroides	Kestrel	-
Aquila audax	Wedge-tailed Eagle	Dorre
Chalcits basalis	Bronze Cuckoo	Dorre and Bernier
Hirundo neoxena	Welcome Swallow	-
Anthus novaeseelandiae	Pipit	-
Calamanthus campestris	Field Wren	Dorre
Sericornis maculates	Spotted Scrub Wren	Dorre and Bernier
Malurus lamberti	Variegated Wren	-
Meliphaga virescens	Singing Honeyeater	-
Corvus sp.	Crow	Dorre and Bernier

Figure 3.12. Sea Eagle nest on southern cliffs at White Beach Landing, Dorre Island (Photograph taken by Stingemore 2004).

Figure 3.13. Variegated fairy-wren. (Photograph by Wells 1991).

Figure 3.14. Seabirds nesting off the cliffs of the islands (Photograph by Thomson 1991).

Two types of bats have been observed on the islands, the little bat and the lesser long eared bat. They are found in the sea caves which occur at various places around the islands. They eat the smaller marsupials on the islands as well as various insects (Ride *et al.* 1962:78).

REPTILES

Reptiles are common on Bernier and Dorre Islands, yet little information has been published on them (Ride *et al.* 1962:113). Snakes and lizards (Figure 3.15) seem to be the common reptiles, though turtle species are also known to visit the island. Most snake and reptile species are found in the clumps of bushes and rocks across the island.

Figure 3.15. Examples of lizards found on Bernier Island (Photographs taken by Stingemore 2005 and Morris 1991 respectively).

During Ride's expedition analysis of the stomach contents of various reptiles revealed that they eat smaller marsupials, other reptiles and insects (Ride *et al.* 1962). Table 3.2 summarizes the species observed by Grant Watson (1910-1911) and Steel during the period of the Lock Hospitals (1911-1915), by Lipfert (date unknown) and during the 1959 Ride *et al.* expedition.

Table 3.2. Reptiles collected and observed on Bernier and Dorre Islands in the Grant Watson Expedition, during the Lock Hospital Scheme by Steel, by Lipfert and by Ride *et al*. (Modified from Ride *et al.* 1962).

Species	Grant Watson 1910/11		Steel 1911-15		Lipfert Date unknown		Expedition 1959	
	Bernier	Dorre	Bernier	Dorre	Bernier	Dorre	Bernier	Dorre
Lizards								
Heteronotia binoei	-	-	-	-	1	-	17	24
Gehyra variegata	-	-	-	-	5	-	-	2
Phyllodactylus ocellatus	-	-	-	-	-	-	6	7
Diplodactylus vittatus	1	-	-	-	1	-	-	-
Diplodactylus pulcher	1	-	-	-	-	-	-	-
Lialis burtonis	-	-	1	-	-	-	1	-
Egernia whittii	-	-	-	-	-	-	2	-
Trachysaurus rugosus	1	-	1	-	-	-	9	7
Ablepharus lineo-ocellatus	3	-	-	-	1	-	10	6
Ablepharus boutoni plagiocephalus	-	-	-	-	-	-	2	2
Ablepharus greyi	2	-	-	-	-	-	-	-
Ablepharus elegans	-	-	-	-	-	-	4	-
Lygosoma lesueuri	1	-	-	-	-	-	4	3
Lygosoma miopus	-	-	-	-	1	-	-	-
Lygosoma praepeditum	-	-	-	-	-	-	1	-
Lygosoma planiventrale	2	-	-	-	-	-	-	-
Amphibolurus maculatus	4	-	-	-	2	1	20	14
Amphibolurus adelaidensis	6	-	-	-	1	-	1	-
Amphibolurus cristarus	2	-	-	-	-	-	-	-
Amphibolurus barbatus	1	-	-	-	-	-	-	-
Amphibolurus reticulatus	3	-	-	-	-	-	-	-
Moloch horridus	2	-	-	-	-	-	-	-
Varanus gouldii	-	-	-	-	-	-	2	-
Snakes								
Pseudechis australis	1	-	-	-	1	-	-	1
Rhynchoelaps	-	-	-	-	1	1	-	-
Demansia psammophis reticulata	1	-	-	-	-	-	1	1
Liasis childreni	-				-	-	11	-
Hydrophis ornatus ocellatus	-	-	-	-	-	-	-	1
Turtles								
Chelonia mydas	Reported by Grey and Lovegrove during Lock Hospital scheme							

MARINE ANIMALS

A number of marine resources including fish, crustacea, ocean mammals (such as dugong), shellfish, and seaweeds are in abundance off the coasts of both islands. Chartered fishing boats operate in the area. Dugongs occur in areas around the Shark Bay region and particularly off the coast of the islands. Whales are also common in the waters of the islands in late winter and early spring. Turtles are widely distributed in the seas around Australia and females have been observed to visit the islands to lay their eggs (Ride *et al.* 1962:119; Watson 1968:50).

INTRODUCED SPECIES

A number of animals have been introduced to the islands over the last century, including sheep, goats, horses, domestic cats, dogs and the common house mouse. There is even a report of a monkey brought to the islands for comparative studies during the Lock Hospital Scheme (PMO 1910). While pastoral leases were granted on the islands from 1864 through to the 1940s no published accounts of sheep having been grazed on the islands have been found (Ride *et al.*1962), so it is not clear whether sheep were actually introduced. Goats appear to have been introduced to Bernier Island in about 1900 (Morris *et al.* 1991) and are present in historic photographs (Battye Library 3185B/35). They were eliminated from the island in 1984 by a combined ground muster and helicopter shoot.

Records (Battye Library 21085P, 3185B) (Figure 3.16) suggest that domestic cats and dogs were introduced to the islands during the hospital period as pets, but no records since this time have mentioned them. It is assumed that only a few individuals were taken to the islands and that they either died there or were taken back to the mainland with their owners. The common mouse was reported to have been taken to the islands during the hospital period (Ride *et al.*1962). It still exists on Dorre Island, but Ride *et al.* (1962:78) suggests that it has become extinct on Bernier Island - the first occasion known in which an introduced rodent has become extinct while native rodents have survived (Ride *et al.* 1962:78).

Figure 3.16. Picture of nurses, Aboriginal patients and a dog on the islands (Battye Library 3185B).

Foxes have been reported on the island, but Ride *et al.* (1962:12) suggest these were probably misreported from the 'rosettes' tracks made by wallabies overlapping the prints of their forepaw prints. No other introduced species is known to have been seen on the islands.

PLANTS

The vegetation differs slightly between Bernier and Dorre Islands. The vegetation on Dorre Island falls into four types: that of the travertine crusts, the sandhills, the open steppe and the tall scrub. Bernier Island has just two types: that of the travertine crust and of the sandhills. The most obvious difference is due to the lack of water on Dorre compared with Bernier Island. Another difference between the two islands is the stability of the Dorre Island vegetation and the apparent instability of that of Bernier Island, as evidenced by the widespread occurrence of sand drifts. This state is thought to have arisen from the destruction of the flora of Bernier Island by goats (Royce 1962:45). Sandplains occupy the greatest area on both islands but the vegetation on them varies greatly between the islands.

On Bernier Island the sandplain has a sparse cover of *Thryptomen micrantha* and *Beyeria cinerea* in the south which becomes taller to the north of the island, and an overstorey to one metre of *Abutilon exonemum* and *Scaevola crassifolia* (Short and Turner 1992:159). The sandplain is generally devoid of shrubs in the south, but clumps of *Heterodendrum oleifolium, Acacia coriacea* and *Acacia ligulata* become increasingly common to the north (Short and Turner 1992:159). *Triodia* occurs throughout the sandplain either co-dominant with heath species such as *Thryptomene micrantha* or as localised monospecific patches (Short and Turner 1992:159).

The dune swales of Bernier Island are characterised by less cover, more extensive unvegetated blowouts and a lack of *Ficus platypoda* (Short and Turner 1992:159). As on Dorre Island, the beach sands on the east coast of Bernier Island are dominated by *Pileanthus limacis,* often with *Olearia axillaris, Beaufortia dampieri, Thryptomene micrantha, Atriplex paludosa,* and *Carpobrotus equilaterus* (Short and Turner 1992:159). Most of the bare dunes on Bernier Island occur to the south and are colonised by *Spinifex longifolius,* normally a coastal fringe plant (Short and Turner 1992:159). Figure 3.17 shows examples of some of the plant species.

Figure 3.17. Example of plant species found on Bernier Island (Photographs taken by Stingemore 2005). From top: *Echylaena tomentosa, Santalum acuminatu, Anguillaria dioieca, Alyogyne cuniformis and Solanum lasophylum,*

On Dorre Island the north part of the sandplain has a dense low cover of the hummock grass *Triodia plurinervata* with emergent shrubs of *Alyogyne cuneiformis*, *Melaleuca cardiophylla* and extensive clumps of *Eucalyptus obtusiflora* (Short and Turner 1992:159). The south of the sandplain is covered with a low heath of *Scaevola crassifolia* and *Thryptomene micrantha* (Short and Turner 1992:159). The dune swales bear tall scrub, up to 2 m tall, of *Heterodendron oleifolium, Acacia coracea,*

Ficus platypoda, Santalum spicatum, Pimelea microcephala and *Diplolaena dampieri* (Short and Turner 1992:159). The dunes of beach sand are dominated by *Pileanthus limacis,* often with *Olearia axillaris, Beaufortia dampieri, Thryptomene micrantha, Atriplex paludosa,* and *Carpobrotus equilaterus* (Short and Turner 1992:159). Figure 3.18 shows examples of vegetation on the Dorre Island.

Figure 3.18. Examples of plant species found on Dorre Island (Stingemore 2004). From left: *Ermoplillia forrestii* and *Alyogyne sp.*

Elsewhere on the two islands, *Pileanthus limacis* is the major coloniser (Short and Turner 1992:159). Sandy beaches are relatively common on the east coast of both islands, either at the base of cliffs or on the seaward margin of poorly consolidated dunes (Short and Turner 1992:159). *Spinifex longifolius* is the dominant plant species immediately behind the beaches (Short and Turner 1992:159). The travertine has a vegetation of low, very open heath dominated by *Thryptomene micrantha, Frankenia pauciflora, Carpobrotus equilaterus* and, in some areas, *Scaevola crassifolia* and *Westringia rigida* (Short and Turner 1992:159). Often a dense scrub of *Diplolaena dampieri* occurs on deeper soils between the travertine and the first dune (Short and Turner 1992:159). On Dorre Island *Ficus platypoda, Sarcostemma australe, Acacia coriacea* and *Heterodendron oleifolium* also occur in this situation (Short and Turner 1992:159).

In short, from personal observations of both the islands, at least around the vicinity of the Lock Hospitals, the vegetation looks remarkably similar, the only exception being that Bernier Island has considerably taller trees and a larger population of sandalwood bushes.

The islands are still generally free from introduced plants, though on a survey of the areas (1959 by Ride *et al*.) oats and a pepper tree, *Schinus molle* (planted on Bernier Island during the Lock Hospital scheme) were observed (Figure 3.19).

Figure 3.19. Pepper tree (*Schinus molle)* planted on Bernier Island during the Hospital period (Photograph taken by Stingemore 2005).

Table 3.3 lists the plants found on each island by Ride *et al* 's expedition in 1959, their known locations on the mainland and their known uses (Low 1992; Bindon 1996).

Table 3.3. Lists of plants occurring on Bernier and Dorre Islands and whether they occur on the mainland and their uses. (Modified from Royce 1962).

Species	Distribution			Uses
	Dorre	Bernier	Mainland	
Abutilon exonemum	Common	Common	Erem Province	-
Abutilon granioides	-	Occasional	Erem Province	-
Acacia bivenosa	Rare	-	SW and Erem Provinces	Food, medicine
Acacia coriacea	Abundant	Abundant	N and Erem Provinces	Food
Acacia rostellifera	Abundant	Abundant	SW and Erem Provinces	-
Alyogyne sp.	Abundant	Abundant	SW and Erem Provinces	Food
Amaranthus pallidiflorus	Common	Common	SW and Erem Provinces	
Anguillaria dioieca	Rare	Rare	SW and Erem Provinces	Food
Atriplex bunburyana	-	Occasional	SW and Erem Provinces	-
Atriplex paludosa	Abundant	Common	SW and Erem Provinces	Food
Bassia astrocarpa	-	Rare	N Province	-
Beyeria cyanescens	Abundant	Rare	Shark Bay	-
Boerhaavia repandra	Common	Common	SW and Erem Provinces	-
Brachysema macrocarpum	Common	-	Erem Province	-
Calandra sp.	Rare	Rare	-	Food
Capparis spinosa	Common	Common	N and Erem Provinces	Food
Carpobrotus equilaterus	Rare	Rare	SW and Erem Provinces	Food, medicine, water
Chenopodium carinatum	Rare	Rare	N, Erem and SW Province	-
Chenopodium plantaginellum	Rare	Rare	N and Erem Provinces	-
Clematis microphylla	Rare	-	SW and Erem Provinces	Food, medicine
Corchorus walcotti	Occasional	Occasional	N and Erem Provinces	-
Crassula colorata	Rare	Rare	SW and Erem Provinces	-
Cryptandra mutila	Rare	-	SW Province	-
Diplolaena dampieri	Abundant	Abundant	SW and Erem Provinces	-
Dodonaea sp.	Rare	-	-	-
Enchylaena tomentosa	Occasional	Occasional	N, Erem and SW Provinces	-
Enneapogon aerulescens	-	Occasional	N and Erem Provinces	-
Eragrostis falcate	-	Rare	N Erem and SW Provinces	-
Ermoplillia forrstii	Occasional	Occasional	-	-
Erodium cicutarium	Occasional	Occasional	SW and Erem Provinces	-
Eulalia fulva	Common	Common	N and Erem Provinces	-
Euphorbia clutioides	Common	Common	N and Erem Provinces	-
Euphoria myrtoides	Common	Common	N and Erem Provinces	-
Exocarpus aphylla	Common	Common	SW and Erem Provinces	Food, medicine
Ficus platypoda	Occasional	Occasional	N and Erem Provinces	Food
Hakea sp nov	Occasional	-	? endemic	Food, medicine, water
Halophilia spinulosa	-	After storm	Shark Bay	-
Heterodendron oleifolium	Abundant	Abundant	Erem Province	-
Indigofera georgei	Occasional	-	Erem Province	-
Lotus australis	Rare	Rare	N, Erem and SW Provinces	-
Lepidium sp.	-	Rare	SW and Erem Provinces	Food
Mirbelia ramulose	Common	-	SW and Erem Provinces	-
Myoporum montanum	Abundant	Abundant	N Erem and SW Provinces	Food, tools, medicine
Nicotiana rotundifolia	Occasional	Occasional	SW and Erem Provinces	Tobacco
Nitraria schoberi	-	Rare	SW and Errem Provinces	-
Ophioglossum coriaceum	Occasional	Occasional	N Erem. and SW Provinces	-
Oxalis corniculata	Occasional	Occasional	SW and Erem Provinces	-
Paractaenum novae-hollandiae	Occasional	Occasional	Erem Province	-
Parietaria debilis	Occasional	Occasional	N and Errem Provinces	-
Paspalidium clementii	Rare	Rare	N Erem and SW Provinces	-

	Distribution			
Species	**Dorre**	**Bernier**	**Mainland**	**Uses**
Pitlotus villosiflorus	Common	Common	SW and Erem Provinces	-
Phyllanthus calycinus	Common	Rare	SW Province	-
Pittosporum phillyraeoids	Common	Occasional	N Erem and SW Provinces	Food, medicine, fodder
Poranthera microphylla	-	Occasional	N, Erem and SW Provinces	-
Rhagodia obovate	Common	Common	Shark Bay	-
Santalum spicatum	Common	Common	SW and Erem Provinces	Edible, medicine, tools
Salsola kali	Occasional	Occasional	N, Erem and SW Provinces	-
Setaria carnie	Occasional	Occasional	N Erem and SW Provinces	-
Sessuvium ortulacastrum	-	Rare	N Province	Food
Spinifex longifolius	Common	Common	N Erem and SW Provinces	Medicine, tools
Sporobolus virginicus	Common	Common	N Erem and SW Provinces	-
Stackhousia viminea	Occasional	Occasional	N, Erem and SW Provinces	-
Stipa crinite	Rare	-	Shark Bay	-
Stylobasium spathulatum	Common	Common	N Erem and SW Provinces	-
Svhinus molle	-	Rare	Introduced (during LH)	-
Therlkeldia diffusa	Occasional	Occasional	N, Erem and SW Provinces	Food
Thysanotus patersoni	Rare	Rare	SW and Erem Provinces	Edible
Thysanotus patersoni sp.	Rare	Rare	? Erem Province	Edible
Trichinium corymbosum	-	Rare	SW and Erem Provinces	-
Trichinium obovatum	Common	Common	N, Erem and SW Provinces	-
Triglochin calcitrapa	Rare	-	SW Province	-
Triglochin trichophora	Rare	-	SW coast and islands	-
Triodia plurinervata	Occasional	Occasional	Erem Province	Edible, Medicine
Zygophyllum apiculatum	-	Rare	SW and Erem Provinces	-
Zygophyllum fruticulosum	Occasional	Occasional	SW and Erem Provinces	-
Zygophyllum fruticulosum bilobum	Occasional	-	Erem Province	-

The phytogeography of the islands suggests that the vegetation of Bernier and Dorre Islands is predominately that of the temperate region of the State (Royce 1962:45). Table 3.4. shows where species are commonly found throughout the state. All areas of Western Australia have examples of Bernier and Dorre Island vegetation, with the majority (43) being found in the Eremean and South West Province and few (3) in the Northern Province (Kimberley). Surprisingly only a few species (9) were observed to also occur in the Shark Bay Province, the closest region to Bernier and Dorre Islands.

Table 3.4. The distribution of the island species in the flora provinces of Western Australia (Taken from Royce 1962).

Province	Number of plant species found there that also occur on Bernier and Dorre Islands
Northern	**3**
Northern and Eremean	**15**
Northern, Eremean and South Western	**19**
Eremean and South Western	**43**
Eremean	**14**
South Western	**11**
Shark Bay	**9**

Few of the plant species on the islands show any variation in form from that of the mainland and are easily identifiable. This suggests that if Indigenous populations or even Europeans were familiar with the plants they would have been able to recognise them on Bernier and Dorre Islands, and would have been able to use them for whatever purposes (firewood, medicine, food, manufacture) they did on the mainland.

Many of the marsupials and lizards could easily have been caught and many plants on the islands have known Indigenous uses. For example plants like *Thysanotus patersonii* (commonly called lily yam) have edible tuberous roots, stems and flowers (Daw *et al.* 2007; Nannup 2006). Aboriginal people from the southwest corner of Western Australia would have been familiar with this plant and could potentially exploit it (Low 1992:115; Bindon 1996:251). The tubers of another lily, *Anguillaria diocia,* could also be eaten. Ride *et al.* (1962) commented that both of these lilies were rare on the islands, however, so they may not have been utilised.

Ficus platypoda's red fruit can be eaten immediately, rolled into balls for storage or made into jams (Low 1992:15). Low (1992:66) and Bindon (1996:143) suggest that these fruits were so important that Aborigines performed ceremonies to increase their supply. They were deemed sacred and anyone damaging them could be killed. The fruits contain up to 4000 milligrams of calcium per hundred grams and are highly nutritious (Low 1992:67). Ride *et al.* (1962) commented that *Ficus platypoda* was found in occasional distribution on the islands and parts of the Pilbara and Kimberley regions (Bindon 1996:143). Another plant found occasionally on the islands with fruit which can be turned into jams is *Exocarpus aphylla* (Low 1992:49).

The leaves of the plants in the Chenopiodiacea (saltbush) family were eaten by Aboriginal people (Low 1992:129), are abundant on the islands (Ride *et al.* 1962) and commonly found throughout most of Australia. The fruits of Quondong trees (*Santalum acuminatum*) can be eaten and are common on the islands (Daw *et al.* 2007: 52). *Enchylaena tomentosa* is another plant of which the leaves and berries are eaten (Low 1992:70, 71, 138). The fruit can also be used as a dye (Bindon 1996:111). *Echylaena tomentosa* is found in occasional distribution on the islands (Ride *et al.* 1962). *Capparis spinosa* (Flinders Rose) fruit can also be eaten and they have been found along the coast on the northern parts of the state from Carnarvon to Kimberley (Bindon 1996:71). They are common on the islands (Ride *et al.* 1962) and possibly

the plant that most patients are likely to have known, due to its wide distribution on the mainland.

Sessuvium portulacastrum (sea purslane) leaves can also be eaten (Low 1992: 128, 133) but Ride *et al.* (1962) comments that it is rare on Bernier Island and not observed on Dorre Island. The base of the stems of *Lepidosperma* (swordsedge) can be eaten raw or roasted all year round but is most palatable when soils are moist (Daw *et al.* 2007:13; Low 1992:128). This species is also good for making rope and string. Swordsedge can be harvested all year round but is rare on the islands (Daw *et al.* 2007:13)

Acacia coriacea (cork bark wattle) wood, which Ride *et al.* described as abundant on the islands is good for making boomerangs and the seeds have been known to be used for necklaces (Bindon 1996:9) or ground and made into porridge (Bindon 1996:9). As it is distributed throughout interior Australia and parts of the Pilbara and Kimberley regions of Western Australia many patients may have been accustomed to using it (Ride *et al.* 1962).

It would be expected that the people coming from areas with the greatest number of species in common with these on Bernier and Dorre Islands would recognise more of these species, and as a result be able to use them to their advantage. It is uncertain whether any of these foods, though available on the islands, were actually exploited by men however, as they were traditionally collected by women (Berndt and Berndt 1984; Love 1936).

SUMMARY

Although Bernier and Dorre Islands are depicted historically as barren wastelands they offer environments which have a variety of resources. The following chapter discusses the research aims and general methodology.

Chapter Four

RESEARCH AIMS AND GENERAL METHODOLOGY

Chapter Four

RESEARCH AIMS AND GENERAL METHODOLOGY

Historical records provide information concerning the type of diagnoses which led people to be incarcerated on the islands under the Lock Hospital Scheme, who was diagnosed, who was forcibly removed, from where and the duration and degree of institutionalisation in the Lock Hospitals. Relatively little information is available concerning life on Bernier and Dorre Islands under the Lock Hospital Scheme, however. No systematic archaeological survey of the islands has previously been undertaken. Such a survey should add greatly to an understanding of how both the Indigenous patients and the European staff coped with life on the islands. Some hints about their lives are evident in the historical documentation, but these are conflicting, infrequent and subject to the usual and inescapable biases of contemporary accounts (see below for more detail).

This study considers the extent to which living conditions may have contributed to the toll of morbidity and mortality of Indigenous people removed to the islands. It also seeks to determine the potential of the islands to supply its inhabitants with the water, shelter, warmth and nutrients required to survive, let alone to recover from disease. It considers how well-equipped the different groups were to make use of the resources the islands offered.

GENERAL AIM

The aim of this project is to develop as clear a picture as possible of the reality of life on Bernier and Dorre Islands for the different people sent there, the European inhabitants and Aboriginal patients. In particular, I aimed to determine through archaeological analysis whether the life this revealed was like that depicted in the historical records. One particularly graphic and negative depiction of life on the islands comes from Daisy Bates (1938:96-97), where she describes the islands as the tombs of the living dead.

SPECIFIC AIM

Aim 1.

My first aim was to establish the spatial pattern of occupation sites across Bernier and Dorre Islands. References including architectural plans of hospital sites, medical workers' living quarters, stables, storage areas and campsites of the Aboriginal patients appear in historical documentation. The extent to which the structures associated with these sites match the descriptions in the documents, or whether some of them were even built was unknown. By searching for the remains or traces of buildings and settlement sites I aimed

1. To determine which of the structures mentioned in the records actually existed.
2. To understand how they were constructed, from local or imported materials and whether this was as described in the historical documents.
3. To find evidence of any other unrecorded structures.
4. To find evidence of traditional style campsites (hearths, middens).
5. To find any evidence of what the campsites were used for and who used them.
6. To establish where structures lay in relation to each other.

Aim 2.

My second aim was to find evidence of manufactured goods. Documented evidence and photographs (Battye Library 725B/67, 3185B/16, 3185B/22, 3185B/10, 3185B/5, 5021B/53, 5021B/57) show many manufactured goods on the islands. I aimed

1. To determine whether there is evidence of the manufacture of European furniture, buildings, roads, or personal objects on the islands.
2. To determine whether there is evidence of Aboriginal traditional tools and objects brought in or manufactured on the islands by patients themselves.
3. To establish the extent to which items were imported to the islands or extracted from resources available on the islands for both Europeans and Aborigines.

Aim 3.

My third aim was to investigate evidence for food resources needed for survival on the islands during the period of the Lock Hospital Scheme, in terms of the balance between imported items and those acquired by the exploitation of the local environment for subsistence.

Aim 3 Part One.

My aim was to determine the source of water for European staff and patients. Historical images (Battye Library 725B/22, 775B/59) show evidence of windmills, implying an underground water supply, but there are no written references to underground water on the islands. Reference is made in Briscoe (1996a) to water being collected from underground soaks, but it is not clear whether this was the only source of water for the islands, or whether patients were left to gather water from these sources while living 'naturally'. I will therefore search for

1. Evidence of bores to underground water, windmills or storage facilities for water.
2. Soak sites in relation to hospital and campsites and whether it is possible to estimate their rate of yield.

Aim 3 Part Two.

My aim here was to determine sources of food for both European staff and Aboriginal patients. There is documentation of a decision to allow patients to camp out and gather food in 'traditional' lifestyles (West Australian 1909). It may be assumed, therefore, that they did to some extent hunt and gather resources. It is known that in the 1950s the islands carried a variety of small wallabies, reptiles and other wildlife as well as edible plants (Ride *et al.* 1962). The location of the islands adjacent to the Shark Bay region, which is rich in fish, shellfish and marine mammals (dugongs) suggests that the majority of resources that could be collected were marine. Most of the people taken to the islands were from inland areas, however, and most probably had never seen the ocean before, let alone know how to exploit it.

1. Evidence of imports was sought from the remains of food storage containers (glassware, ceramics, metal containers).
2. Evidence was also sought for camp middens (Aboriginal) and in fireplaces and rubbish areas (European) of food remains such as plant material, fish bones, shellfish and the bones of marine and terrestrial (both local and domestic) mammals and birds.

There are historical references to the mustering of goats and sheep on the islands (Battye Library 3185B/35) but there is no information as to whether these were kept for meat or their by-products, solely for the use of European staff or for rations for everyone. It was decided to

3. Determine the distribution of domestic animal bones in relation to spatial patterning of structures. That is, whether such bones were mixed in campsite middens, hospital settlement rubbish areas or both.
4. Determine whether there is evidence of cut marks and butchery of imported and/or native fauna.

There is also documentary evidence that crops were planted, and fences made to enclose imported sheep and goats. Photographs show people posed on horseback, with captions referring to 'mustering' (Battye Library 3185B/31). No mention is made of whether natural vegetation was used for fodder for the introduced domestic species, whether it was toxic or inadequate for them, or whether the Europeans imported fodder. Therefore I aimed to search for

5. Evidence of crops (food and fodder) in the presence and distribution of imported plants.
6. Evidence of fences or garden-bed boundaries.
7. Evidence of gardening tool remnants.

Aim 3 Part Three.

Since records suggest that the Europeans had separate accommodation to the patients, two sources of fuel needed to be examined. There is evidence of kitchen facilities, in particular stoves, in the structures built for the Europeans (Battye Library 3185B/16; State Records Office P.W.D. WA 15024) but as the islands appear to be relatively treeless, the issue of the source of suitable fuel arises. As the patients were said to be living a 'natural' lifestyle (West Australian 1910) it is presumed they used hearths and slept around campfires. Again, what fuel did they use? The sorts of fires, in terms of temperature and speed of burning, required in the two situations could be quite different. I therefore aimed to determine

1. Which, if any, vegetation could have provided fuel for the stoves (fires).
2. Whether there are driftwood sites around the coast.
3. Evidence of imported fuel such as coal, charcoal or piles of wood larger or of a different type than could be sourced on the islands.

Aim 4.

I aimed to shed some light upon the mix of formal and self-administered treatments which may have been applied to the patients, and maybe the staff, on the islands. This

will be done through examination of artefacts and local plants on the islands. I aimed to

1. Search around hospital dumps for remnants of medical bottles, instruments, devices, jars which may contain trace remnants of chemicals and remedies used to treat patients.
2. Determine whether local plants could be used for bush medicines.
3. Determine whether similar plants are found in the homeland areas from which patients were taken (that is, whether the patients were likely to be aware of their medicinal potential).

Aim 5.

Male and female patients incarcerated under the Lock Hospital Scheme could be expected to have come to the islands with different knowledge of and skills for extracting food, medicine and shelter from the environment. Furthermore under the Lock Hospital Scheme male and female patients were isolated on separate islands, males on Bernier Island and females on Dorre Island. Records (Appendix A) indicate that the period of illness and incarceration was substantially longer for women than for men. I aimed to compare patterns of habitation of the two islands with respect to remains of

1. Food consumed (midden contents)
2. Food gathering implements (hunting weapons, digging tools, cutting tools)
3. Shelter (amount and elaboration of construction)

and determine any differences between the two. Any other gender differentiation in things like ritual or leisure activities would also be sought.

Aim 6.

Many of the issues raised above could be better understood if the hierarchy of people on the islands were determined. There is evidence of hierarchical relationships on the islands through reports of revolts of some patients, and doctor's reports (Aboriginal Patients 1911; Pritchard 1911), but it is unclear whether these left traces which could be detected in the archaeological record, so I wished to

1. Determine the places of each group (patients, farm workers, nurses, doctors) within a hierarchy by the value of objects associated with the group.

2. Determine hierarchy through the association of living quarters with certain comforts, activities permitted and aesthetics. For example, doctors' quarters may be in positions far away from the hospitals in areas overlooking both hospital and bay, while nurses' quarters may be positioned next to the wards to allow easy access but not easy escape from the needs of the patients.

Aim 7.

There is mention in documents of deaths and burials on both islands (Bates 1938; 98-99) and of the return of some patients to the mainland. However, the fate of many people is unknown. Documentation suggests that graveyards were placed such that they were within sight of patient living areas (Bates 1938; 98-99). I aimed to

1. Determine the relationships of graveyards to living quarters.
2. Attempt to match numbers of recorded deaths and number of burial sites.
3. Attempt to determine whether individuals were buried in mass graves or individually.

No attempt was made to excavate or interfere with human remains.

In studying the above aspects, this research also considers the impact of the whole Lock Hospital Scheme

- on the lives of the Aboriginal and European people sent to the islands.
- on the course of the disease in individuals.
- on the incidence of prevalence of the disease.
- on the ability of people to survive and thrive in foreign environments.
- on the mindset of officialdom in the early 1900s and their attitudes towards different cultures, sexes, ages and diseases.

It casts the use of Bernier and Dorre Islands in the light of institutions for controlling the movements, usefulness, and the general way of life of Aboriginal people in Western Australia. Essentially my research assesses the effect of the scheme itself and its role in marginalising Indigenous Australians.

GENERAL METHODOLOGY

A multi-disciplinary approach is needed to understand the Lock Hospital Scheme as it operated on Bernier and Dorre Islands. The basic approach of this study is that of historical archaeology, attempting to understand the context of the Lock Hospital situation on Bernier and Dorre Islands as well as looking at the lives of the people who were on the island. The project also incidentally takes a human biological and forensic approach in understanding how people (both patients and staff) functioned, adapted and were able to live on the islands.

In order to understand the whole Lock Hospital phenomenon, background research was first undertaken. A large part of this consisted of examining and analysing historical documentation. Once a general understanding of the Lock Hospital Scheme, the types of activities that took place, the types of items that may have been taken to the islands and maps of where the hospitals were on the islands was researched, official approvals were sought and archaeological site surveys for work on the islands arranged and conducted.

The discussion of the methods of this research will be divided into a number of sections.

- Research approvals
- Use and analysis of historical accounts pertaining to the Lock Hospitals
- Archaeological research - field trip site surveys
- Explanations of archaeological methods of interpreting the archaeological record
- Statistical analyses of data

The approval for this research and the historical research will be discussed in chapter five and the archaeological methods in chapter seven. Human biological methods and forensic applications will be discussed throughout the thesis.

Chapter Five

METHODOLOGY – HISTORICAL ARCHAEOLOGY

Chapter Five

METHODOLOGY-
HISTORICAL ARCHAEOLOGY

INTRODUCTION

The purpose of this chapter is to describe the types of historical documentation available for this research and how it was used to gain an understanding of the Lock Hospital phenomenon. As well as helping to decide which sites to examine, historical documentation pertaining to the Lock Hospitals provided valuable general information on the European view of what life was like on the islands.

HISTORICAL ARCHAEOLOGY

Historical archaeology is the study of archaeological sites from the modern period in conjunction with historical records (Orser and Fagan 1995:275) and oral histories. It looks at people with history (those who have documents written about their past) and those without history (people that have been excluded from documentary history) (Little 1994).

> Historical archaeology is important not only because it is a means of studying the past, but because it has the potential to teach us about ourselves. We may not be able to relate to the circumstances faced by people who lived many centuries ago, but we can achieve an understanding of the long-forgotten and often compelling histories of once anonymous folk, whose direct descendents are alive today (Orser and Fagan 1995:5).

While the method of historical archaeology is to use the historical documentation along with the archaeological record to interpret the past, care must be exercised with the use of historical documentation, as it has the potential for bias. The past is written on the whole by the educated and literate, with interests and agendas of their own, other than informing posterity.

HISTORICAL DOCUMENTATIONS AND ANALYSIS

HISTORICAL SOURCES

Historical sources, such as books, maps and written documents play an important role in historical archaeology. Since the period with which historical archaeology is

concerned extends to the present, the last seventy odd years can also be studied through direct interviews (oral histories) with people who actually experienced the lifeways being studied. Given the 100+ year interval which has lapsed since the operation of the Lock Hospital Scheme, it could hardly be expected that any survivors remain that experienced the account first hand, so this method of gaining information was discounted.

We can learn from the historical record details such as the nature of the buildings that have long since vanished and of landscapes that have been transformed. What people looked liked, what they wore, what food they ate and how they entertained themselves can be seen in old photographs (Deetz 1996:9).

But if we could learn everything from such historical sources there would be no need to do archaeology – to dig in the ground, or to sort, measure and classify artefacts. The information that tells us about simple people doing simple things, the normal, everyday routine of life and how these people thought about it, are not the kinds of things anyone has ever thought worthy of noting (Deetz 1996:11). Records of objects or inventories stop short of the kind of detail archaeologists find important (Deetz 1996:15). The combined use of archaeological and documentary materials should permit us to say something about the past that could not have been said using only one set of data (Deetz 1996:32).

USE OF HISTORICAL SOURCES

Documents are used throughout the discipline of history and historical archaeology to gain some understanding of a certain time in the past, to understand an individual's life or group of peoples' lives, or to help explain and support evidence from the archaeological record. In the case of this research, historical records provide an insight into the magnitude of the Lock Hospital Scheme, views of European and Aboriginal life on the islands, and a basis for estimating the impact of health policies on the Indigenous communities.

The two types of sources generally used in any historical study are primary and secondary. Letters, other correspondence, doctors' reports and architectural plans are primary sources, or as Orser and Fagan (1995:144) have said 'contemporary records, generally written by eyewitnesses or people who may have a direct understanding or personal insight into the events or attitudes of the day'. Primary documentary sources

can be divided into those produced by eyewitnesses and those written by individuals who were not present when the event(s) being described took place (Wood 1990:88). In most cases the testimony of individuals at the scene at the time of the event is considered more credible than that of the individual who was not there (Wood 1990:88). However, even a primary source, having been written by one individual, must reflect that person's interest, biases, and attitudes (Deetz 1996:256). Deetz (1996:4) has suggested that it is the archaeologist's task to decode those hidden messages (biases) and apply them to our understanding of the human experience. 'Secondary sources are interpretations of primary sources, written long after the events they describe unfolded' (Orser and Fagan 1995:145). This research incorporates both primary and secondary sources.

Primary and secondary sources are helpful in research, but critical analysis must be undertaken in order to optimise their usefulness. The commonly held assumption is that historical documents consist of facts that are undiscovered. However, what happened in the past is not necessarily the same as history, and written records of the past must be interpreted and evaluated in light of the social and political context of the author to evaluate their reliability. The historical record is inherently biased and subsequently may be interpreted incorrectly. In the words of Davidson and Lytle (1982 in Orser and Fagan 1995:141),

> The writing of history is one of the most familiar ways of organizing human knowledge. And yet, if familiarity has not always bred contempt, it has at least encouraged a good bit of misunderstanding.

One of the most important issues when using documentary sources is that only a small part of what takes place is observed, much less ever recorded (Wood 1990:83), and records seldom reflect all activities. That is, when interpreting the records it must be appreciated that they may not provide a reliable picture of what actually happened in the past.

Historical documents pertaining to the Lock Hospitals such as maps, letters, architectural plans, medical records and photographs play an important role in understanding the scheme, as they may provide information that is not available from other sources. However, as previously mentioned, these records need to be analysed critically to ascertain the potential for biases in the information.

HISTORICAL METHOD

The historical method is a systematic body of principles for gathering and critically examining historical documents (Wood 1990:82). Under this method both internal and external criticisms may be applied. External criticism concerns the authenticity of a document, as opposed to its content or meaning (Wood 1990:85). Authentication primarily involves analysis for signs of forgery, erroneous narrative or later restoration (Wood 1990:85-86). Internal criticism provides a means of evaluating the credibility or meaning of statements in a source (Shafer 1980:149-170). Firstly, the analysis of particular details, such as whether the words used are contemporary with the given place and time of the author, is made. The context is then considered by interpreting statements in view of what precedes and follows (Shafer 1980:150-151).

Wood (1990:89-90) suggests the following aspects are important for evaluating the credibility of historical sources in internal criticisms:

1. **Temporal proximity of the record to the event:** the greater the time lapse between the observation of an event and its documentation, the greater the potential distortion of the record.

2. **The purpose of the document and its intended audience:** Why was the document written? Was it written for the author's eyes alone, for others or for a special interest group? Is there an advantage to be gained in distorting or misrepresenting details? Is the author interested in pleasing someone?

3. **The competency of the witness:** This includes considerations of whether the primary witness was able to tell the truth; egos and unconscious biases can be involved. Was the person an eyewitness and if not who was the source of information? Did the person understand what they were seeing or could it easily have been misinterpreted?

4. **Corroboration:** Is there independent corroboration of the details? Is the document similar to other translations and transcriptions? Do the details conform to other historical facts?

In the context of this study, the written sources were evaluated by criteria proposed by Wood (1990) in order to gain a better understanding of the authors' influences on the data contained in the records. In general most of the historical records used in this research provide a framework within which to conduct the archaeological surveys. In turn, the archaeological surveys tested their credibility. Particular individual historical sources are discussed critically in following chapters.

MATERIALS

Historical documents pertaining to the Lock Hospitals were obtained from the Alexander Library, Battye Library, The State Records Office, Aboriginal and Torres Strait Island Commission Library and from private collections. A list of these records can be found in Appendix A. The materials consisted of medical reports on the patients at the Lock Hospitals by doctors, lists of Indigenous people who were sent to the Lock Hospitals, correspondence between the government (the Chief Protector of Aborigines) and police, station owners and local Protectors of Aborigines concerning Indigenous people with disease, general correspondence on the 'problem of syphilis' in the northwest of Australia, photographs taken during the Lock Hospital Scheme, architectural plans and maps. Newspaper accounts of the scheme were also consulted.

Unfortunately this study was limited to historical records which were available for public access and to documentation accessed through the Health Department of Western Australia and the Department of Indigenous Affairs. While over 200 individual letters, correspondences and reports were used in this study they were not always complete. Medical terms and quotes used in the original sources were left in their original context, as 'changing the terms to reflect modern usage not only makes primary source records difficult to interpret and understand, but also distorts the intentions of the people involved in past events' (Briscoe 1996b:2).

APPROVALS FOR USE OF HISTORICAL SOURCES

A lot of the data used in this research were personal and sensitive with respect to both individuals and many groups, in particular to present day Aboriginal people and communities with links to those involved in the Lock Hospital Scheme. Permission was needed to gain access to many records pertaining to these issues.

Under the Privacy Act of 1988, consent from participants needs to be obtained before accessing their personal information. In cases like this study, where it is not possible to gain direct consent because the participants are no longer traceable or living, the guidelines of Section 95 provide a framework for the conduct of research using information held by Commonwealth or State agencies such as the Department of Indigenous Affairs, Medical Department, Police Department and the Health Department of Western Australia. These agencies may collect or disclose records without infringing the Privacy Act.

Under the State Records Office restriction policy (last modified 2002) there is a general ban on viewing medical and police records written within the last 50 years or, depending upon their nature, 100 years. Some records involving sensitive or controversial issues may have restrictions placed upon them until the governing body gives permission for them to be used. However, special permission may be granted to use restricted items in approved research, Native Title claims and matters that may be brought before the court.

As the data used in this research consisted primarily of restricted primary sources, such as medical reports and police records, such permission was obtained. The medical records written before and including 1908 were open to public access and provided the data for accounts of disease in Aborigines before the end of the Lock Hospitals. For the period of the Lock Hospitals, some reports were restricted under the 100 years policy and others indefinitely unless special permission was granted. Permission was obtained from the Indigenous Affairs Department, Police Department and the Health Department of Western Australia to look at this material restricted to the public. Copies of these permissions can be found in Appendix B.

Some primary resources were successfully accessed but others were not, especially those held under jurisdiction by the Indigenous Affairs Department. Records that required special permission for use in research had some restrictions placed upon them. These included avoidance of the use of Aboriginal or European names of the inmates, the use of any other information which would identify the individual, in any written dissertation, and disclosure of the information in the records to any third party without permission from the governing body. These restrictions are derived from the Privacy Act of 1988 where unauthorised disclosure or accidental misuse of personal information is an infringement of the Act.

HISTORICAL DOCUMENTS

The different types of historical sources used in this study and a critical evaluation of them are discussed below.

HISTORICAL ACCOUNTS

Daisy Bates, Grant Watson and Radcliffe Brown all wrote historical accounts of their time on the islands. Bates' 1938 *The Passing of the Aborigines*, Watson's 1968 *Journey Under the Southern Stars* and his 1946 *But to What Purpose* are uses as historical evidence for events and observations that took place on the islands. Many of their observations seem realistic and can be tested by the archaeology, such as the collection of oyster shells by the Aboriginal people for food. However, some accounts are clearly embellishments (the large number of deaths of patients in one day). Observations of this sort where not taken as accurate historical evidence. It is also noted that as these account were written some time after the event (secondary sources), it is expected that memory will fade and some inconsistencies will show between the accounts. However, what is noted is that Watson's 1946 account changed very little to his 1968 account, that is, corroboration of the accounts are evident and therefore these accounts are taken to be credible.

Other critical examination of the accounts are of the authors themselves. For example Watson (1946:105) even describes Radcliffe Brown's critique of Bates' work as being muddled.

> Mrs Bate's knowledge, collected through many years of close contact with the natives, was not in the condition that Brown considered easily available for the ends of science. Indeed, he found it to be in a most hopeless tangle. The content of her mind, in his estimation, were somewhat similar to the contents of a well-stored sewing basket, after half a dozen kittens had been playing there undisturbed for a few days.

Another account by Watson's, his 1918 *Where Bonds are Loosed* was not quoted in this thesis as it is written as a fictional novel not an account of his time on the islands. Names and places and events have either been embellished or are fictional. He describes similar events that took places in *Journey Under the Southern Stars* but from different characters that were not on the islands and even goes so far at the and of the novel to write about a murder and cover-up of the murder one of the doctors.

None of the doctors were known to die on the islands. This account was also not used as it provides no additional information that his other two accounts do not cover.

During this research Radcliffe Brown's field note accounts were requested from the National and Sydney University Libraries but both Libraries were unable to locate these notes. Therefore these have not been referenced. If these become available, this set of historical data may provide useful information

LETTERS, JOURNALS

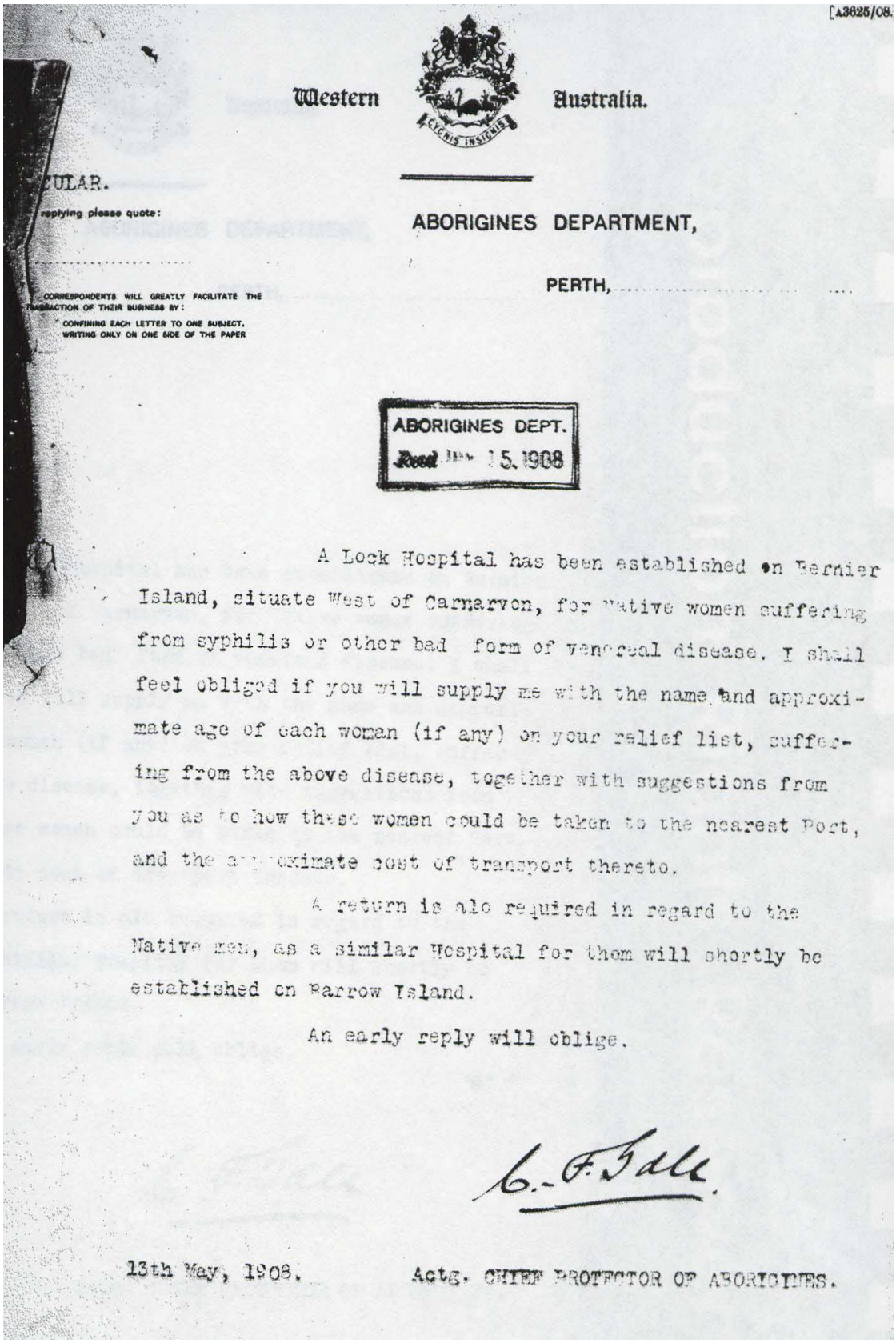
Two sorts of letters and journals were used in this research: those associated with setting- up the Lock Hospitals, and those written during the Lock Hospital Scheme.

The majority of records pertaining to setting up the Lock Hospitals are letters between land owners and government officials. In 1908 the Chief Protector of Aborigines sent a letter to police departments and land owners across Western Australia, requesting names, ages and diseases of Aboriginal people in their areas. Figure 5.1 is a copy of this letter. Responses to these letters by police and land owners generally stated which Aboriginal people were on their land and which individuals had diseases. Figures 5.2 and 5.3 show examples of returned letters.

These records helped in understanding the types and numbers of people involved, the diseases they were claimed to have and whether they were likely to be sent to the Lock Hospitals. Names and places of Aborigines sent to the islands and their homelands were easily eligible from the letters and these were taken at face value. Ideally, it would have been better to cross check if these individuals actually existed against birth, death, census records or even the hospital list but this would have been impossible. All reports do not exist and restriction placed on names of Indigenous patients by government departments meant this could not be achieved. However, the disease (if any) the Aboriginal was suffering from was not taken at face value, as those returning letters were not skilled in diagnoses and they had other agendas labelling the Aborigines on their land 'syphilitic'. For example, many individual patients were recorded as syphilitic or suffering from venereal diseases in the returned reports from land owners to the Chief Protector of Aborigines (Letters in Cons 255. Unnumbered file. 1907/8, available from Battye Library). However when some of these same individuals were cross checked against the arrival reports on the islands by Pritchard (1929 a-f) they were not recorded as having any disease.

Other critiques when using the documents were that some details like sex of individuals, the presence of disease and dates were easily extracted, as they were either written in point form or easily deduced from the documents. Other information, such as the locations of many of the places in the Northwest from which the Aborigines were taken, was more difficult to make out. Many locations named were stations or other places that are now abandoned. Various maps, including those of Western Australian shires and regions from the Department of Land Information (2002), the Department of Indigenous Affairs (2002), and Tindale's Tribal Boundary maps (1995) (Appendix F), were consulted in order to determine the regions containing the locations from which people were removed. Information relating to medical symptoms was difficult to interpret, as many descriptions of disease symptoms were inconsistent with one another, difficult to read and made by people such as station owners and police with no medical training. Specific background research about the disease symptoms, names and natural history of the diseases was conducted to understand the records better.

There are very few records available which were produced directly by the individuals on Bernier and Dorre Islands during the Lock Hospital Scheme. Despite the fact that a high proportion of the Europeans on the islands were literate and well educated, they appear to have left very few documents. Most of the documents that do remain are letters of correspondence to government agencies requesting resources.



[A3625/08.

Western Australia.

CULAR.

replying please quote:

ABORIGINES DEPARTMENT,

PERTH,

CORRESPONDENTS WILL GREATLY FACILITATE THE TRANSACTION OF THEIR BUSINESS BY:
CONFINING EACH LETTER TO ONE SUBJECT,
WRITING ONLY ON ONE SIDE OF THE PAPER

ABORIGINES DEPT.
Received MAY 15. 1908

A Lock Hospital has been established on Bernier Island, situate West of Carnarvon, for native women suffering from syphilis or other bad form of venereal disease. I shall feel obliged if you will supply me with the name and approximate age of each woman (if any) on your relief list, suffering from the above disease, together with suggestions from you as to how these women could be taken to the nearest Port, and the approximate cost of transport thereto.

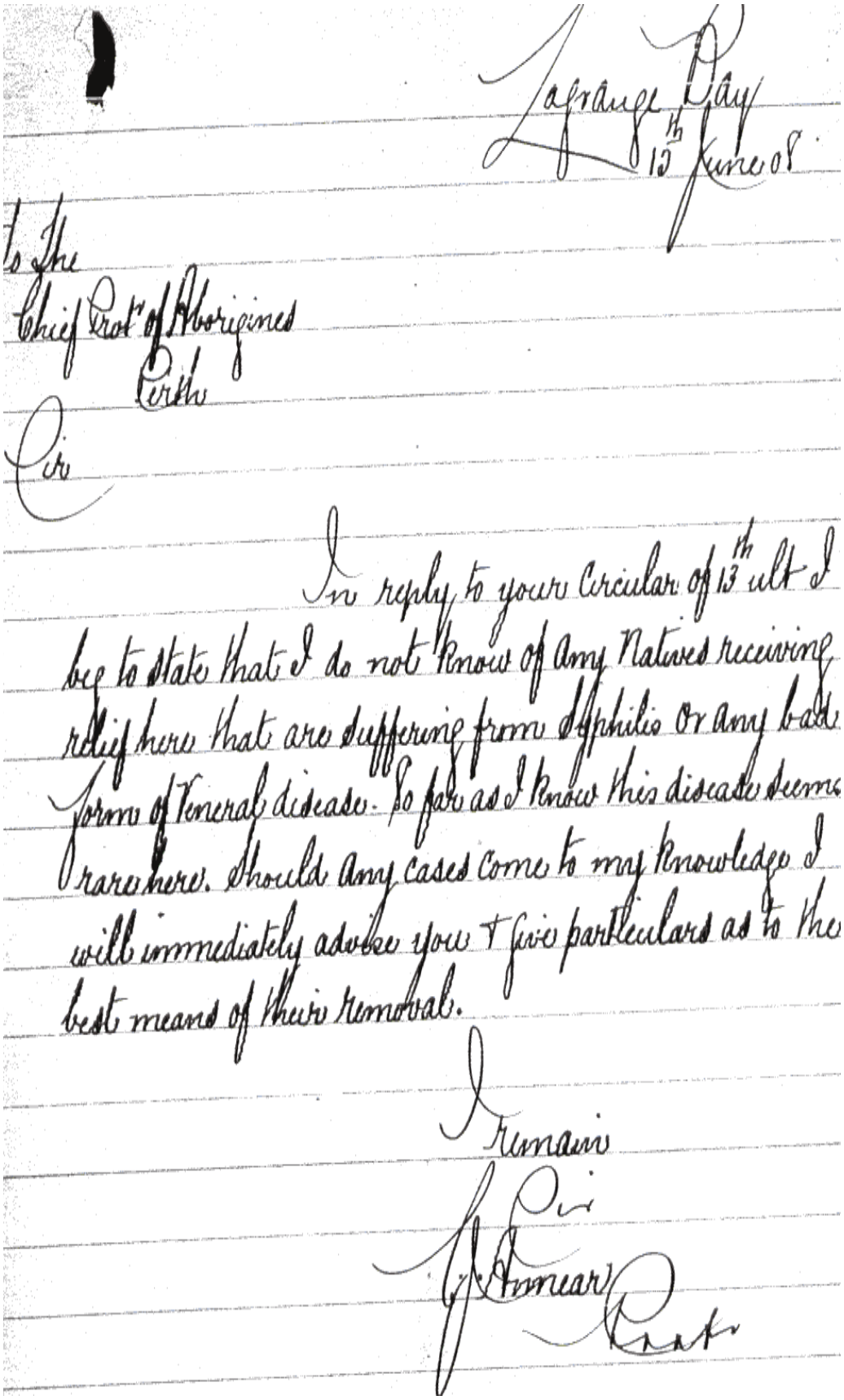
A return is also required in regard to the Native men, as a similar Hospital for them will shortly be established on Barrow Island.

An early reply will oblige.

A. F. Gale.

13th May, 1908. Actg. CHIEF PROTECTOR OF ABORIGINES.

Figure 5.1. Copy of letter sent to police departments and land owners by the Chief Protector of Aborigines requesting information on Aboriginal patients in their areas. (Taken from State Records Office Cons 255. Unnumbered file. 1907/8).



Lagrange Bay
13th June 08.

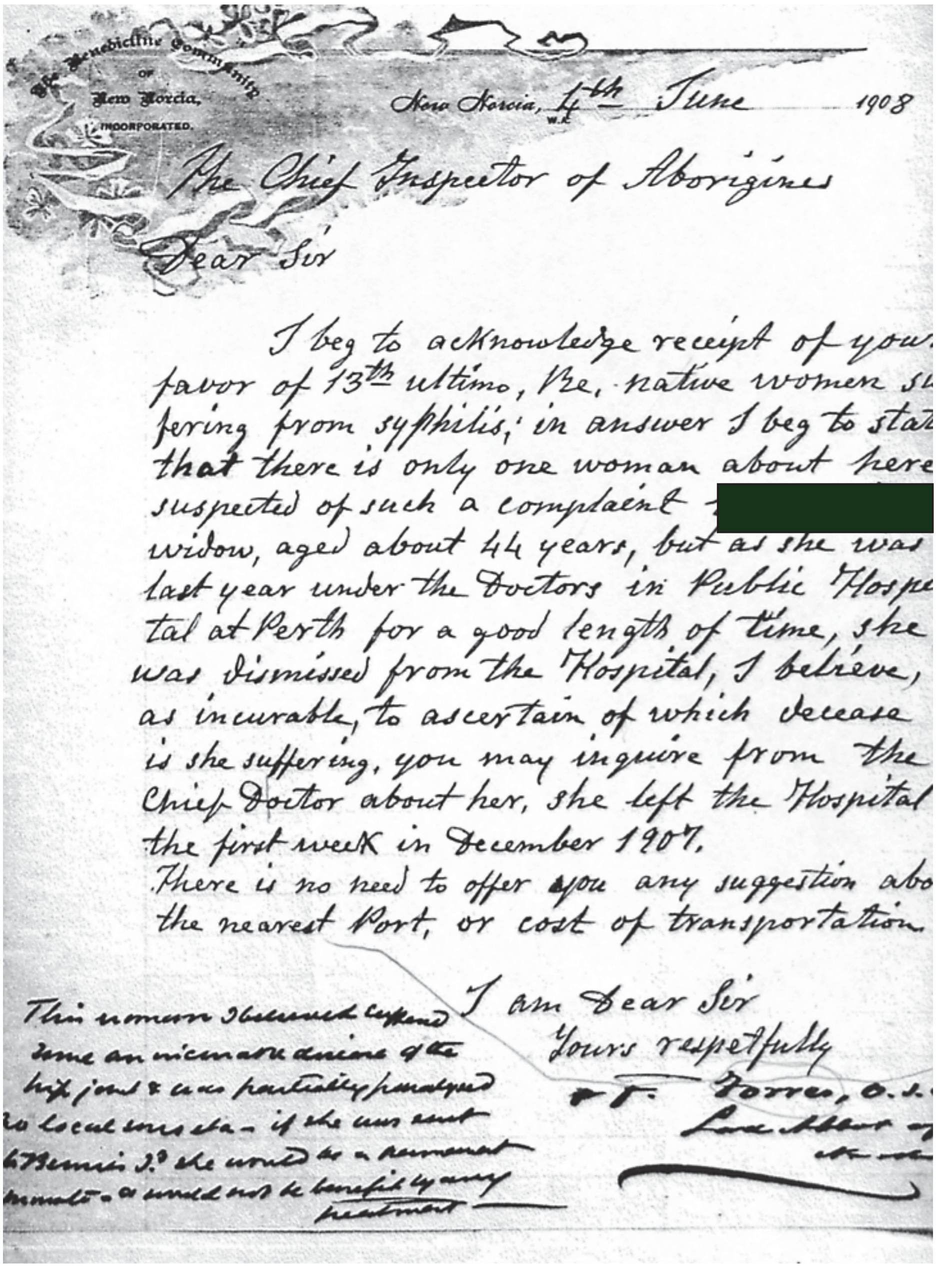
To The
Chief Prot. of Aborigines
Perth

Sir

In reply to your Circular of 13th ult I beg to state that I do not know of any Natives receiving relief here that are suffering from Syphilis or any bad form of Venereal disease. So far as I know this disease seems rare here. Should any cases come to my knowledge I will immediately advise you & give particulars as to the best means of their removal.

I Remain
Sir
J. J. Tomear
Prot.

Figure 5.2. Example of a returned letter from land owners to the Chief Protector of Aborigines saying there are no diseased Aborigines in that area. (Taken from State Records Office. Cons 255. Unnumbered file. 1907/8).



The Benedictine Community of New Norcia, Incorporated.

New Norcia, W.A. 4th June 1908

The Chief Inspector of Aborigines

Dear Sir

I beg to acknowledge receipt of your favor of 13th ultimo, Re. native women suffering from syphilis; in answer I beg to state that there is only one woman about here suspected of such a complaint [redacted] widow, aged about 44 years, but as she was last year under the Doctors in Public Hospital at Perth for a good length of time, she was dismissed from the Hospital, I believe, as incurable, to ascertain of which decease is she suffering, you may inquire from the Chief Doctor about her, she left the Hospital the first week in December 1907.

There is no need to offer you any suggestion about the nearest Port, or cost of transportation.

I am Dear Sir

Yours respectfully

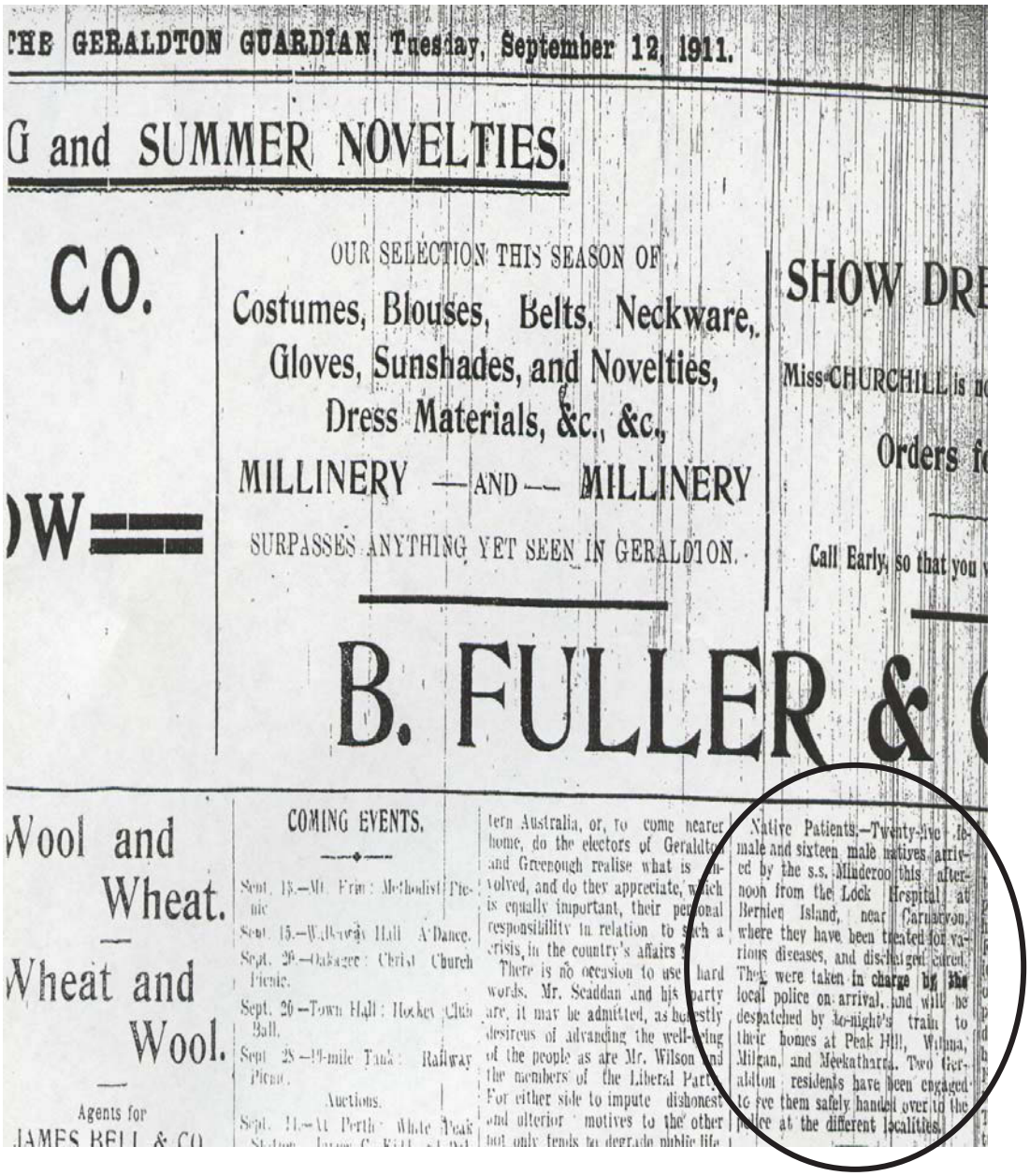
+ F. Torres, O.S.B.

Figure 5.3. Example of a returned letter from land owners to the Chief Protector of Aborigines discussing diseased patients in the area. (Taken from State Records Office. Cons 255. Unnumbered file. 1907/8).

GOVERNMENT RECORDS AND NEWSPAPER ARTICLES

Government records dealing with the Lock Hospital Scheme are found in both the Battye Library and the Blue Books, the Colony's annual statistical reports. These illustrated different administrative activities, such as directing the building of new infrastructures on the islands, shipments of resources and general enquiries about the success of the scheme. A number of articles about the Lock Hospitals were also printed in newspapers. Figure 5.4 is an example of a newspaper article written for *The Geraldton Guardian* in 1911 on the success of the Lock Hospital Scheme. Governmental reports were considered to be the more accurate historical data used in

this study and information taken from these was accepted as accurate, as it mainly dealt with economics and administration. Newspaper articles were used as however, I generally viewed these articles to be less accurate as they are likely to be embellishments of the truth for public entertainment.



THE GERALDTON GUARDIAN, Tuesday, September 12, 1911.

G and SUMMER NOVELTIES.

CO.

OUR SELECTION THIS SEASON OF

Costumes, Blouses, Belts, Neckware,
Gloves, Sunshades, and Novelties,
Dress Materials, &c., &c.,
MILLINERY —AND— MILLINERY

SURPASSES ANYTHING YET SEEN IN GERALDTON.

SHOW DR

Miss CHURCHILL is n

Orders f

Call Early, so that you

B. FULLER &

Wool and Wheat.

Wheat and Wool.

Agents for

COMING EVENTS.

Sept. 15.—Mt. Fran: Methodist Picnic

Sept. 15.—Walkaway Hall: Dance.

Sept. 26.—Oakajee: Christ Church Picnic.

Sept. 26.—Town Hall: Hockey Club Ball.

Sept. 28.—19-mile Tank: Railway Picnic.

Auctions.

Sept. 11.—At Perth: White Peak

tern Australia, or, to come nearer home, do the electors of Geraldton and Greenough realise what is involved, and do they appreciate, which is equally important, their personal responsibility in relation to such a crisis, in the country's affairs?

There is no occasion to use hard words. Mr. Scaddan and his party are, it may be admitted, as honestly desirous of advancing the well-being of the people as are Mr. Wilson and the members of the Liberal Party. For either side to impute dishonest and ulterior motives to the other not only tends to degrade public life

Native Patients.—Twenty-five female and sixteen male natives arrived by the s.s. Minderoo this afternoon from the Lock Hospital at Bernier Island, near Carnarvon, where they have been treated for various diseases, and discharged cured. They were taken in charge by the local police on arrival, and will be despatched by to-night's train to their homes at Peak Hill, Wiluna, Milgan, and Meekatharra. Two Geraldton residents have been engaged to see them safely handed over to the police at the different localities.

Figure 5.4. Article in *The Geraldton Guardian* discussing the success of the Lock Hospital Scheme.

MAPS AND ARCHITECTURAL PLANS

Most of the information that directed the site surveys in this study was gathered from maps drawn during the planning of the Lock Hospitals and the architectural plans drawn for construction of the buildings. These provided detailed information on the dimensions intended for the buildings, intended construction material and their intended purpose. They gave some indication of the location of the structures in

relation to one another and to the natural landscape. Figure 5.5 is an example of the Dorre Island Ward architectural plans.

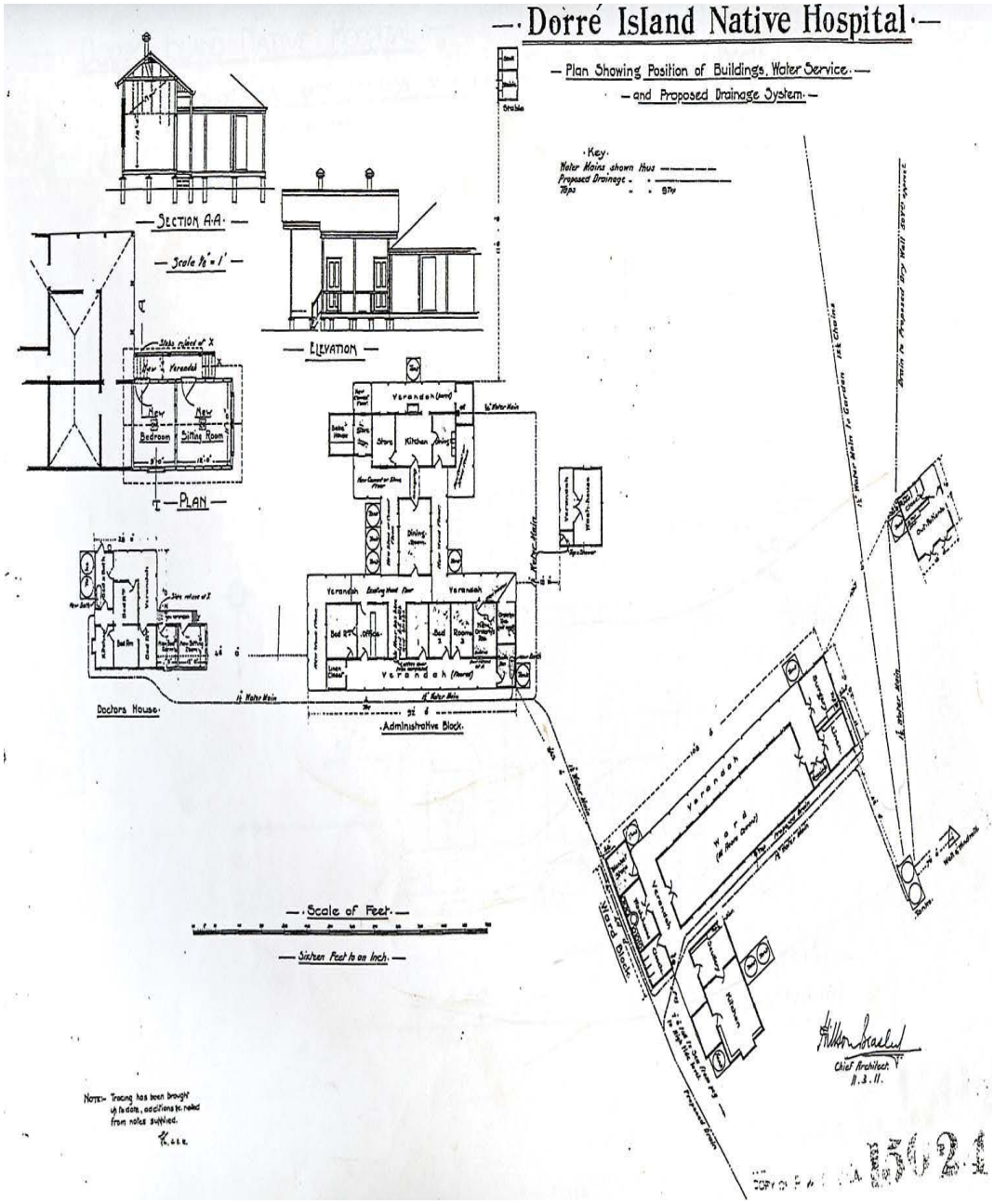


Figure 5.5. Plans of Dorre Island Lock Hospital (State Records Office P.W.D. WA 15024).

As well as architectural plans, a number of rough sketches give indications of the location of the sites in relation to non-structural features of the physical landscape and to sites which are not recorded accurately. For example Figure 5.6 shows the direction and distance of the Aboriginal camp from the ward, as well as the direction of the ocean and the height of the surrounding sand dunes.

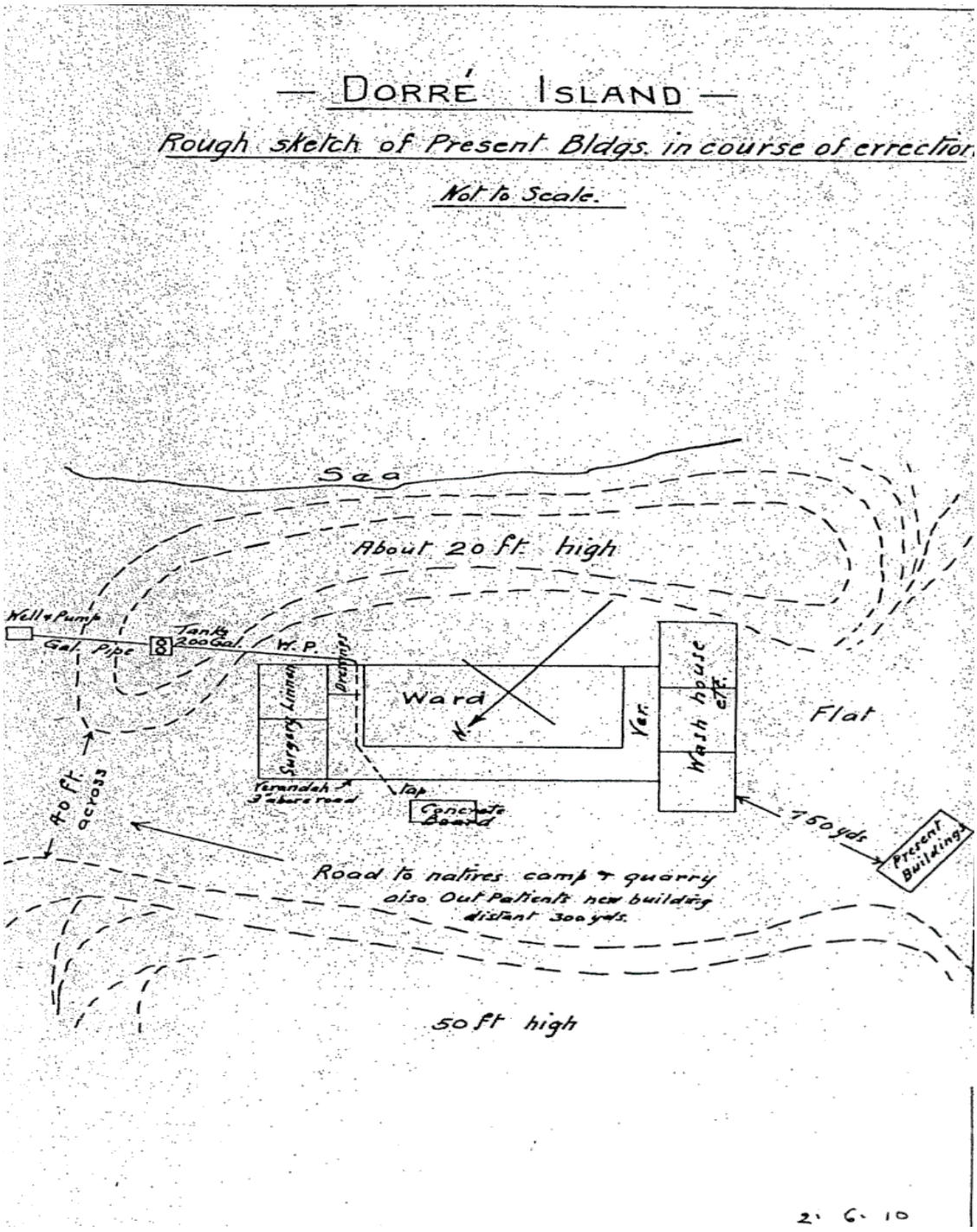


Figure 5.6. Map of the Dorre Island Ward, indicating surrounding environmental features and information on where the Aboriginal camp lies in relation to it. (State Records Office P.W.D. WA 15024).

Maps and architectural plans were critiqued as being useful for this study. Internal critiques suggest that they were created by architects (or someone trained in drawing architectural plans), at about the time indicated by the date on the plans as they match contemporary plans and they are using the measurements of the day (chains, yards). However, some plans clearly state cancelled on them and it is assumed that they were never built. It is also evident that the architects are confusing the islands as some later

plans that say present buildings on them are referring to those built on the other island. Nevertheless this set of data provides evidence that can be tested against the archaeological evidence.

IMAGES

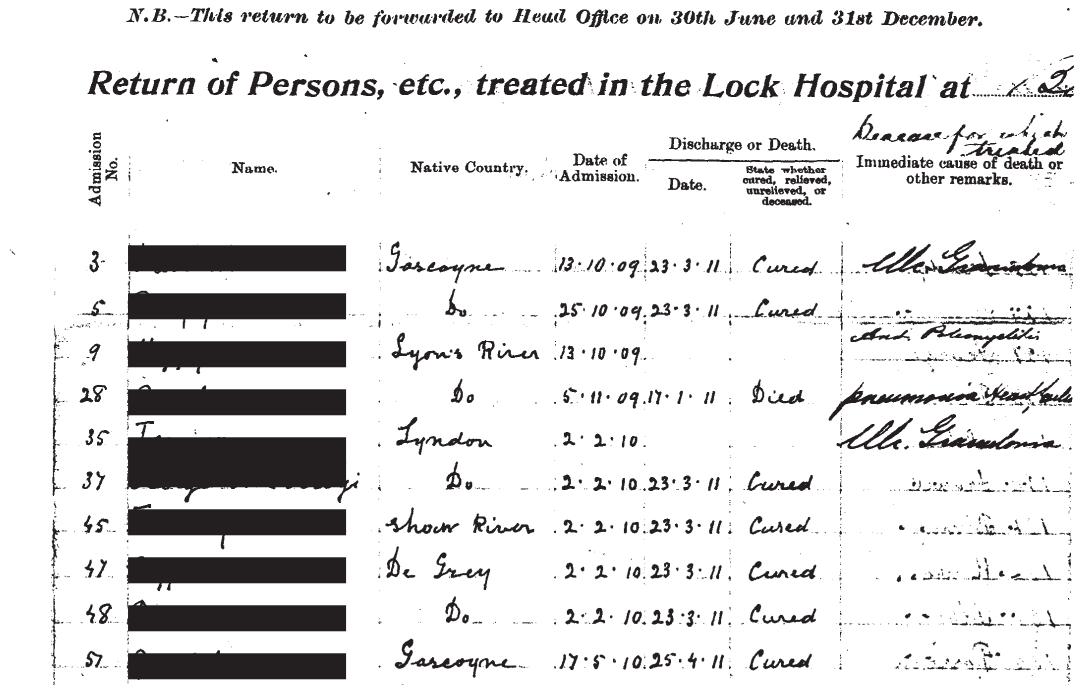
Images of the Lock Hospitals and associated structures from the period of operation of hospitals on Bernier and Dorre Islands are rare. At most 50 historical photographs were available. No paintings depicting the Lock Hospitals are known. The majority of photographs are held at the Battye Library, the rest in private collections. It is believed that the majority of the photographs in the Battye Library are from the collections of Dr Pritchard and his family taken during his stay as doctor on the islands from 1909 to 1911. Most of the photographs are of the landscape and the standing buildings and structures, although photographs of the Aboriginal patients, the European nurses and the Doctor's family are also present. While photographs themselves may not provide clear cut information, they are a powerful means of accessing past actualities and encompass background details that are not always in the photographer's mind (Sutton 2003:78). Objects like chairs, drums, ceramics and tables are evident in some of the photographs and gave a clue as to what might be found in the archaeological surveys. Photographs provide evidence that the structures represented in architectural plans were actually constructed, their relative dimensions, construction materials and location in relation to the landscape. As well as providing information on possible archaeological remains, the photographs also gave indications of the activities of people on the islands.

Internal criticism of the photographs suggests that they are real and taken at around the time of the Lock Hospitals. Photographs of landscapes, structures and buildings are taken to represent those on the islands at the time of the Lock Hospitals. Photographs of people (both European and Aboriginal) are clearly posed, but nevertheless provide vital clues to the activities as well as objects on the islands that may not show up in the archaeological record. The one aspect of the photographs that was ignored was the captions on the photographs. It is not known who wrote these captions or when they were written and there appears to be many inconsistencies with them. For example photographs have the depictions of 'women outside Bernier Island Ward'. No women were known to reside on Bernier Island and the photograph of the ward clearly shows that it is the same as other of the Dorre Island Ward'. In a similar manner, photographs of the landscape of Hospital Bay,

Bernier Island have the depiction Dorre Island on it. One only has to compare these to the satellite or aerial photographs to know they are wrong. As a result of these inconsistencies, I chose to determine my own captions for the photographs, based on the archaeological and other critiqued historical evidence.

MEDICAL RECORDS

A number of articles published by doctors present on the islands during the period of the Lock Hospitals have provided detailed information on the diseases, as well as the treatments used on patients. For example an article by Hickenbotham and Cleland published in 1909 in *The Journal of Tropical Medicine and Hygiene* discusses the etiology of ulcerative granuloma of the pudenda in patients on Bernier and Dorre Islands. These published articles provide direct evidence of types of treatment, their success rates and problems of diagnosis. The only other records related to diseases were lists of Aboriginal patients, their arrival date, release dates (if any), the diseases they had, their deaths and in some cases the cause of death. These articles were obtained through the State Records Office of Western Australia with permission from the Department of Indigenous Affairs and the Health Department of Western Australia (Appendix B). Figure 5.7 is an example of the reports of patients.



N.B.—This return to be forwarded to Head Office on 30th June and 31st December.

Return of Persons, etc., treated in the Lock Hospital at

Admission No.	Name.	Native Country.	Date of Admission.	Discharge or Death. Date.	Discharge or Death. State whether cured, relieved, unrelieved, or deceased.	Disease for which treated. Immediate cause of death or other remarks.
3	[redacted]	Gascoyne	13·10·09	23·3·11	Cured	
5	[redacted]	Do	25·10·09	23·3·11	Cured	
9	[redacted]	Lyons River	13·10·09			
28	[redacted]	Do	5·11·09	17·1·11	Died	
35	[redacted]	Lyndon	2·2·10			
37	[redacted]	Do	2·2·10	23·3·11	Cured	
45	[redacted]	Shoor River	2·2·10	23·3·11	Cured	
47	[redacted]	De Grey	2·2·10	23·3·11	Cured	
48	[redacted]	Do	2·2·10	23·3·11	Cured	
57	[redacted]	Gascoyne	17·8·10	25·4·11	Cured	

Figure 5.7. An example of the lists of patients treated at the Lock Hospitals taken from restricted access files at the State Records Office (Pritchard 1929a-f). Note: the names are undisclosed due to the restrictions imposed by the Department of Indigenous Affairs and the Health Department of Western Australia.

Data taken from medical records and contemporary published articles from medical journals was also taken at face value. Although the doctor's may have had other agenda for keeping or embellishing records (to keep employed or obtain funding) there is no way of knowing whether the diagnosis was correct, without of course analysing the human remains. The context is consistent and the document is contemporary.

DOCUMENTARY EVIDENCE

The objective of the historical analysis in this study was to provide information on the Lock Hospitals, the chief assumption being that the sample of historical evidence analysed was representative of all the original material pertaining to the people recorded as syphilitic and detained in the Lock Hospitals and the Lock Hospital Scheme. Of the known individuals sent to the islands (about 600 between 1908 and 1918) (Jebb 1987; Mulvaney 1989) data concerning approximately 90% (550 individuals) were used in this research. In this research approximately two hundred individuals were identified as having a syphilis-related disease before the start of the Lock Hospital Scheme. The proportion this represents of those ever recorded is unknown. The accidental or deliberate loss or destruction of documents over time, the poor preservation quality of records and the restrictions placed on access to them meant that it is unlikely that this proportion will ever be determined. It is also impossible to know exactly how representative the sources of information used in this study are of those which once existed, especially with respect to photographs, journals and letters.

OTHER CONSTRAINTS

The use of historical documents has some limitations and constraints. Firstly, the sample is inherently biased because not all individuals were recorded. There is no documentary evidence of the Lock Hospital Scheme written by Aboriginal people. All written material concerning Aboriginal people was produced by educated Europeans and, as a result, may misrepresent the Aborigines themselves and their experiences.

This complete absence of documents produced by Aboriginal people may be due to the non-survival of what was a limited body of material in the first place, the lack of literacy of these groups (Burke 2004:47) or many other factors. The lack of balancing material from Aboriginal sources signals the need for extreme caution in the use of the records which were available (Burke 2004:47).

Other obvious problems encountered in obtaining information pertaining to the Lock Hospitals, included the difficulty of reading many of the records due to their poor preservation, the old style of cursive writing that is generally not seen today, errors of spelling (many words were spelt phonetically) and problems of interpretation of the intentions of the author, as time has changed not only writing styles but syntax and the meanings of many words. For example, Figure 5.8 shows the difficulty in reading many of the records.

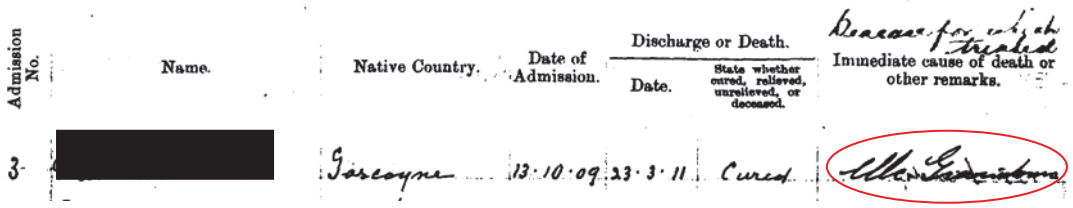


Figure 5.8. An historical records which shows the difficulty in reading many of the records. The disease for which they were treated I have interpreted as 'ulcerative granuloma', however, Pritchard may have in fact been referring to another disease (Pritchard 1929a-f).

SUMMARY

The aim of this chapter was to provide critical evaluation of the historical resources relevant to investigate the Lock Hospital Scheme. The following chapter considers how the evaluation of this historical documentation provides information for determining how both sets of people (Europeans and Aborigines) may have survived on the islands.

Chapter Six

SURVIVING THE ISLANDS: EUROPEAN VERSUS INDIGENOUS KNOWLEDGE

Chapter Six

SURVIVING THE ISLANDS: EUROPEAN VERSUS INDIGENOUS KNOWLEDGE

INTRODUCTION

This chapter considers how the Europeans and Indigenous groups survived on Bernier and Dorre Islands during the Lock Hospital period, taking into consideration their different beliefs, ideologies and reasons for being on the islands. The answer to the question on how well they 'survived' the islands is still really unknown. Archival information provides a background to understand the potential knowledge of the people sent to the islands. Differences in the ways of life of these different groups of people and how that may be reflected in the archaeological record is discussed.

PEOPLE ON THE ISLANDS

People who could have left material possessions on the islands from the time of the Lock Hospital Scheme include Aboriginal males, Aboriginal females, Aboriginal children, European doctors and nurses and their families (wives and children), and medical and anthropological experts who visited the islands to study the Aborigines.

EUROPEANS

Over the lifetime of the scheme a number of different Europeans lived on the islands. It is unclear from historical records the particular island on which the various Europeans lived, though it is assumed that some at least visited both. From historical documents we know that initially a doctor, assisted by a matron, two nurses and a dispensary assistant were provided for the treatment of those sent to Bernier and Dorre Islands (Mulvaney 1989:189). We also know that the doctors and nurses were replaced during the lifetime of the scheme. A stockman was also recorded to live on the islands with his purpose recorded by Watson (1968:46) as to look after the few sheep and cattle, but whose real function was to keep order amongst the patients.

The first officially appointed doctor on the islands was Dr Fred Lovegrove (who possibly got his job because his uncle Thomas Lovegrove was the Principal Medical Officer for the state) in 1909. He was pictured on the islands in 1910 (Courtesy Battye Library 3185B/48, 5021B/50) but by 1911 no more documents mention his presence

on the islands. Dr Hickenbotham and Dr Cleland were also on the islands in 1909 as seen from reports in medical journals on their work with the patients (Hickenbotham and Cleland 1909). In 1910 and 1911 Dr Donald Steel was documented on the islands. During the three months that both Lovegrove and Steel were on the island together they had many disagreements over the medical ethics of research using the Aboriginal patients as subjects (Pritchard 1911).

Dr Pritchard, the replacement for Dr Steel, arrived on Dorre Island in May 1911 with his family Kathleen, Helen, Jack and Guy (seen in photographs of the island, Battye Library, 3185B/19). He was the Superintendent Medical Officer for the islands between 1911 and 1915 though it is uncertain whether his family stayed on the islands for the whole of this period. Another doctor, Laws (very little is known about him) was there in 1915. After he resigned there was no resident doctor on the islands, but they were visited by Triado (Carnarvon's District Medical Officer) during 1916 to 1918 (Triado 1917). Many people complained about this arrangement, but it was argued that the war had depleted the supply of doctors. Triado (1917) recommended that patients be moved to one island due to the problems of transport between the islands but his recommendation was not followed up until late in the scheme.

A number of different nurses including nurses McNicol, Callahan, and Rose as well as undifferentiated medical dispensary staff, Matron Keeleher and Mrs Collin are visible in the photographs taken on the islands in the early years of the scheme (Courtesy Battye Library 3185B/9, 3185B/7, 3185B/24 and 3185B/26). Very little information exists about these people. Very little information is available concerning the identities of any Europeans on the islands after 1915.

Amongst the non-medical personnel to visit the islands was the Chief Protector of Aborigines, Mr Gale in 1910 (Courtesy Battye Library 3185B/54) and an unknown Mr Gretorix in 1911 (Courtesy Battye Library 3185B/58).

Mrs Daisy Bates, Professor A.R. Radcliffe-Brown and Mr E.L. Grant Watson also lived on the islands for approximately four months (November 1910 to March 1911) to study the Aborigines (Ride *et al* 1962:8). Photographs (Battye Library collections 3185B) also suggest that a number of other Europeans occupied the islands in the course of the Lock Hospital period, though who these people were or what their purpose was is unknown.

This research attempts to assess whether any of these groups are reflected in the archaeological record.

ABORIGINES

Jebb (1984) and Stingemore (2002) have proposed that over the lifetime of the scheme approximately 800 Indigenous people, the majority of them women, were transported to the islands. Analysis of historical records (Appendix A) makes it clear that more people than were recorded were collected for the scheme. They spent anywhere from three months to the whole lifetime of the scheme on the islands.

The majority of Aboriginal people taken to Dorre Island between 1909 and 1912 were women over 40 years of age from the Gascoyne and Pilbara regions (Stingemore 2002). Those taken to Bernier Island were mostly males over 40 years of age from the Goldfields, Pilbara and Gascoyne regions (Stingemore 2002). A few non-diseased people were taken to the islands as well as those identified as 'syphilitics'. Men from some areas were said to be taken as a precaution to limit the spread of disease, and children and other family members came along with some of the women. Access to individual Aboriginal names which enabled the tracing of their origins, ages and diseases were available with appropriate permission from particular collections at the Battye Library, but due to the restrictions placed upon this access none of the names of any Aboriginal person at the Lock Hospital is identified in this research.

HISTORICAL INFORMATION – LIVING ON THE ISLANDS

Most of the information available concerning how people lived on the islands relates to hospital - related structures.

THE BUILDINGS

From architectural maps and photographs, a fairly good idea of the size and shape of the hospital buildings is available, although their exact position on the islands is unclear from these documents. Figure 6.1 is an example of a photograph of the Bernier Island Lock Hospital site for men, and Figure 6.2 is an example of the plans for the Dorre Island Lock Hospital sites. There is very little information about nurses' and doctors' houses, wells, roads or the Aborigines' camping areas.

Figure 6.1. Bernier Island Lock Hospital Site (Battye Library 3185B/13).

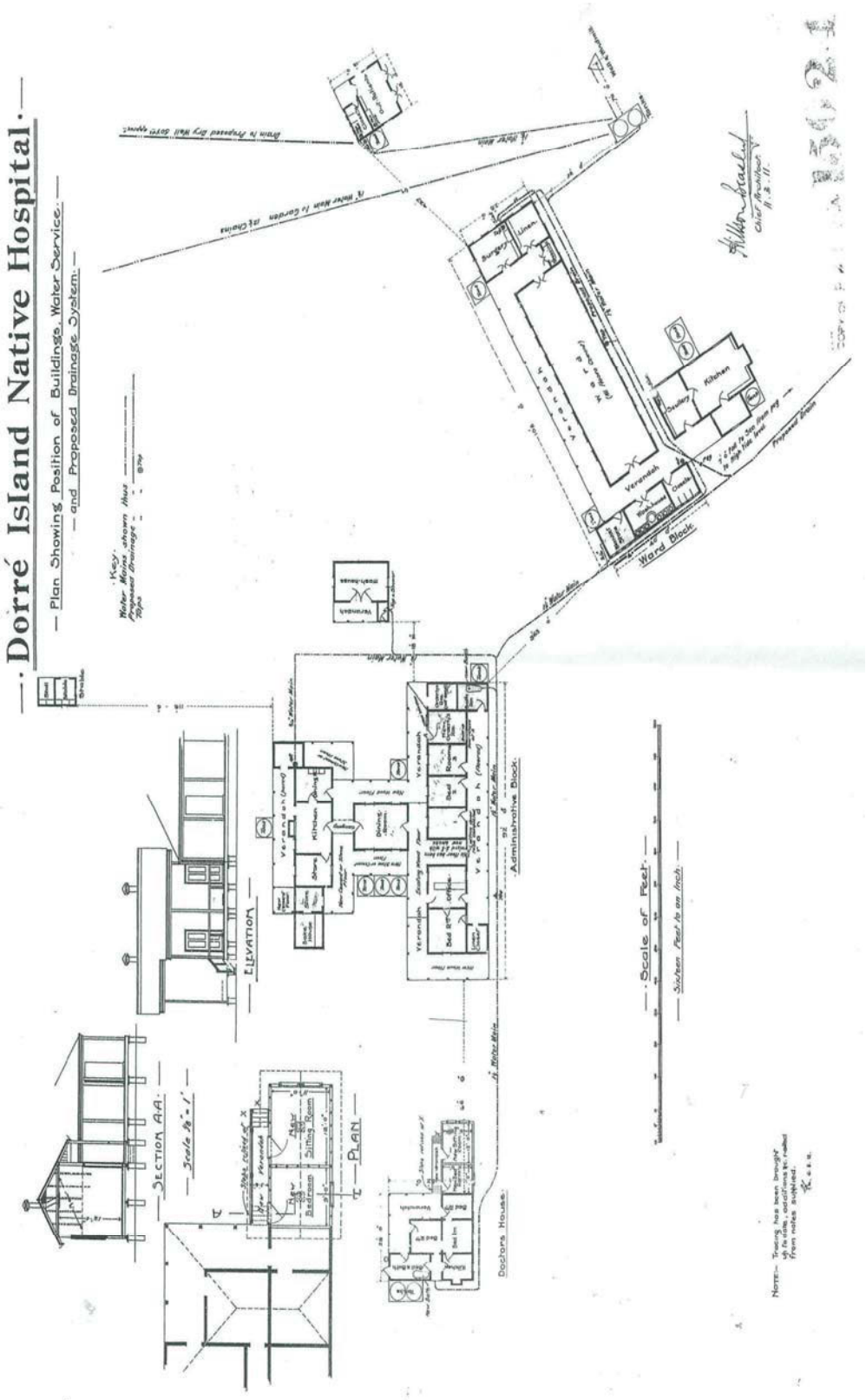


Figure 6.2. Dorre Island Lock Hospital Site (State Records Office P.W.D. WA 15024).

THE HOSPITALS

Documents indicate that a number of different wards and associated hospital buildings were built on both islands including hospital wards, administration buildings (where nurses also lived), doctor's houses, laundries, outpatients buildings, stables and paddocks. A one-room dispensary was also built on Windmill Flats on Bernier Island where Aboriginal inmates were to make their camp and an office was built on the beach at Dorre Island where baths were to be taken (Brodribb 1909). The exact date for the construction of each building is uncertain due to confusion in the historical records.

In 1910 a twenty-bed hospital for females and a twelve-bed hospital for males were constructed on concrete foundations. Their jarrah frames and corrugated iron roofs came from Perth (Mulvaney 1989:189). The walls consisted chiefly of tarred canvas (Mulvaney 1989:189). In photographs they appear stark and airy (Figures 6.3, 6.4 and 6.5). Aboriginal men were apparently involved in the construction of buildings as seen on annotations of photographs (Figure 6.6) recording the occasion of an issue of hats in return for help in construction of the buildings.

Figure 6.3. Inside the women's ward. c1910. (Battye Library 725B/67).

Figure 6.4. Female patients outside Dorre Lock Hospital. c1910. (Battye Library 725B/22).

Figure 6.5. Bernier Island ward for men. c1910 (Battye Library 725B/59).

Figure 6.6. Aboriginal male patients with hats given to them by the government for their help in constructing the buildings on the islands (Battye Library 21072P).

EUROPEANS

It seems from the historical documentation that life for the Europeans on the islands was vastly different from that of the Aboriginal people, in terms of their accommodation, their way of life and the resources available to them.

EUROPEAN ACCOMMODATION

Initially all European accommodation on the islands consisted of tents and other portable shelters. Watson (1968:58) was recorded as buying a tent from Carnarvon to take to the islands. In April, 1909 a cottage of two rooms and kitchen was erected to provide accommodation for an increase in staff (Chief Protector of Aborigines 1909). It was necessary to floor and secure the chaff-house from the inroads of wallabies (Chief Protector of Aborigines 1909). Houses were built for the medical staff and fences erected to contain the animals that provided meat (Briscoe 1996b:3). In 1910 Bates (1938:98) observed the 'orderly staff occupying a wooden building on a rise and the hospital was a tent'. Eventually the European accommodation came to consist of houses with concrete floors, jarrah walls and corrugated iron roofs (Figures 6.7 and 6.8).

Figure 6.7. Bernier Island Administration Building (Battye Library 3185B/43).

Figure 6.8. Nurses quarters on Dorre Island (Battye Library 3185B/12).

EUROPEAN WAY OF LIFE

Historical records suggest that Europeans had a moderately comfortable lifestyle on the islands. Ceramics, structural equipment, personal items, glass wares, food and fuel were all imported for their use. It seems that they brought to the islands most of the things they would use in life at home. Manufactured goods brought to the islands including tables, chairs and a piano can be seen in Figure 6.9. Some historical photographs also give some insight in the activities of Europeans on the islands. They are depicted smoking pipes, boating and, in the case of children, playing with dolls and bears (Figures 6.10, 6.11 and 6.12).

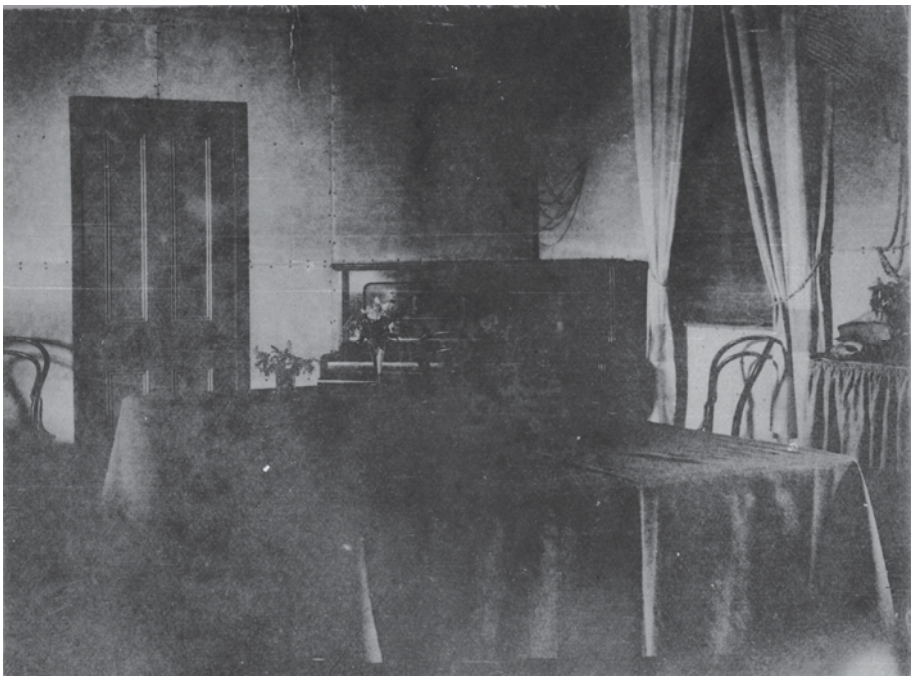


Figure 6.9. Examples of furniture imported to the island by the Europeans. Note also the piano in the background (Battye Library 3185B/16).

Figure 6.10. Examples of activities Europeans undertook on the islands. One of the doctors smoking a pipe (Battye Library 3185B/10).

Figure 6.11. Examples of activities Europeans undertook on the islands. The Pritchard Family on a boat around the islands (Battye Library 3185B/19).

Figure 6.12. Examples of activities Europeans undertook on the islands. The Pritchard children with their dolls and bears (Battye Library 3185B/22).

Historical records indicate that most of the food consumed by the Europeans was either brought to the islands or grown on site in gardens. Vegetable gardens (Figures 6.13, 6.14), chickens and goats (Figure 6.15) are shown in photographs taken during the period of the Lock Hospital Scheme.

Figure 6.13. Nurses on Dorre Island tending to their vegetable garden (Battye Library 3185B/28).

Figure 6.14. Garden on the islands (Battye Library 3185B/36).

Figure 6.15. Chicken and goat on Bernier Island (Battye Library 3185B/33, 3185B/35).

It is not clear however what plants they grew, the number of animals they took, whether these animals were used throughout the whole occupation of the islands or whether they were present during certain years. The presence of horses on the island (Figure 6.16) is noted in photographs, though their use besides transport is uncertain.

Figure 6.16. Nurse on small horse outside of Dorre Ward (Battye Library 3185B/31),

Evidence for the presence of water, or at least the means for collecting and storing it, can be seen in photographs of windmills and water tanks (Figure 6.17). The distribution and yield capacity of the means of capturing water is unknown.

Figure 6.17. Examples of water collection and storage (windmill and water tanks to left of building) (Battye Library 3185B/22).

It is unclear whether these commodities were resourced for use by Europeans or shared with the Aboriginal patients.

ABORIGINES

There is some information about how the Aborigines lived on the islands, particularly about their shelter and activities including the finding of food. It must be borne in mind, however, that all of this information was observed and recorded from a European perspective and may present a distorted image of the reality.

ABORIGINAL ACCOMODATION

On both the islands Aborigines 'were allowed to live in the sand hills and erect shelters' (Briscoe 1996c:3). Initially shelters were constructed of tarpaulins, but patients avoided them and built their own brush shelters (Mulvaney 1989:190). From the beginning of the scheme the Aborigines were encouraged to live a traditional lifestyle:

> The hospital is not in the ordinary sense a hospital at all… The patients when introduced will live in a free, alfresco life, with shelter sheds and huts collapsible and moveable, so that the nomadic instinct of the aboriginal will have free play… He will be rationed, sheltered, clad and medically treated and may indulge his hunting and fishing predilections at will (West Australian 1909).

Bates (1938:98) observed on her expedition to Bernier Island in 1910/1911 Aboriginal patients occupying 'three-sided huts of canvas, each with a half-roof of corrugated iron'. By 1910, hospital staff found it impossible to attend adequately to all the patients under the original arrangements, so more permanent shelters were built closer to the hospitals. As a result of some of the inmates dying from 'coughs and colds' (Lovegrove M.B. 1909) during the winter months, sixteen shelter sheds, eight feet (2.44m) by four feet (1.22m) rectangular constructions with three sides of canvas and a tin roofs were erected on both islands. The shelters provided some protection from the rain and winds (Figures 6.18, 6.19, 6.20 and 6.21). Bates (1938:98) observed that the 'natives of both islands preferred the open bush to all the hospital care and comfort'.

Figure 6.18. Female accommodation on Dorre Island, made of corrugated iron (Battye Library 21086P).

Figure 6.19. Canvas constructions provided by Government for the Indigenous people to live (Battye Library 21085P). Note the dog in the photograph Watson 1946:114 records that his party brought over two dogs with them. It is assumed these dogs were taken back to mainland on his return.

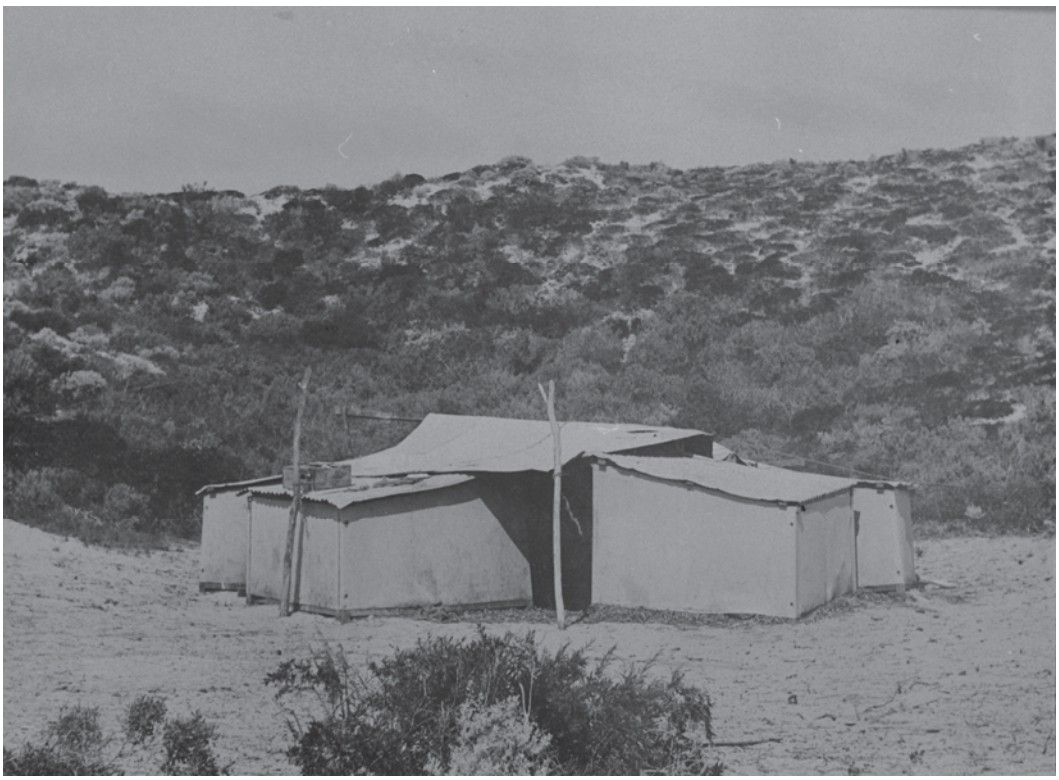


Figure 6.20. Canvas and corrugated iron accommodation. Note that many patients placed constructions together to provide shelter from the harsh winds and rains (Battye Library 21074P).

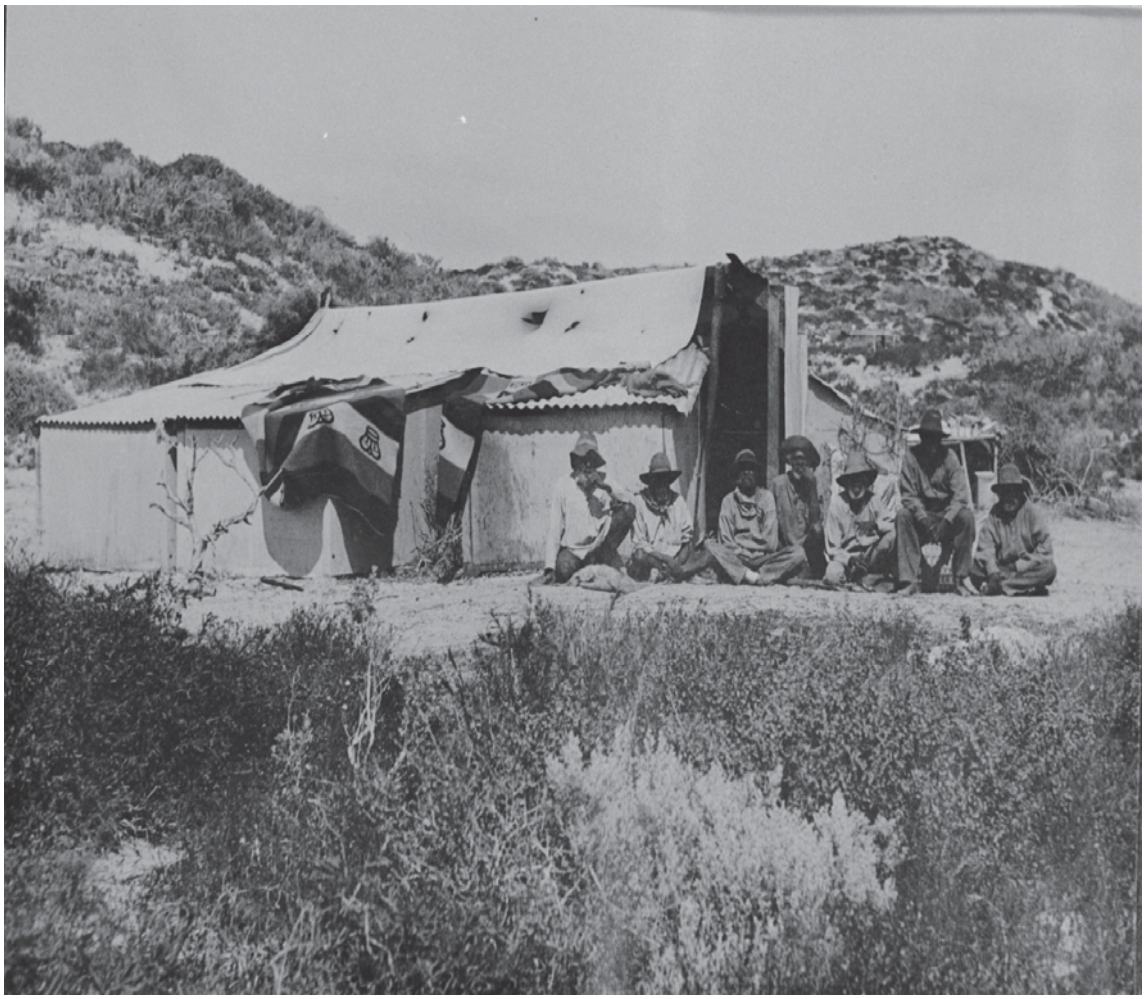


Figure 6.21. Federation Blankets kept out drafts for those men who fended for themselves in the dunes (Battye Library 21075P).

ABORIGINAL WAY OF LIFE

As part of the original plan to have Aboriginal people live as 'naturally' as possible during their stay on the islands, they were encouraged to fish and hunt and be nomadic, though expected to return to the hospitals for rations and medical treatment (West Australian 1909). Thus Aboriginal campsites could be distributed across the whole of both islands.

Some photographs do exist of Aboriginal people dressed in body paint, holding traditional items like digging sticks (Figures 6.22, 6.23, 6.24).

Figure 6.22. Male patients in traditional dress on beach, holding traditional weapons (Battye Library 5021B/53). Note the man on the left is supported by crutches. It is uncertain where the white body paint (likely white clay) has come from as it is not locally available,

Figure 6.23. Male patients in traditional dress outside camps, holding traditional weapons (Battye Library 5021B/57).

Figure 6.24. Females in traditional dress (Battye Library 3185B/5).

Records were not kept of how much or what type of natural food the Aborigines collected, nor are there any photographs of these activities. Mulvaney (1989:190) suggested that the plentiful natural food supplies, especially fish, crustacea, turtle eggs, wallaby and lizards, were not exploited to any extent after the first months of occupation and Bates (1938: 99) on her expedition to the islands observed the patients to be undernourished. Patients were given rations, but how much, how frequently and of what type is not known. Mulvaney (1989:190) suggests that rations included flour, tea, sugar and tobacco. Bates (1938:99) suggests that the Aboriginal people were dependent upon rations to such an extent that when supplies from the mainland were delayed 'the position became pitiable'.

EXPLOITING THE ISLANDS

The Europeans and Aboriginal patients could be expected to have quite different perspectives on the environments of Bernier and Dorre Islands, their place in them and how they might be used to sustain life and provide comfort.

EUROPEANS

From the accounts of the Europeans who lived on the islands we know that they planted crops, raised animals for meat and wool, constructed large buildings and

brought with them the wherewithall for a number of leisure activities. Rather than adapting to different environments in the manner of traditional Aboriginal people, Europeans tend to modify environments to their liking. In doing this they use local or imported resources, or a combination of both. On this account, we expected archaeological investigations to show evidence of modification of the landscape and its resources and imported items in association with areas of European activity.

ABORIGINES

It is generally accepted that Australia was colonised by Aboriginal people at least 40 000 years ago (Balme 2000; Lourandos 1997:4). Until recently it was generally thought that Australia had remained isolated from other human contact since that time. For example Ashburton stated that Australia

> …constituted an isolated area; all writers seem to be agreed that although its extensive coastline had rarely been touched at different points, yet its inhabitants had always lived free from intrusion, and from admixture of blood, until the beginning of its present occupation by the English (Ashburton 1897:11).

But by the l980s this conception was changed. Berndt and Berndt state that

> …Even the Australian Aborigines, often referred to as the most isolated peoples, were not completely cut off from all contact with the outside world. In the north, especially, they had contact with the Torres Strait and with New Guinea as well as with some of the Indonesian islands (Berndt and Berndt 1984:1)

There are a number of lines of evidence which indicate that Australia had contact with other parts of the world before the arrival of Europeans (Lourandos 1997). The arrival of the dingo and the appearance of the Australian Small Tool Tradition at approximately 4 000 years ago (Lourandos 1997) together with archaeological material such as pottery, glass, and Dutch coins also provides evidence for Australia having contact with other peoples long before colonisation by the British (Mulvaney and Kamminga 1999:414-5). Foreign plants, like the tamarind trees found in Anuru Bay where Macassan trepang industries can be dated to the seventeenth century, indicate even earlier contact with Asia (Mulvaney and Kamminga 1999:414-5). That is, it would seem that the Australian Indigenous people were accustomed to changes and other people and were able to modify their way of life in order to suit. There is nothing to suggest that Indigenous people sent to the Lock Hospitals did not have the potential to cope with the change in their environment.

ABORIGINAL KNOWLEDGE

Regardless of European permanent settlement and the changes it brought across Australia, most Aboriginal people would still have been living a relatively traditional life in the first century after colonisation. Although they may have used steel for their tools, flaked glass instead of flint or chert, worn European clothes and adopted many other European items into their culture, the Aboriginal people of this time appeared to have a similar social organisation and way of life to that in precontact times.

The Indigenous Australian social organisation is predominately that of a group of people who occupy a recognised stretch of country, and claim religious, hunting and food collecting rights over it by virtue of a supernatural or mythical sanction (Berndt and Berndt 1984:32). Boundaries between groups are generally governed by natural features and were flexible at the time of the onset of the Lock Hospital Scheme. Indigenous Western Australians lived in widely varying geographical and climatic conditions and were highly adapted to exploiting resources in their areas.

Traditionally the economy of the Australian Aboriginal people relied on hunting and gathering, although the technology and species varied somewhat depending on the region and group. Information on what types of plants and animals could be used for which purposes was learned and passed down, presumably since Aboriginal people first arrived in Australia. The composition and diversity of the food supply and the relative proportions of plant and animal foods, were greatly influenced both by the season and the geographic location (O'Dea 1991:234). As a result, people needed to know when animals were at their best for consumption, what times they were nesting or hibernating, what times of the year to find particular species in abundance and when migratory birds and animals were around.

Specific tasks were allocated to specific people in the community. Both men and women contributed importantly, but differently, to food procurement. Males were usually the providers of game such as fish, turtles, dugongs and kangaroos while females provided smaller animals like lizards, birds, frogs, eggs and staple foods like berries and tubers (Berndt and Berndt 1984; Love 1936). Females worked together to collect resources while males foraged alone or in small groups (O'Dea 1991: 234-235). Traditionally, females did not hunt larger game, and males did not collect plant materials for foods, utilitarian objects or medicines. Older people generally passed on traditions and skills and the children learned their tasks from their elders.

Most information concerning traditional Aboriginal lifestyles comes from observation of Indigenous Australians who continued living as hunter-gatherers well into the twentieth century, in particular those from remote inland regions and the north of Australia. Whether their behaviour was similar to that of people from other regions in Western Australia is unknown, as is similarity to the people whose lives had already been disturbed by European occupation such as those taken to the Lock Hospitals.

EXPECTATIONS

As has been seen, Bernier and Dorre Islands are populated with reptiles, birds, small marsupials, shrubs and roots and surrounded by marine life. They would appear to have the potential to support people accustomed to living off such resources. A number of questions arise, however, including what proportion of the people might have had some general familiarity with the resources offered by the islands and how much overlap in male/female jobs occurred given that men and woman were separated on two islands and could not fulfill their traditional complementary roles. Did females eat only plants and small marsupials, and males only game? Could the many older females provide their own resources, and did the children on the islands know how to obtain any resources? What density of people did these islands have the potential to support and for what length of time? Were their resources ever going to be enough for the number of people sent there under the scheme?

The gender, age, state of health and social position of individuals may have influenced the extent of their knowledge on how to exploit particular resources. Specific cultural ideas or restrictions on what types of resources may or may not be used could have affected resources used. From previous research (Stingemore 2002) we know that the Aboriginal people taken to the islands were mostly female, over 40, and from the Pilbara, Kimberley, Gascoyne, Goldfields and the South-West regions of Western Australia. These regions offer different resources, and people from each region could have had different knowledge of and skills in collecting resources. For example, many of the Aborigines (particularly on Bernier Island) came from inland areas and were unfamiliar with marine and coastal resources.

The homeland environments of the various Aboriginal patients taken to the islands will now be examined to gain an idea of the extent to which they resembled or differed from Bernier and Dorre Islands.

SHARK BAY ABORIGINES

There is no evidence for the presence of Aboriginal people on Bernier or Dorre Islands prior to European contact, but Aboriginal people have lived in the Shark Bay area at sites like Monkey Mia, Eagle Bluff and Silver Dollar for thousands of years (Bowdler 1990a, 1990b, 1995). The environment around the islands is semi-arid with few rain days a year. It offers a variety of edible plants and animals including small marsupials, lizards, birds, edible fruits and nuts. Today, the Shark Bay area is inhabited by the Malgana people. The Malgana people use a deep understanding of the land to acquire food, medicines and the requirements for life. As the environment of Bernier and Dorre Islands and the resources it offers are similar to those of the Shark Bay region, it is expected that people from the Shark Bay region would have been well equipped to live off the islands. This would not necessarily have been the case for people from other regions of Western Australia, however.

GASCOYNE ABORIGINES

Aboriginal people from the Gascoyne region lived in a moderately arid tropical environment of limited rainfall. Because of the semi-arid climate, the vegetation of the Gascoyne is of seasonal grasslands and mixed scrub. Most of the Gascoyne is covered in scrub, primarily spinifex and mulga and with very little tree cover. A number of different plants and animals as well as some coastal resources were collected by the Gascoyne people.

Characteristically, the Gascoyne people used flaked tools, wooden spears and boomerangs (Thorne 2005:46). As the environment of Bernier and Dorre Islands and the resources it offers is not unlike that of the Gascoyne region, it is expected that people from this region were adequately equipped to obtain resources from it. Whether their knowledge was sufficient to support the whole of the first (1908) round–up of people sent to the islands and whether the islands could provide this much in the way of resources at any one time are other questions.

PILBARA ABORIGINES

Geographically the Pilbara consists of distinct areas. The western third is coastal sandplain and supports most of the region's Aboriginal population. The eastern third is almost entirely desert, and is sparsely populated by Aboriginal people. The Pilbara

region has been occupied for some 30,000 years (Balme and Morse 2006). The environment is semi-arid, with high temperatures and low rainfall. Open grassland and low tree savannah make up the majority of the vegetation in the area.

A number of different Aboriginal site types are evident in the Pilbara, including coastal middens, engraving sites, rock shelter sites, ceremonial sites and burial sites. Traditionally Pilbara people used flaked stone as tools (Thorne 2005:46). The resources available in this area include a variety of inland plants and animals and a number of coastal resources. Depending upon whether they were from coastal locations or inland areas the Pilbara Aboriginal people taken to Bernier and Dorre Islands could be expected to have had different skills.

The Pilbara region is linguistically and culturally diverse, with many Aboriginal languages and numerous dialects like Ngayarta, Mantharta, Kanyara, Wati and Marrngu spoken by its people. At the time of the Lock Hospital Scheme the Aboriginal people of the region were accustomed to extensive contact with Europeans due to the pastoral industry. They may already have been accepting rations.

KIMBERLEY ABORIGINES

Aborigines have lived in the Kimberley region for approximately 40,000 years (Balme 2000). The region is characterised by open savanna woodland (Lourandos 1997:43). It is highly seasonal with high summer rainfall and dry winters (Lourandos 1997:43). The resources available in this area include a variety of inland plants and animals and also a number of coastal resources. It differs from the Pilbara in the amount of rainfall it receives. More water is available for plants, animals and for the Aboriginal people. Numerous islands surround the Kimberley coast and the Aboriginal people frequently visited these areas and would have had knowledge of maritime and island resources.

Kimberley people traditionally used a range of stone artefacts (Thorne 2005:46). Specific tool technologies called ‘Kimberley points’ are characteristic of the region. Kimberley points are fashioned of glass or porcelain, often with serrated edges, are up to 20cm in length and modified by percussion or pressure flaking (Lourandos 1997:290). They are thought to be a post-European contact development (Lourandos 1997:290).

GOLDFIELDS ABORIGINES

The Goldfields region lies in the arid zone with little rainfall throughout the year and an open savannah woodland vegetation. There is very little information about how the Aboriginal people of the Goldfields area lived prior to European contact. It is generally accepted that people occasionally visited the area, but probably did not permanently inhabit it until the last few thousand years (Bindon 1986, Mattner 2000). It is most likely that the people who did so were transients, as the region is very arid and resources are sparsely distributed. The Aboriginal people who lived in the region at the beginning of the twentieth century probably had intensive contact with Europeans and may have been accustomed to accepting rations.

Traditionally Aboriginal people from the Goldfields used stone artefacts (Thorne 2005:46), hunted larger game like macropods and emus, and collected fruits and nuts and grasses. They probably did not have any knowledge of marine resources.

SOUTHWEST ABORIGINES

The southwest region of the state has a mediterranean environment characterised by hot dry summers and cool wet winters. Adequate rainfall occurs in the wet seasons and the majority of the vegetation is eucalypt forest. Stone tools were used as well as single piece wooden spears, detachable barbed spears and boomerangs (Thorne 2005:46; Satterthwait and Arthur 2005:50-51).

Resources available in this area include a variety of plants and animals and a number of coastal resources. A limited number of the resources resemble those found on Bernier and Dorre Islands. The southwest region has more rainfall in parts than other regions, so larger vegetation can grow and the Aboriginal people can easily access water.

It is likely that many of the Aboriginal people living in the south west region had contact with Europeans, as it was one of the earliest areas in Western Australia colonised by Europeans. The extent to which individuals from the region, particularly those from around the towns who were most likely to have been sent to the islands, used traditional methods of collecting food or were dependent upon rations is unknown.

COULD THE ABORIGINES SURVIVE ON THE ISLANDS?

One of the questions that remain is the extent to which the resources on Bernier and Dorre Islands resemble the animal and plant resources found on the mainland. A number of areas offer similar resources. Those areas further away and especially the Goldfields and Kimberley would offer the least. That is, while some groups of Aboriginal people could be expected to have the knowledge to exploit the resources the islands had to offer, the extent to which they did so is unknown. Nor is it known to what extent they were still engaged in traditional lifestyles at the beginning of the twentieth century. From the 1890s to the 1920s it was common for Aboriginal workers to be paid only in rations of food and clothing. Archaeological investigation has the potential to offer real evidence for answering the question of the extent to which rations, if issued, were supplemented by bush resources, and the skills possessed for gathering them.

COMMUNICATION

Even if some of the Aboriginal people sent to Bernier and Dorre Islands arrived actually knowing how to procure resources from the land, the question arises as to how that knowledge was made available to others? Language barriers and taboos concerning talking to different groups may have limited the direct spread of knowledge. However, many Aboriginal groups can speak a number of different Aboriginal dialects as both marriage patterns and trade promoted multilingualism. We also know from the outcome of events with Europeans that Aboriginal people in general were quick to adapt new languages. Many of the Aboriginal people taken to the islands were from farms and areas around towns, and could probably speak at least some English before arrival on the islands. Furthermore, it might not have been necessary to speak a common language to communicate the skills of an activity, like fishing, which can be learned through observation. On the other hand, Bates (1938:100) on her visit to the islands observed that ‘companionship in misery was impossible to them, for there were so many spiritual and totemic differences’.

LIMITATIONS OF THIS DATA SET

Although, this data set provides a valuable insight to the types of structures, objects, resources and the activities undertaken by both the Aboriginal patients and the

European workers care must be exercised with this information as historical documentation has the potential for bias, in that it may be written for a particular purpose, may not tell all of the story or may just be generally wrong. Chapter 5 discusses the limitations of some of the different types of data used, chapter 8 and 9 compare some of the historical data to the archaeological evidence and chapter 11 discusses why some of the data is complementary or contradicting.

Although, it is plausible to use this data set to both complement and test the archaeological record, the best use of this data set is to test it against what is found on the archaeological record.

Historical archaeology on its own may tell us little more than that we already know. Deetz (1991) suggests that

> Historical archaeology is the most expensive way in the world to learn something we already know.

However when the historical documentation along with the archaeological record in incorporated with the theoretical framework of analysing (spatial patterning, total institutions, gender, racial and sex biases and power struggles) the Lock Hospitals we can interpret the past and we can find out many things that were not already known. For example, we may find archaeological evidence that the positions of some buildings may be within a built environment that suggests power struggles or that differentiation of foods types and amounts was based on race or sex.

SUMMARY

Information available from historical sources gives us some insight into interpreting the archaeological record and the accuracy of the European point of view presented in the literature. Specifically it helped to provide formation on

- developing a picture of what types of artefacts were likely to be found on the islands
- determining the different types of activities that could be associated with each site and group of people
- determining the most suitable sites for archaeological investigation based on the historical information

As a number of different groups of people were sent to the islands, we expect to see traces of resource use that reflect a diversity of backgrounds. We expect to see the islands used in different ways by the Aboriginal and European people living there. For one group the island was a prison, but one which offered resources if they could be found and collected. For the others it was a built environment only sustainable with input from outside settlements. Because the two islands were segregated in terms of the sex of the patients we would expect to see evidence of different ways of using the two islands.

The following chapter discusses the archaeological methods used to obtain data on the Lock Hospitals. The combined use of archaeological and documentary materials should permit us to say something about the past that could not have been said using only one set of data (Deetz 1996:32).

Chapter SEVEN

METHODOLOGY-
ARCHAEOLOGICAL SOURCES

Chapter Seven

METHODOLOGY-

ARCHAEOLOGICAL SOURCES

INTRODUCTION

The aim of this chapter is to describe the methodology for recording archaeological sites and material and to discuss how methods were chosen to obtain this data. It defines the study area, the archaeological method and the terminology used throughout this research. Archaeological approaches to spatial analysis, and the classification, statistical treatment and interpretation of data are also discussed. The application of the data to understanding different groups of people defined by gender, culture and hierarchy is described.

ARCHAEOLOGICAL THEORY

Archaeology is a discipline which has scientific and humanistic aspects. This project is about understanding how people adapted to a new environment based on a study of the artefacts they left behind, as well as written records. Failure to include either of these aspects would limit understanding.

Archaeology is the study of the human past through the systematic recovery and analysis of material culture, the artefacts which humans have made and used and which have been preserved. Archaeology not only describes the past but also attempts to explain it. It attempts to explain not only the what, where and when but also the how and why of material culture. Archaeologists attempt to develop theories based on data which can be criticised and modified. It is assumed in archaeology that artefacts can contribute to a generalised picture of human culture and to descriptive models in time and space which can be interpreted to understand the past. It is concerned with material culture including artefacts like tools and implements, faunal remains, human skeletal remains and art. Data obtained from analysing the material culture tests evidence and interprets claims about the past.

It must be borne in mind that such artefacts represent what has been discarded and, as a result, may not be a complete reflection of what was originally present or the full

range of what was in use. It must also be noted that artefacts must be explained within their own cultural context. Direct observations of items from the archaeological record do not in themselves inform us about the past (Binford 1983:19). The challenge is to take contemporary observations of static material objects, and translate them into insights about conditions of the past and the dynamics of past ways of life (Binford 1983). This process acknowledges that the past is subjectively constructed in the present and that efforts must be made not to impose contemporary ideas and beliefs on artefacts and people of the past.

TERMINOLOGY

The terms 'artefact', 'site', and 'assemblage' are descriptive terms commonly used in archaeology. The term 'artefact' is reserved for any material item manufactured, used or modified by humans (Mignon 1993:7). Artefacts may include ecofacts, which are plant and animal remains found in archaeological contexts (Renfrew and Bahn 2000:49). Assemblages are groups of artefacts occurring together in an archaeological context.

A site is an area with archaeological deposits and features. In this thesis the term 'site' applies particularly to discrete archaeological deposits, which may include artificial feature such as quarries, ditches, assemblages like glass scatters, building foundations and material, wire fences and groups of artefacts. The notion of the site itself in this study was determined by artefacts, assemblages and structures associated. The boundary of sites was generally defined by the most exterior artefact or structure, but in some cases was arbitrary. Dunnell and Dancey (1983:271) state that distinguishing a site and setting its boundaries is an archaeological decision, not an observation.

AIMS OF ARCHAELOGICAL RESEARCH

The aims of research on Bernier and Dorre islands were:

- to locate and identify the Lock Hospital sites
- to locate and identify the European living quarters
- to locate and identify the Aboriginal living quarters
- to determine the nature and extent of the physical remains (artefacts)
- to determine the use of the natural landscape in the set-up of the Lock Hospitals
- to identify natural resources on the islands

APPROVALS FOR ARCHAEOLOGICAL WORK

Approval for this research was sought from a number of different bodies. Due to the sensitivities of the project as well as the research area being an 'A' Class reserve and containing Aboriginal sites registered with the Department of Indigenous Affairs (Dorre – Site ID 7124, Site Number P05790. Bernier – Site ID 7123, Site Number P05789) approval was sought from four main groups: the Department of Indigenous Affairs (the Yamatji Land Council, the Malgana People of Carnarvon and Shark Bay Regions, the Kimberley Land Council, the Pilbara Land Council), the Department of Conservation and Land Management (CALM), the Health Department of Western Australia and the University Ethics Committee. A copy of all of the relevant approvals can be found in Appendix C. In addition, a Section 16 permit to conduct archaeological research on registered Aboriginal sites was also sought through the Department of Indigenous Affairs (DIA) (Appendix C).

PREVIOUS RESEARCH ON THE LOCK HOSPITALS

While no previous archaeological research has been undertaken on the Lock Hospitals at Bernier and Dorre Islands the sites are registered Aboriginal Heritage sites 7123 and 7124. They are recognised as archaeological sites on the basis of Ride *et al.*'s (1962: 13) observation of a number of features associated with the Lock Hospitals and the oral histories of burials on the islands by the local Aboriginal people. Ride *et al.*'s 1959 expedition named Hospital Valley and Hospital Bay. Ride *et al.* (1962) gave some clues as to what artefacts could be found on the islands. They state (1962:13)

> that at White Beach there are concrete floors and various other remains of the Lock Hospital. In the old underground water storage tank…which was dry.

With respect to Hospital Valley and Hospital Landing,

> the area was rich in mammals, birds and reptiles, and everywhere were the remains of occupation during the hospital period. Broken bottles were lying about, clay pipes of the Aboriginal patients, and the charred bones of the wallabies on which they had been feeding, lay among the sand dunes and an old cart stood under a bush (Ride *et al.* 1962:15).

No other archaeological information was known at the commencement of the study.

ACCESSING THE ISLANDS

Archaeological research was conducted over two field seasons, each of approximately ten days. The first was on Dorre Island in September 2004 and the second on Bernier Island in June 2005. The Dorre Island sites were examined first, due to the greater accessibility of the island and its better representation in the historical record compared with Bernier Island. This initial fieldwork focused on locating, mapping and recording archaeological sites and deposits in the vicinity of the Lock Hospital, identified by assemblages accumulated from occupation of the island between 1908-1919 by both Europeans and Aborigines. The second field trip focused on the same aspects of Bernier Island.

The sites were accessed by the charter boat *Abel Tasman* from Carnarvon on the Western Australian coast which carried the expedition as far as the reefs surrounding the islands, and then by inflatable dinghy from the charter boat moored off the beach at White Beach Landing (Dorre Island), and Hospital Bay (Bernier Island). All equipment was protected from the weather and ocean during travel and from wildlife on the island by storage in waterproof plastic containers. The area surrounding the bays were archaeologically surveyed using pedestrian transects for archaeological sites before campsites were selected. Camps were set up on the beaches away from the archaeological sites, so as not to destroy or disturb any artefacts or structures and in accordance with restrictions to visitation of the islands by the Department of Conservation and Land Management. Archaeological work was conducted in daylight between approximately 6.30am and 6pm each day.

EMERGENCY EQUIPMENT

Due to the location of the site up to six hours from emergency help, a satellite phone, two emergency position indicating radio beacons (epirbs), 300 litres of water, excess food and medical equipment were taken in accordance with fieldwork safety requirements of the University of Western Australia for research in remote locations. All personnel were trained in the use of this equipment and at least three members of each expedition held current senior first aid qualifications.

TEAM MEMBERS

Due to the conditions imposed by CALM and the DIA to protect the island and the integrity of the Lock Hospital site, only a small team was allowed access to the

islands. The approaches to surveying sites varied slightly between the Dorre Island expedition (2004) and that to the Bernier Island (2005) due to the slightly different landscapes and experience gained from the first expedition. Six people were taken to the Dorre Island site and four to the Bernier Island site. Fewer people were needed for the Bernier site because of the experience of the team members and the ease in transporting the team to the island. Members included experienced archaeologists and students from both the Centre for Archaeology and School of Anatomy and Human Biology at the University of Western Australia, and two volunteers who had experience in the environment around the Shark Bay region and the use of site surveying equipment.

Team members were divided into two groups. Each group was issued with an archaeological field kit consisting of

- writing equipment
- marker pen
- flagging tape
- compass
- 5, 30 and 50m tapes
- red/white ranging pole
- digital camera
- artefact scale bars (1cm increments)
- feature record and object record books
- GPS
- Dumpy equipment (automatic level)

All other equipment was left at the camp. Teams returned to camp at designated times for safety reasons.

ARCHAEOLOGICAL FIELDWORK

In order to interpret and understand the Lock Hospital Scheme, archaeological assemblages which had accumulated during the Lock Hospital operational period (1908-1918) on Bernier and Dorre Islands were firstly located and then recorded.

SURVEY METHODOLOGY – FINDING SITES

To address the aims of my research, two primary sites were chosen for archaeological surveys. Both were recorded in the historical documents as the locations of where the hospital buildings were built. The Dorre Island Hospital was recorded as lying at White Beach Landing and the Bernier Island Hospital Ward at Hospital Bay. Their exact locations along these large bays were not known nor were the Aboriginal campsites. A few photographs and architectural plans of the hospitals were known but gave little information as to the exact location of the sites.

Little information could be obtained from the local people of Carnarvon and Shark Bay as there is little visitation to the islands, and nobody lives there. Very little data could be obtained from cartographic sources or aerial photographs as they were of poor quality, taken from a high altitude and dominated by vegetation.

The primary method of fieldwork in this study was surveying and recording of the location of sites, and of the artefacts associated with them, particularly in relation to the hospital and Aboriginal sites. Traditionally, site surveys or analysis of surface remains are made for the purpose of selecting sites for excavation, rather than providing the solution to a research problem (Binford 1964; Redman 1973). A number of circumstances contributed to the site survey being the most appropriate primary method for this research. The islands are ‘A class reserves’ and as such no disturbances of flora, fauna or natural features are allowed. Because of the cultural issues arising from the fact that many of the people taken to the hospitals died and were buried on the islands, and the wishes of Indigenous people with custodianship of the islands, the Lock Hospital sites and surrounding Aboriginal sites remained undisturbed. Little contamination of the site was expected as there is no record of people living on the islands before the Lock Hospitals were set up, or after their closure. The only visitors to the island are CALM officials, people doing research on the native flora, fauna and landscape and the occasional fisherman sheltering from bad weather.

The survey was undertaken using a targeted area of Bernier and Dorre Islands, in other words purposive areas identified from historical documents were chosen for survey. The blue areas on Figure 7.1 show the areas that were purposefully chosen. These areas are larger than those areas mentioned in the archaeological record so that

the wider survey footprint could be engaged to ensure that some of the biases in the literature could be checked. However, as a result of the lack of specific information, 100% of the whole area surrounding the bays was searched in the first day of field survey using a series of pedestrian transects. Pedestrian survey includes, each person walked over an area in order to observe, record and map archaeological traces, structures and landscape features (David 2006:9). Systematic searching and the mapping of distributions of such material can identify foci of activity, which help to define settlement or industrial sites, as well as identifying the broader character of landscape usage (David 2006:9). The site surveying method used has been described by Patterson (2001) and Burke (2004). On Bernier Island surveys were undertaken in a north south orientation at approximately 50 meters apart and on Dorre Island at the same spacing but in an east west orientation. This methodology was sufficient to find the general locations of the Lock Hospitals and any large sites such as structures, rubbish dumps, remnants of inhabitation. Fortunately the general location of the Lock Hospital sites was quickly established and areas within the Lock Hospitals were targeted for a more detailed survey (see below). Due to the size of the islands, the limited expedition time, and the amount of artefactual material found close to the hospital sites, the targeted surveys concentrated on the two pink areas in Figure 7.1 It is likely that sites are situated outside this area, but given the constraint on access time we were unable to look at any other areas. If such sites are found, it is not known whether they may add to or contradict the findings of this research. However, this research never attempted to find out everything about the Lock Hospital Scheme on the islands. The lack of research on the Lock Hospital Scheme prior to this research would have made that a daunting task.

In the more detailed survey the team first walked across the site to familiarise themselves with the landscape and the layout. The site was then surveyed in transects approximately 5–10 metres apart. Each person covered their transect or area marking and labelling any features with flagging tape and making notes of artefacts present, and the location of the site. Where a concentration of artefacts was identified in the open, the area immediately surrounding it was subject to a thorough visual inspection by two or more people to ensure that, to the greatest possible extent, all artefactual material present was identified. The survey methodology of walking transects across the landscape and recording objects or structures could have missed small objects but the spacing of surveyors meant that no large sites or features of importance were missed within the survey area.

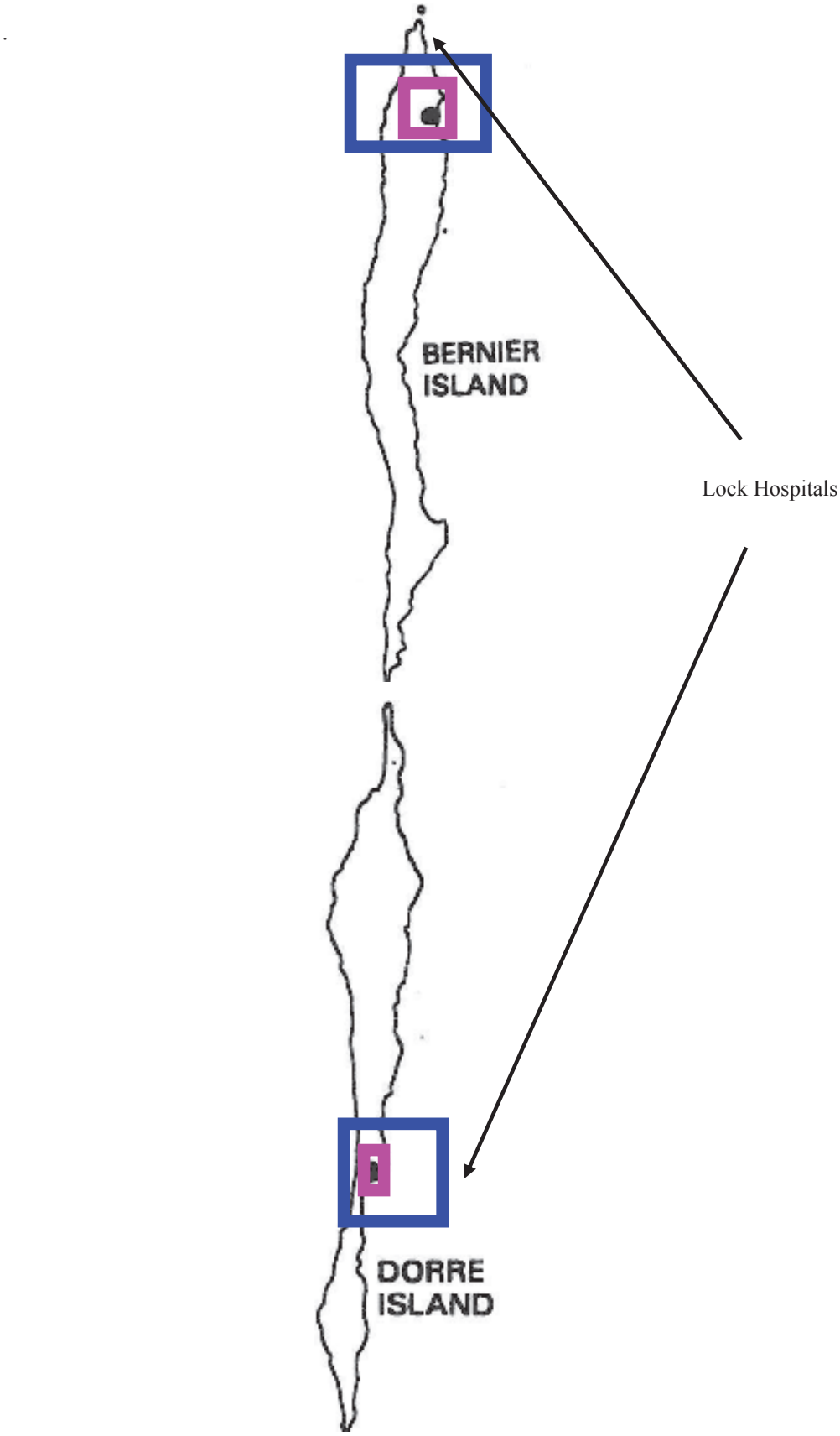


Figure 7.1. Bernier and Dorre Islands and the locations of the Lock Hospitals. The marked areas indicate survey areas. (Modified from Mulvaney 1989:184).

If a site was difficult to access due to distances from the hospital site, weather or terrain, GPS readings were taken immediately and the site and its artefacts photographed and recorded. Once the initial scouting of sites was completed each site was revisited to record data accurately. Written and pictorial or photographic evidence was collected at all sites visited. All archaeological sites were drawn on field recording sheets, (feature records and object records) and descriptions and illustrations were made of sites where structures were visible. 'Feature records' (Figure 7.3) are recording forms on which features like artefact scatters, outlines of fences, outlines of buildings were recorded while 'object records' (Figure 7.4) are forms on which objects consisting of small artefacts like ceramics, clay pipes etc were recorded. Object records are particularly important for documenting inscriptions, patterns or makers' marks on artefacts that do not show up well in photographs. In addition, photographs were taken of each site and its artefacts. Satellite positions (GPS readings) and dumpy surveys were recorded for every site. These are the data that were subsequently analysed in response to the aims of the project. Natural resources, living and non living, were also noted while surveying in order to determine what was available to people living on Bernier and Dorre Islands.

JUSTIFICATIONS FOR NOT EXCAVATING

Constraints of the s16 (governmental approvals to do archaeological work on the islands) and the CALM permit to work on A class reserves, as well as the wishes of the custodians of the islands (the Malgana Native Title Group) meant that excavations were not permitted.

To many people archaeology simply means excavation (Grant *et al*. 2005:27), however excavations should only be used when all other means of gaining the information for the research questions have been ruled out – that is because excavation destroys sites. Detailed surface recording may provide as much information if not more than targeted excavation. Usually excavation is used to determine change over time or to find out something within a particular stratified layer – this is not the case with many historical sites especially that on Bernier and Dorre Islands where the period of occupation was know and contained to a 10 year period. In most cases, with such a short period of occupation sedimentary deposit has not had time to accumulate and thus the majority of artefacts are found of the surface. The exception to this would be if a major event usually in the form of a natural

diaster. No records record any such event. On Bernier and Dorre Islands, the artefacts have sat untouched for 100 years, a short time in archaeology, and a short time in sedimentary deposition of geological layers. This meant that artefacts were unlikely to be deposited sub – surface, and the lack of movement of artefacts by large animals or people and their activities also limited the potential for artefacts to be moved below the surface. The only possible exception to this may have been in areas where the dune system is moving and may have covered some of the artefacts. However, as any archaeological research is based on a sample, my sample could therefore be limited to the surface artefacts.

Because the archaeological assemblages occur as exposed surface sites and no attempt was made to detect change over time in the archaeological record (which is commonly done through excavation) all the aims of the research were easily addressed by the artefacts found on the surface.

SPATIAL RECORDING OF SITES

General site surveys of the bays containing the hospital sites and the landscape of surrounding areas were carried out to establish the context for the detailed recording of the feature sites. Existing 1957 aerial photographs, DOLA images and GoogleEarth 2007/8 maps of the study region were used to record spatial relationships between the location of archaeological sites and features of the physical landscape. Historical plans of the site were also consulted. The initial aim of the project did not include the mapping of topographical features such as the bay, sand dunes and ridges, but it was found that these features were significant in understanding the sites.

The planar and vertical dimensions of the hospital site as a whole and its subcomponents were then determined. All features within the main site were recorded. Measurements for distances and heights were taken with survey equipment (dumpy) from the south east corner of a structure, unless the boundaries of a site were undefined, in which case the centre of the feature was used as the origin and this fact noted while recording. GPS readings of the latitude, longitude and altitude of each site were taken twice with different instruments. The spatial GPS readings were used to cross check the accuracy of the dumpy readings. If the site was a considerable distance from the main site or inaccessible for dumpy readings, only GPS details were recorded.

FEATURE AND OBJET RECORDS

Two types of recording forms were used during fieldwork, feature and object. A number of different items were recorded on the feature record forms. These included site name, type (see below), description, interpretation, dimensions, boundary, visibility, slope, integrity, weather, date and name of recorder and a diagram of the feature or site.

Each record included the names of the recorders, and the date and time, to allow for the recall of the appropriate personnel for clarification, if necessary, during the analysis phase. Weather conditions were also recorded for the possible impact they may have had upon visibility, contrast and the detection of disturbances of the natural landscape. The apparent degree and type of disturbances, whether by humans, animals, plants, rainfall, wind or other weather conditions, of each site were also recorded to determine the integrity of the site.

An alpha-numeric system was used to identify sites. The alphabetical prefixes indicated locations. These could be literal such as C for campsite, H for hospital sites, or completely arbitrary. Within these, other letters were assigned to assist with identification of the recorders. The numbers indicate the order in which sites were recorded, thus each site or feature had a unique identifying code.

Each site was described as one of the following types.

- General cover – characterised by a spread of artefacts across the site
- Scatter – a discrete area displaying a variety of different artefacts
- Cluster – a discrete area displaying the same type of artefact
- Single artefact – an artefact not associated with any structure or artefact
- Structure – a formation or the remains thereof of artefacts that have been used to create a structure eg, buildings, fences, dams
- Dump – highly localised raised mounds near European settlements resulting from rubbish disposal
- Other – none of the above

The presence or absence of artefacts associated with each feature was noted on the form.

When recording features (sites, artefacts, assemblages) as much detail as possible concerning the location, its relationship to surrounding features and topography, visibility and accessibility was included. Enough detail was recorded to enable features to be identified by other archaeologists returning to the site.

In order to establish the trends in spatial distribution of archaeological material and to interpret activity areas the following characteristics were recorded: the densities of deposits, evidence of activities such as cooking, hospital function or tool making and the ratios of European/Aboriginal artefacts in each area. Tentative interpretations of the identity of features were also noted. For example, a structure was tentatively identified as a stable on the basis of the presence of horse shoes, or a hospital on the basis of the presence of medical equipment.

The dimensions including the maximum length, width, height or depth (for wells) of features were recorded in metres. These measurements were taken with measuring tapes. The boundary of a site was defined by the end of the most outlying artefacts. For features with defined edges the edge dimensions were taken as the boundary of the feature. For features where the boundary of the sites was hard to determine, the maximum length and width of an area covered by artefacts were measured at right angles, to encompass the largest possible boundary.

The visibility of a site was defined by how much of the ground could be seen. For example, ground cover such as shrubs could prohibit visibility of a feature or of artefacts. The visibility was assessed as a percentage, 100% visible if there were no obstructions and a decreasing percent with more obstructions.

The inclination (angle of the slope) of the terrain for each feature was recorded. This was of particular relevance to this field work, as much of the site was in sand dunes and artefacts could have been moved from their original position by gravity. The slope of a site was measured in degrees and described and categorised in terms of none, gentle, moderate and steep. A guide to estimating slope which was used in the site survey is shown in figure 7.2. The direction of the slope in terms of compass bearings was also recorded to aid in site map drawings.

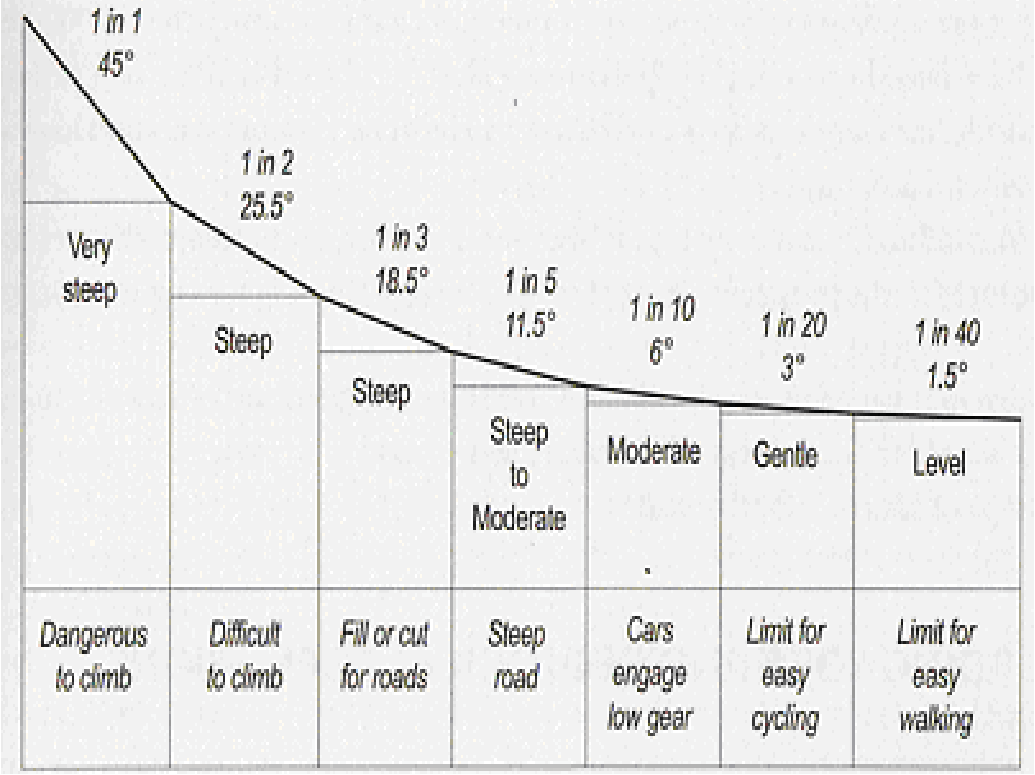


Figure 7.2. A guide to estimating slope by eye. (Taken from Burke and Smith 2004).

A rough sketch map was drawn of the outline of each site and the location of each feature and all the artefacts associated with each of the features recorded. Measurements derived from compass and tapes were marked upon this map, locating the sites and features in relation to each other and to the topography. The types, amounts, densities, and proportions of artefacts were recorded at each feature. An example of a feature record is seen in Figure 7.3.

Object records (Figure 7.4) were made for all artefacts or features deemed significant or relevant to the aims of the research or which had aspects to them that could be dated, provenance determined, or identified. Artefacts were drawn and details of their size noted on the object record. Each was photographed and the photograph number recorded next to the sketch of the object. An initial interpretation of the artefact was also made. The sheer volume of artefacts and time constraints also meant that not all specific data were recorded for all classes of artefacts and questions about specific classes of artefacts may not have been answered. To the credit of this research, questions about specific attributes of artefacts were not really needed, as the intent of the research was to give an overall generalised view of life on the islands for the different groups of people.

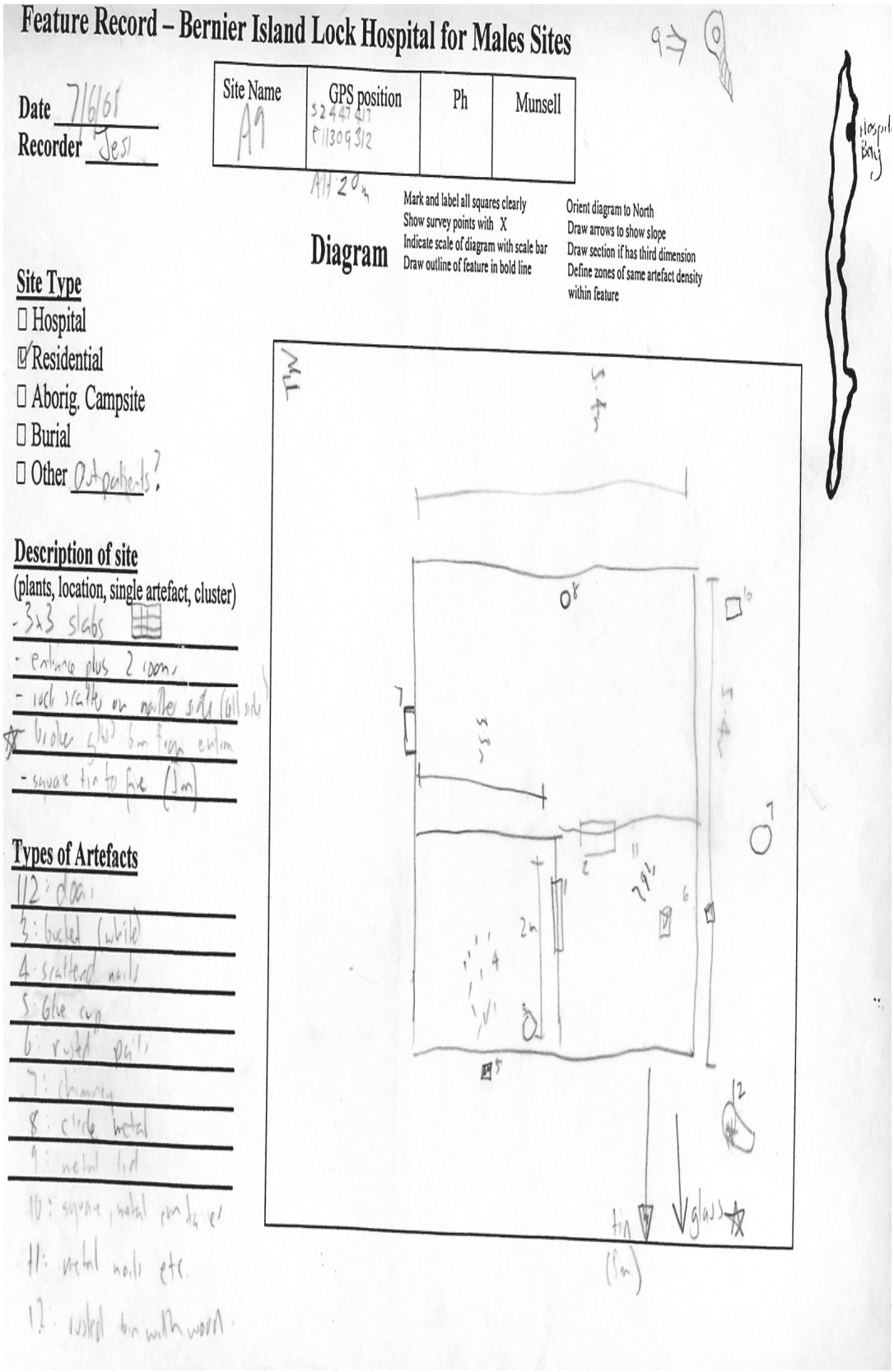
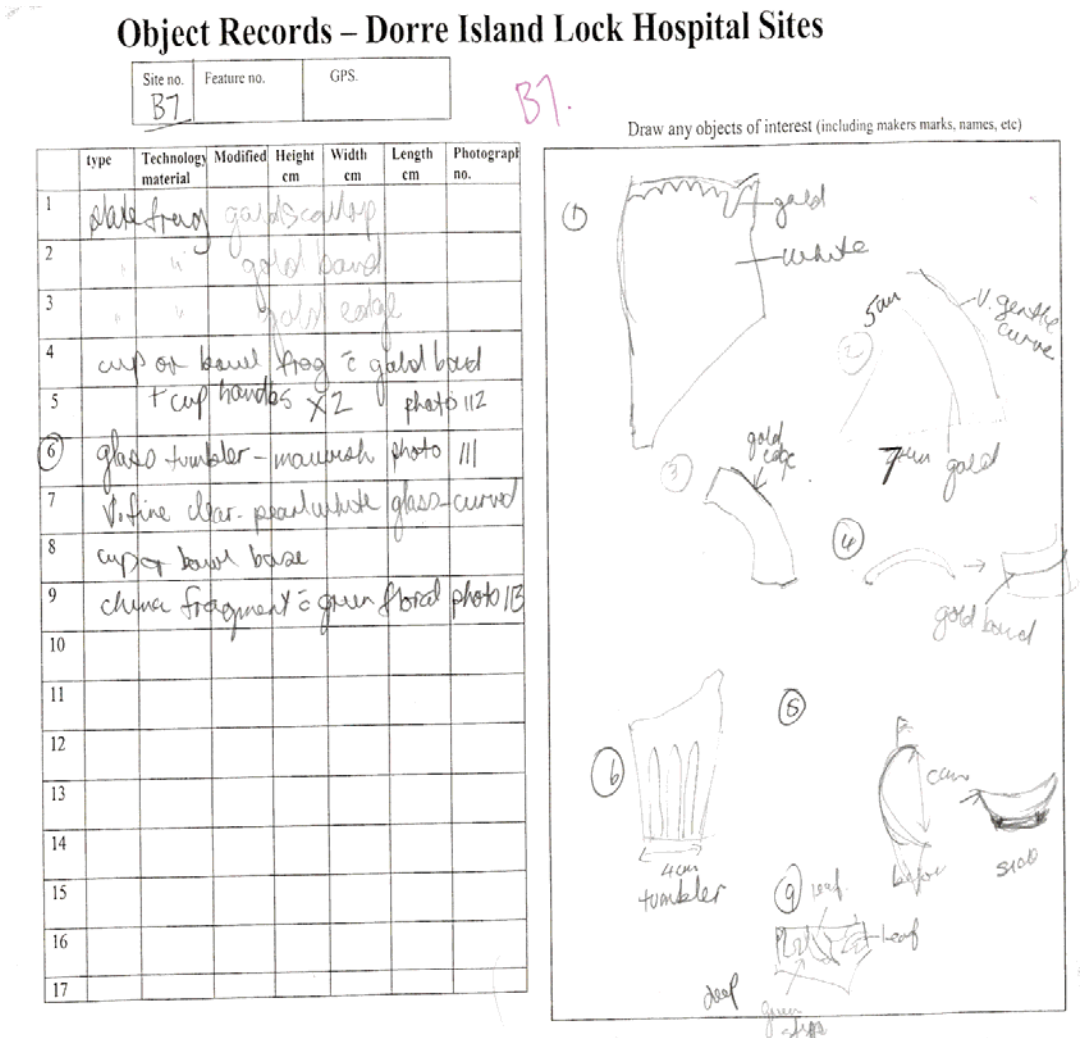


Figure 7.3. An example of feature record recording information like site type, description, GPS reading, pH, soil type, diagrams of sites etc.



Object Records – Dorre Island Lock Hospital Sites

Site no.	Feature no.	GPS.
B7		

	type	Technology material	Modified	Height cm	Width cm	Length cm	Photograph no.
1	plate frag		gold scallop				
2			gold band				
3			gold edge				
4	cup or bowl frag c gold band						
5	cup handles x2						photo 112
6	glass tumbler – manmish						photo 111
7	fine clear pearlwhite glass curved						
8	cup or bowl base						
9	china fragment c green floral						photo 113
10							
11							
12							
13							
14							
15							
16							
17							

Draw any objects of interest (including makers marks, names, etc)

Figure 7.4. An example of an object record recording particular artefacts, their corresponding photograph numbers, size of artefacts etc.

SAMPLES

Samples of the soil from each site were taken for later determination of pH, soil type, texture and colour (Munsell colour chart test) so that possible influences and biases on preservation and condition of the material could be assessed. Samples were also taken from artefacts that may have provided information relevant to the aims of the study. For example

- medical bottles, ceramic containers, and pieces of medical equipment were wiped with damp cotton swabs in an attempt to determine the nature of the substances they had contained
- small pieces of charcoal were taken to test types of wood which had been burnt

Swabs taken from the artefacts were examined with a scanning electron microscope in the Centre for Archaeology at the University of Western Australia to determine the presence of residues and compared to known samples of substances such as animal blood, fibres, plant materials and chemical compounds. (Described in further detail below). Charcoal and burnt wood pieces were examined by microscope at the Centre for Archaeology at the University of Western Australia and compared to known samples.

All recorded material, including site maps, photographs and feature and artefact record sheets were analysed upon return to the Centre for Archaeology at the University of Western Australia.

ANALYSIS OF ARCHAEOLOGICAL DATA

The analysis of artefacts from archaeological research is a multistage process, of which the cataloguing or description of attributes is only one step. Subsequent stages of analysis and interpretation are of equal importance. A database inventory of all sites and artefacts was established and each entry assigned a unique identification number. Appendices D and E shows inventories of artefacts and of sites on Bernier and Dorre Islands respectively. All data were assessed in terms of spatial locations, artefact classification (class and type), artefact identification and interpretation and statistical analysis of the data and its comparisons.

SPATIAL ANALYSIS

The study of spatial analysis and settlement patterns in archaeology consists of examining the pattern of distribution of archaeological artefacts or sites in relation to one another, to other communities and in relation to the physical environment (Deetz 1996:89-90). It examines how and why archaeological remains are distributed across space, the reasons for their distribution and why people chose to locate or discard particular objects in particular locations across this space. It looks at the relationship between the ordering and organisation of space for social purposes, and helps us to understand the power rules, the environment, and where activities took place.

When looking at spatial patterns in any environment it is evident that not all of the environment is equal, and some areas may be given a higher value by some groups than others. By favouring some groups over others the built environment contributes

to maintaining the social order of stratification (Paynter 1982:1). Such examples include cases where parts of the environment provide better resources, which may even include aesthetic views. Usually such prime areas are limited, and it is assumed that those of higher social ranking or power exploit them to their benefit. The notion of settlement patterns and their relationship to power struggles is not new in archaeology but it is a source of clues to the social stratification in a given community and a useful tool for interpreting history (Paynter 1982:1-2). (Refer to Chapter 2 for more detail).

Obviously physical as well as social considerations will affect the use of locations within the built environment. For example, some structures may be constrained in their placement due to where it rains or the need for protection from the elements. Cultural considerations may also have an influence, as people choose to live and set up activities in particular places due to tradition and symbolism, or to avoid areas because of taboos. The theory of spatial analysis is that most things are patterned in regular ways because space is culturally determined and people respond to the changing natural and social environment in accordance with their culture (Deetz 1996).

In this study analysis of spatial analysis patterning was sought to determine

- the distribution of sites across the landscape
- the relationship between sites and features of the landscape
- the relationship between sites
- the distribution of artefacts across the sites
- the distribution of artefacts within each site
- the frequencies of different types of artefacts

Each of these aspects was recorded on maps of the site and the islands with the assistance of GoogleEarth versions 2007 and 2008.

ARTEFACT CLASSIFICATION

The cataloguing or classification process is essentially a descriptive one, in which a series of observed variables is noted, identified and recorded (Lawrence 2006:364). The attributes of an artefact relevant to the dimensions of space (where the artefact was found), form (shape, size, colour, weight, material, pattern, manufacturing

technique), time (age of artefact), integrity of the artefact (intact, fragmented) and assumed functions (domestic, architectural, leisure etc) were recorded. During this process similar artefacts were recorded and grouped together to create a number of different types and classes of artefacts. A class of artefacts is a general term for a group of objects with similar characteristics. Examples of classes are organic remains, ceramics and glass objects. Type is a sub division of a class defined by a consistent clustering of attributes (Thomas 1999:367), for example glass bottles, ceramic plates. Types and classes are abstract constructs created by archaeologists to make sense of past material culture (Thomas 1999:102). The use of types and classes saves the time of individually listing thousands of individual artefacts. Of course, each artefact may be defined in a number of different ways. For the purpose of this research each artefact was defined in relation to its assumed function, such as medicine bottles, organic material, structural equipment and so on. These types correspond to the types of artefacts needed to answer the questions posed by the research. The classes of artefacts used in this research correspond to the categories set out in Table 7.1. Once an artefact had been attributed to a type it was then compared to known reference material.

Table 7.1. Classes and types of archaeological material used in this research.

CLASS	TYPES – DESCRIPTION OF MATERIAL
Lithics	Glass and stone tools
Organic material – plant	Charcoal, plant remains, wood
Organic material – animal	Shells, faunal remains
Structural equipment	Corrugated iron, nails, bricks, asbestos
Personal items	Jewellery, toys, instruments
Ceramics	Earthenware, stoneware, porcelain
Glass vessels	Alcohol, food, chemical
Metal containers	Tins for preserving food, tobacco, beverages, matches
Clay pipes	Stems, bowls, makers marks
Clothing	Buttons, shoes, fasteners
Pastoral equipment	Fencing posts, fencing wire, tools, horse equipment
Medical equipment	Microscope slides, medical bottles, test tubes, needles

The classes of archaeological material listed above provide the specific information needed to interpret assemblages. The classes of artefacts used in this study provided information concerning the timing and use of a range of sites.

IDENTIFICATION AND INTERPRETATION OF ARTEFACTS

In archaeology artefacts are used to inform us about past lives of people. Analyses informing these issues arise from understanding the attributes (morphology, style, raw material, technology) of each artefact. These attributes can give us clues as to how the artefacts were made, how they were used (pragmatic, educational, spiritual), what type of raw material was used, where the artefact may have come from and who was likely to have used it.

Analogy may be used to deduce the nature of an artefact or its use, by comparing similarities in morphology of a discovered archaeological artefact to those seen in use in the present or as recorded in history. Weaknesses with the use of analogies for identification include the tendency to restrict ideas, and the assumption of uniformity of behaviour over large time scales and across cultures. Fortunately, the problems with analogy have been reduced (although not eliminated altogether) in this study because the period from which the research artefacts were drawn are from living memory and, to some extent, the practising cultures involved in the Lock Hospital Scheme still exist.

The analysis and dating of artefacts is based on the idea that the technology that creates artefacts changes over time. Examples include the fact that nineteenth century glass often had a purplish cast caused by sunlight reacting with magnesium oxide. After World War I magnesium was not added to glass and the purple cast no longer developed. Before 1830 the fibre of the metal ran cross ways to the axis of a nail while after 1830 it ran lengthways (Thomas 1999:109). A discussion of each of the artefact classes used in this study, how their attributes were distinguished and how meaning was attributed to them will be presented below.

LITHICS AND GLASS TOOLS

Lithics are materials associated with traditional Aboriginal tool making, and as a class include both the tools and the debris left over from their manufacture (stone tools, scrapers, cores, flakes). Archaeologists use lithics because they preserve well, because they play a role in day-to-day survival by their use in shaping the physical world to human needs and because they signify to others identity and place in the world (Clarkson and O'Connor 2006:160). Together they constitute a vast and invaluable record of the enormous diversities of strategies people have devised to make a living,

solve common problems, communicate, live and compete with one another (Clarkson and O'Connor 2006:160). In historical contexts Aboriginal flaked artefacts can be made from glass as well as stone. Glass material is readily available, breaks easily and produces sharp edges. For many Indigenous populations such as the Aboriginal people of Australia, glass was used in addition to, and often replacing, traditional stone tools (Lawrence 2006:374).

However, both naturally broken glass and purposely flaked glass can be useful as a tool. My criteria for differentiating the two are based on Allen and Jones (1980:231) and include the amount of bottle wall attached to the base, the use of thicker parts of bottles, the presence in a collection of a high percentage of identifiable struck flakes, and evidence of retouch or modification of the broken glass object. The immediate environment in which artefacts are found also provided the best guide to their origin (Allen and Jones 1980:231), such as glass being found in camps and near shell middens.

A number of features of flaked materials were observed and recorded in this study. These included the type of material (stone, glass), colour (green, blue, brown, grey), size, shape, technique of manufacture, evidence of retouching (that is serration or sharpening for a better cutting edge), assumed function, whether both sides had been worked, any evidence of natural breakage and evidence for how they were used (e.g. attached residues or hafting materials).

In relation to the glass flaked tools encountered in this study the portion of the bottle used, the orientation of flaking the bottle, platform preparation and flake scar size and whether the worked surface was on the interior or exterior of the bottle were recorded (Lawrence 2006:374-375). Any information about the original form (bottle shape, colour, manufacture, age, lettering) of the bottle was also recorded. Whether the glass was broken to make tools by percussion or by pressure was noted.

The practice and technique of making flaked artefacts can be highly indicative of particular Aboriginal groups or regions. The Kimberley point, a stone or glass tool highly distinctive of the Kimberley region of Western Australia, is one example of this. The fact that tools are highly characteristic of particular groups was especially important in this research, as people from different regions were sent to the islands.

Distinctive features of tool types and styles of manufacture may be taken as indication of the continuance of traditional regional practices on the islands.

Glass tools were handled carefully during recording and photography so that residues and use wear analysis were not compromised. (See later in this chapter).

ORGANIC REMAINS – FAUNAL REMAINS

Organic remains in the archaeological record are usually poorly preserved, as they tend to break down over time due to the natural decomposition and processes of weathering and destruction by animals. However, in anaerobic and always-dry or always-wet conditions and in sites that are not too old, they may be well preserved. While it is almost impossible that every faunal remain should be preserved, at most sites whole bones as well as degraded bone fragments can be expected to be present. It was impossible to record all faunal material at the site, and much of it would not be diagnostic. Only faunal remains of teeth, bones and shells with distinctive features and in good condition were recorded. The basic goals of faunal analysis are to

- estimate the relative abundances of different animals
- estimate the abundances of parts of animals, and hence to reconstruct age and sex at death of animals which may give information concerning seasonality of hunting or strategies used in hunting
- to identify surface modifications (butchery marks and burning)
- to estimate potential yield of animal meat

(Modified from O'Connor and Barrett 2006:278).

To these ends details of the skeletal remains located in this study were recorded in terms of the identity of the skeletal element or part thereof, the side of body from which it was derived, species, age and sex of the animal from which it was derived (if possible), the extent of weathering, the presence of marks due to burning, cooking, or the activities of non-human predators or scavengers and any evidence of pathology.

The identity of the skeletal element or bones found was recorded to determine the parts of the animal favoured for eating.

The side of body was recorded to gain an understanding of how many animals were represented at a site. For example, if two right femurs were found, it can be concluded that more than one animal was present.

Identification was only to the genus level. Fortunately, as the island is separated from mainland Australia, there were relatively few species to be distinguished. Some were native to the islands (marsupials, birds, fish and reptiles) and some introduced by humans in the twentieth century (sheep, goat, cattle and horses).

Age indicators were taken in terms of the extent to which fusion of the growth plates (epiphyses) in the bone had taken place, and by tooth development. In both cases the age which each bone fuses and each tooth erupts was determined from known age databases. For the purpose of this research it was sufficient simply to distinguish whether the individual was juvenile or adult.

The sex of an individual was determined by looking at the overall size of the bones, and differences in the features representing secondary sexual characteristics like the shape and size of the pelvis, horns and teeth. Sex and age of an animal can yield information about hunting strategies. For example, in favourable environments the choice hunts are of large adult male animals, but when there is pressure on these resources in unfavourable times the young and female animals may be hunted. For example, Binford's (1978:85) study of the Nanamuint suggest that the number of animal males killed in summer when the environment is harsh if far below those killed in spring and fall when the environment is favourable. However, it is equally as likely that the selection of an animal is based upon the choice of the hunter and these ideas do not always apply.

Cut marks or signs of western tools used for butchery can be detected on bones by the abrupt termination of the bone at a sharp angle or by V-shaped grooves on the shaft of the bone (Figure 7.5). Burnt bones are characterised by their colour (black, grey or white depending on heat of fire) (Figure 7.6). The presence of cut and burn marks on bones indicates human activity, as does over representation of the parts of the animal in an assemblage, reflecting the preferred cuts of meat.

Figure 7.5. Bones with evidence of western tool cut marks. Cut long bones (left) and pelvis from domesticated animal (right) (photographs taken from Stingemore 2005).

Figure 7.6. Bones with evidence of fire. Note the black, grey and white discolouration (photographs taken from Stingemore 2005).

Predation or scavenging are characterised by gnaw marks at the ends of bones, splintering and splitting of bones and areas of isolated or grouped marks in dense patches (O'Connor and Barrett 2006:282). Tooth marks from other animals indicate that the bone may not reflect human activity. Tooth marks were not likely to be encountered on the bones in this research given that there are no known native carnivore predators on the two islands and only two domestic dogs were recorded on Dorre Island (Battye Library 21085P and 3185B-9). The total absence of marking may indicate natural deaths.

Signs of pathology and trauma on the bones were sought to determine the presence of disease or inherited disorders which may explain the animal's death.

The extent to which the material was weathered was also considered in order to understand the preservation or absence of other materials in the same deposit (O'Connor and Barrett 2006:283).

The species from which bones were derived were identified from reference collections in the Archaeological Laboratory at the University of Western Australia

and from numerous published journals and books on zoology and zooarchaeology (Davis 1987). The relative frequencies and locations of different types of animal bones in assemblages was also recorded to determine the presence of particular activities like cooking areas, collection areas.

Marine shells, common in colonial period historical sites in Australia and elsewhere (Colley 2005:71), give valuable information about what types of foods were being eaten. Shells may also be used as functional resources (in walls and building pads or to manufacture lime) or ornamental objects (jewellery). At many sites it was not possible to identify every shell fragment due to poor preservation, fragmentation and the large number of shell species typically present in Australian waters (Colley 2005:72). In many cases only the family name or even the common name was used as identification. Shells were identified from reference material (Wye 1996) and personal collections. Shells were examined for the presence or extent of burning, degree of preservation and the presence of intentional holes and the edibility of the creatures from which they were derived. Middens that contained large quantities of the same species of shells, artefacts, charcoal and bone with limited shell grit and shells worms were taken to have been food sources. Modified shells found in isolation at sites were taken as ornamental. The relative frequencies of shells, the types of shells found, the distance from a local source and whether the shells appeared to have been used for subsistence or for personal adornment were noted. Other artefacts were examined for evidence of shells in the mortar or paving.

ORGANIC REMAINS – PLANT REMAINS

Plant remains, like faunal remains, are usually poorly preserved in the archaeological record. The analysis of plant remains is usually by macroscopic examination of seeds, fruit, wood fragments, charcoal, leaves and branches. Plants provide information concerning what people ate and what they used for fuel, housing and transport.

Because it was unlikely that many plant remains would be preserved in the archaeological samples in the conditions of this study, living species on the island were recorded to get an idea of the types of material that may have been eaten or used. Characteristically, the easiest parts of a plant to identify are the flowers and the fruits or seeds, but not all plants were flowering or had fruit when the research was undertaken, so plants were photographed and compared to known samples on the WA flora database and that of Ride's (Royce 1962) recording of plants on the islands in

1957. Plants were also classified as native or introduced. Native flora were further classified according to their potential use as food sources, medicine, utility or shelter as described in published accounts of use by Aborigines and Europeans.

STRUCTURAL EQUIPMENT

Structural equipment generally makes up the majority of artefacts found at an historical site (Lawrence 2006:362). A variety of structural items such as timber, asbestos, terracotta pipes, concrete slabs, nails, corrugated iron and bricks are commonly used as building materials. The particular types of building material found at sites are indicative of location, tradition, ethnicity, availability of resources, weather conditions, terrain and possibly economic factors (Lawrence 2006).

METAL OBJECTS

In many archaeological contexts metal objects like nails, pipes and corrugated iron are overlooked because, in contrast to their durability and toughness in everyday use, they corrode rapidly once in the ground or underwater (Lawrence 2006:363). Nails, however badly corroded, can provide important information. Historically, nails are generally made of iron and can be hand or machine made. The length and thickness of nails depends upon their purpose (Lawrence 2006). Long, thick nails provide strength and support and are commonly used for holding together building material whereas than smaller, thin nails are used for furniture, shoes and small objects. Nails located in this study were analysed in terms of whether they were handmade, or machine made and their material substance. Size and shape were measured to ascertain function. Their association with a feature or another artefact was also recorded.

Pipes also provide information concerning the substances they contained. As with nails, the size of the pipe gives a clue as to use (e.g. moving water). Pipes were analysed in terms of size and shape to ascertain function, what they were made of, and if they were associated with any features.

Historically, corrugated iron has been used for numerous purposes in the Australian context, including the construction of walls of houses, sheds and fences. It comes in different shapes and sizes, depending upon the manufacturer and its designed purpose. It is generally produced in sheet form and may have perforated holes where it has been nailed together or to other objects. Corrugated iron located in this study was

analysed for the size of the corrugations, the size (height, width, length) of the sheets and whether they showed signs of attachment to any feature or object.

As no known raw metal ores are available on the islands to make these products it was assumed that they were imported either from the Swan River Colony or from interstate. Maker's marks or design features were analysed in an attempt to identify specific manufacturers.

BRICKS

Bricks are made with relative ease in many locations around the world. They can be made at the construction site if it contains clay-bearing soils, or from clay imported from other sites. Bricks can be made by machine, or by hand by shaping wet clay into a mould, drying and firing. Bricks from different sources display a characteristic range of grain sizes and small pebbles and may bear evidence of the mode of manufacture in striations left from the mould, cut marks or hand and fingerprints of the maker (Lawrence 2006:378). Manufacturers frequently marked their bricks with their names or brand names and these can be dated by reference to historical documents (Stuart 2005:81). Handmade bricks are more likely to show inconsistencies in firing, as some bricks can essentially be over fired (dark in colour) or under fired (powdery and pale). After the late nineteenth century nearly all bricks were machine made. Steam driven mould machines and dry presses took over the shaping of the bricks and left specific marks on them including maker's marks or designs incorporated into the mould. The firing of bricks in automatic kilns improved the consistency and quality of bricks in the late nineteenth century, but these did not leave characteristic marks. Attributes used to determine the date of manufacture of bricks included the nature of the frog (indents), manufacturer's marks, and size (Stuart 2005:81). The size and shape of bricks also indicate the type of function to which they may have been put, such as thick and sturdy for walls, thin and flat for garden paths and large and strong for housing pads or foundations of houses.

As no known clay sources for brick making were available on the islands it was assumed that bricks would have been imported from the Swan River Colony (Belmont Brick Houses) or from interstate. To ascertain a more specific origin they were further analysed for their mode of manufacture (hand moulded or machine made), size, shape and the presence of designs or maker's marks.

TIMBER

The presence of timber at a site usually indicates some type of structure. Timber found in this study was analysed for size, shape, type of wood and evidence of associated artefacts such as nails and concrete to determine function. It was noted whether the timber was derived from local or imported trees.

All other structural or building materials such as asbestos sheeting and concrete were recorded, drawn and photographed and their possible function determined.

CERAMICS

From their abundance or rarity, their place of manufacture, or the purposes they served we can discern much about the life and time of the owners of ceramics (Deetz 1996:70). Ceramics are highly valuable in archaeological analyses because of their relative stability and durability. They also encode considerable social information (Lawrence 2006: 363). Because of the way ceramics are used in daily life and because of their plasticity and amenability to decoration they carry information about a wide range of aspects of social life such as trade, gender, class, culture, technological change, beliefs and ideology (Lawrence 2006: 363). Ceramics, are often documented in contemporary records including price lists, advertisements, patent information and manufacturing instructions that provide information about the companies or people who made the items, when and where they were made, how they were made and how much they cost (Lawrence 2006:363). As well as this, a plethora of published books like Godden (1991), Honey (1945), Brooks (2005) and other historical documents contain lists of ceramics produced and information about the manufacture. Many internet sites produced by ceramics companies list products past and present.

Ceramics and ceramic sherds located in this study were analysed on the basis of ware type, (earthenware, stoneware and porcelain), decoration, form and manufacturer where possible.

Earthenware is the most ubiquitous type of ceramic, manufactured by local craftspeople and at large factory centres (Lawrence 2006:364). It is comprised of clay that may be either coarse or refined, but fired at a comparatively low temperature between 900 and 1150^{0}C (Lawrence 2006:364). Clay does not vitrify at these

temperatures and, as a result, unglazed earthenware remains porous and permeable to liquids (Lawrence 2006:364). At the time of the Lock Hospitals most earthenware for domestic and medical use was glazed with lead sulphides or lead oxides, with additives to impart colour or opacity (Deetz 1996:69). Creamwares were commonly found in domestic settings, used every day and may have been plain or have applied transfers such as willowware or gold rimming.

Stoneware is produced from similar clays to earthenware, but is fired at a higher temperature 1200 - 1300^0C, so that the clay becomes vitrified and impermeable to liquids without requiring a glaze (Lawrence 2006:366). Most stoneware was given a salt glaze probably to produce a smoother, glassier more aesthetically pleasing surface (Lawrence 2006: 366; Deetz 1996:69). Stoneware has often been made into containers for storing and transporting liquids because of its durability and strength (Lawrence 2006: 366). In Australia almost all stoneware was made either for storage vessels or for sewerage fittings (Brooks 2005: 33).

Porcelain is the most refined and highly fired ceramic, made of fine white clay called kaolin and feldspar and fired at 1250 - 1400^0C (Lawrence 2006: 366). It is hard and impermeable (Deetz 1996:70). It may be glazed or unglazed and is mostly used for table or tea wares. It is frequently decorated with oxides which are fired onto the surface at lower temperatures than the original firing of the body. It is considered to be one of the more expensive and rare (due to the cost of product) ceramics, having more of a social than a practical function (due to it being used for ornamentation rather than use because of the above), less likely to be used in the first place, more likely to be taken care of and more likely to be passed down from generation to generation (Deetz 1996).

Bone China is a kind of porcelain that has been fired at high temperatures so as to resemble true porcelain. It is usually thin, well made and found in association with sites inhabited by people with access to many goods. Bone China wares may be ornamental pieces or objects of special use.

The ceramics located in this study were classified according to form (cup, plate, bowl, jug etc), assumed function (type) and uses recorded in historical documents. The presence or absence of glaze and glaze colour were also recorded, as were the presence of patterns, their colour and position underneath or above the glaze. The

nature of the clay itself, its colour and size of granules was recorded. Any inscriptions, diagnostic designs or maker's marks were also recorded (Figure 7.7).

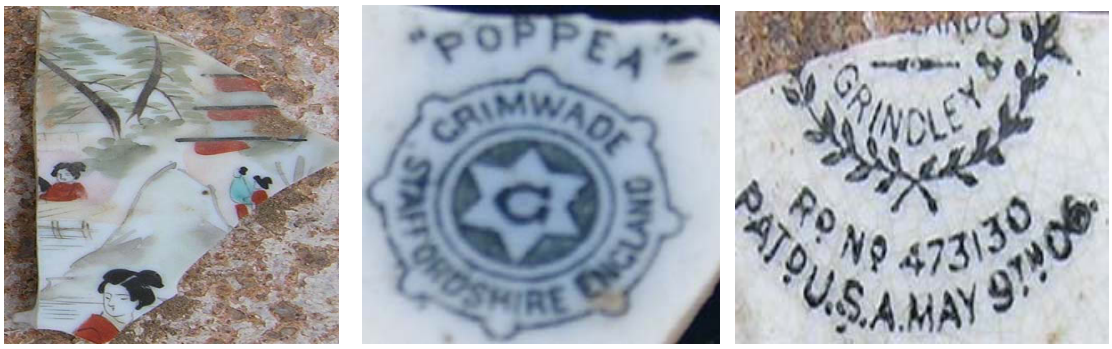


Figure 7.7. Examples of the types of patterns, maker's marks, and dates that archaeologists look for on artefacts and record (photographs taken from Stingemore 2004).

Identification of artefacts was achieved by comparisons with known samples and information published in books, on internet sites and in historical documents.

CLAY PIPES

Before ready-made cigarettes were popularised in the early twentieth century, tobacco was usually smoked in pipes made from clay (Lawrence 2006: 368; Gojak and Stuart 1999). Clay pipes were made either by hand or in moulds and decorated with ornamental designs (Lawrence 2006:368). Most pipes were stamped with the maker's mark, providing information on the date of manufacture, where it was from and who produced it. Fortunately for archaeologists, clay pipes broke easily in everyday use, and were frequently discarded and, therefore are found in archaeological sites. Clay pipes can be highly differentiated in style, size, texture, colour, pattern and cost of production. As a result they can reflect information about ethnicity, politics, culture, gender and class. Over time trends in the form (shape, style, size) of pipes changed and these changes have been recorded and can be measured. In the eighteenth century, as bowl sizes increased and stem bore diameters shrank, the angle between stem and bowl became more upright and less obtuse (Lawrence 2006:369). However in the period covered by this research pipes could no longer be dated by this method as the bowl size and bore diameter had become standard. Other aspects such as small spurs on the base of the bowl and manufacturer's initial moulded onto the bowl can be of use in dating instead (Lawrence 2006:369). Over time decoration also tended to become more elaborate and pipes came to be glazed and painted in elaborate colours. Such variations over time are used to date and provenance pipes.

The type of pipe found may also give information about the types of people using them. For example if the pipe is rare or made of expensive materials it may indicate that the owner had access to resources and wealth, whereas if the pipe is cheap and common it may suggest that the owner may have had limited funds for goods or limited access to them.

Wear patterns on pipes can also give an indication of behaviour of the people using them. For instance, some mouthpieces may have tooth marks reflecting the habits of the individual owner like holding the pipe upside down or twirling it around (Lawrence 2006:369). Broken stems may also bear tooth marks, providing evidence that the pipe was fixed or reworked to continue use. Some stems have score marks, suggesting deliberate shortening (Lawrence 2006:369). Residues on pipes may reveal if they were smoked. The intensity of the discolouration tends to be directly related to the degree of smoking, but this may be altered if the pipe was washed (Lawrence 2006:370) or discoloured by sediments.

The pipes found in this study were analysed by pattern variability and form, evidence of manufacturer's marks, stylistic differences and manner of use. Publications such as Oswald (1975), internet sites and historical documents with lists of pipes produced, the location, identity and time of manufacture, were consulted for identification.

GLASS

Glass is given considerable attention by archaeologists for the same reasons that ceramics are: it is frequently discarded after use, it survives relatively unharmed in the archaeological record for long periods of time, there is generally a lot of it at historical sites and it is relatively easy to identify and analyse. Glass is made of a combination of silica, soda, potash and lime that has been melted at high temperatures and moulded into shape (Lawrence 2006:370). Historically it has been used for purposes such as window panes, bottles, bowls, jewellery, tablewares, medical equipment and scientific equipment. Minerals and colourants in the silica give glass its colour. The commonest colour for glass prior to the twentieth century was dark olive green, resulting from iron impurities in the silica (Lawrence 2006:370). Over time different glass colours produced by the subtraction or addition of colourants to the silica have evolved and become popular.

Different modes of glass manufacture leave distinctive markings on the glass. Familiarity with common markings facilitates identification of the technology used to produce glass and thus the time range during which it was made (Lawrence 2006:371). One type of glass, bottle glass, has been traditionally analysed. Free blown bottles are asymmetrical and irregular in shape and size (Lawrence 2006:371) while mould blown bottles are more regular and usually have one or more seams (Lawrence 2006:371). Different types of moulds formed bottles with seams on different parts of the bottle. Over time bottles became more uniform in size and shape and most seams disappeared. In 1903, bottle production started to become completely automated. The resulting bottles had fainter seams and less variation in thickness (Lawrence 2006:372). The way the bottle is sealed or its closure is also highly variable. Marks made in the bottle for a wire closure, or for a metal cap can be dated.

Glass bottles in different colours and shapes were intended to hold different kinds of liquids. Cylindrical green bottles held beer and wine, aqua coloured glass held soda, and even thinner aqua or white glass held medicines (Lawrence 2006:373). Cylindrical thin white glass held condiments and those intended for olive oil or vinegar were usually a few centimetres in diameter at the base with long narrow necks and moulded patterns. Bottles for sauces had wide bases and were often decorated (Lawrence 2006:373). Chemical bottles were usually cobalt blue or bright green and labelled “do not eat’ or ‘poison’ (Lawrence 2006:373). Perfume bottles were small and squat, made of clear or purple glass and highly decorated (Lawrence 2006:373). Bottles for patent medicines and chemist preparations were usually rectangular with lettered panels on their sides or bases (Fike 1987). They were made in two-piece moulds with glass stoppers (Fike 1987). Particular glass bottles bore patterns indicating their intended contents as well as company marks and inscriptions.

Although distinctive shapes and colours were associated with particular products, it cannot always be assumed that they were used for the purpose for which they were intended, as bottles were often reused and recycled (Lawrence 2006: 374). Bottles were also put to further use in lining gardens, marking graves, as walls for housing and to make glass tools.

Numerous published works such as Majewski (1991), Fike (1987) and internet sites like that by Lindsey (2006) provide information on glass manufacture, analysis and interpretation to aid identification of glass found in archaeological contexts. The glass

found in this study was analysed in much the same way as the ceramics, by studying form, type, colour, pattern, inscriptions and possible function. Individual pieces were identified by comparisons with known samples.

METAL CONTAINERS

From the nineteenth century metal containers were used to store food products, matches, tobacco, and kerosene (Lawrence 2006:376). Like most metal in the archaeological record such containers do not survive well, but in some conditions such as arid or dry, cold environments, they can reveal a lot of information about the past. In this study it was expected that most metal containers would be poorly preserved due to the salt spray and beach environment.

Tinned food is particularly popular among people in remote locations who need to store food for long periods of time. Changes in the technology of making and sealing metal food tins assist with dating. In early food storage, all edges of the tin overlapped and were soldered inside and out. Sometimes food was inserted before the lid was soldered on, or through a hole in the container. The cap used to seal the hole itself had a tiny hole in it to let steam escape then was soldered up ('hole in cap' tin) (Lawrence 2006:376). By the end of the nineteenth century the 'sanitary can' which had locked ends and side seams that were soldered on the outside only after food was inserted replaced this design. Steel replaced iron in 1875 as the common material used for metal containers (Lawrence 2006:376). Food cans usually have paper labels but these rarely survive in the archaeological record, so the shape of the tin gives the best information as to what was in the container. Seafood was canned in shallow, oblong tins and meats preserved in tapered containers so that the contents could be removed easily (Lawrence 2006:376). Sometimes tins have lithographed or impressed labels, which can survive and give additional information.

Tins located in this study were analysed in terms of size, shape, presence of inscriptions, type of sealing on the container and type of metal used. This information was compared with known samples to assist in identification.

PASTORAL EQUIPMENT

Pastoral equipment is that which is used in farming or gardening activities including fences, troughs, windmills and tools. In this study fences and windmills were mapped

in relation to the other sites and the landscape, their GPS positions recorded, and the materials used to make them noted. Other artefacts such as tools, chains and horse shoes were analysed in terms of size and shape to determine possible function and the nature of the animals for which they were intended.

MEDICAL BOTTLES AND EQUIPMENT

It was expected that as the site under investigation in this study was a Lock Hospital, a number of different medical objects like glass slides, medicinal bottles, funnels, hyperdermic needle bases, and test tubes would have been in use. For the purpose of this research no distinction between medical (for the treatment of patients and prescription of remedies) and pharmaceutical (preparation and supply of these treatments) (Knehans 2005) artefacts was made. In general, medical equipment was classified in terms of function and records made of size, shape, colour, and intended purpose. Any markings such as measuring increments, origin of manufacture and name of manufacturer were also noted and recorded. As, little published analysis of equipment from historical medical sites and few reference materials are available to aid identification, artefacts were compared to modern and some historic samples of similar types for this purpose.

Most information on medical equipment in archaeological contexts deals with medical bottles and their contents. Medical bottles almost always have moulded labels in the glass of the bottle with information about the contents, and each substance is usually contained in a bottle of specific shape, colour and size. As a result, medicine bottles provide not only a potential date for a site but significant information regarding import origins, healthcare and an insight into the health of the inhabitants of a site (Graham 2005). Numerous advertisements from 1850 to 1900 help to determine the purposes of medicines (Graham 2005).

PERSONAL ARTEFACTS

A number of different personal artefacts including jewellery, toys and instruments, were found and analysed in this study. As the proportions of these items compared to the whole sample was relatively small, each artefact was recorded, drawn, photographed and its apparent function noted. Known examples were used to deduce the nature and manner of the artefact.

CLOTHING (BUTTONS AND SHOES)

In general, clothing does not readily survive in the archaeological record, as it is mostly made of cotton, leather, wool and canvas and other materials which quickly degrade when exposed to the environment. However, buttons and shoe parts survive better than most and commonly occur in historical sites.

Buttons can be made from materials including bone, shell, wood, horn, metal, glass, ceramic and plastic (Lindbergh 1999) and used for purposes including clothing and furniture (Lawrence 2006:375). They can be attached to cloth by either sewing through the face or through a shank at the back of the button (Lawrence 2006:375). Most buttons are made by cutting a circle from the chosen material then drilling holes through the surface and polishing (Lawrence 2006:375). Glass, ceramic and metal buttons can also be made by moulds and stamped with inscriptions of the maker, designs and dates which may help to provenance or date them. Different types of buttons are produced for different types of people (females, males, children, army officers) with differences in size, shape and style. Different types of buttons have been popular at different periods enabling archaeologists to produce a chronology of their production and use. The cost of production of a button, the material from which it was made or its rarity may give an indication of class, ethnicity, position in the hierarchy or the sex of the individual with which it was associated. Such features were recorded for the buttons found in this study. Published information from Lindburgh (1999) and Cossum (1988) helped with this analysis.

Footwear remains a neglected class of artefact in archaeological analysis, despite its common occurrence on Australian historical sites (Veres 2005:89). Because the common materials in which footwear is made (leather and cloth) do not generally survive, footwear is not usually abundant within individual assemblages, and therefore its archaeological significance may not be immediately apparent (Veres 2005:89).

Footwear can give indications of the social and economic aspects of the inhabitants of a site (Veres 2005). Stitching provides information on the quality of a shoe, with more stitches per space a sign of better quality (Veres 2005). Likewise, repairs on shoes or missing or damaged parts, modern or outdated shoes may give clues to the social status of the former owner or their access to material goods.

The size and shape of the shoe may also provide information on the age and sex of the individual who once wore the shoe.

RESIDUES AND USE WEAR ANALYSIS

Residue and use wear analysis is the process of looking at microscopic remains of materials left on artefacts to determine former use. In particular, residues refer to materials that are transferred and adhere to an artefact, during or long after use in subsequent deposition (Pollard and Heron 1996; Fullagar 2006:208). Use wear refers to the wear on the edges and surfaces of an artefact, whereby substances become trapped in the structure of the artefact. This analysis is particularly valuable for objects like flaked stone and glass tools, as the edges wear away with use and particles get trapped in the artefacts themselves. Locard's Principle relating to trace material states that when two objects touch one another, there is a transfer of material from one object to the other (Snow n.d.:58). Trace material is not easy to find on all objects, nor is it easy to identify, particularly in archaeological contexts, as time may have destroyed the material or further worn the edges of objects. Nevertheless, in some cases trace material can still be found on artefacts thousands of years after their last use (Renfrew and Bahn 2000:302). The determination of the nature of substances on artefacts yields information about subsistence history, food preparation, weaponry, craft production (Fullagar 2006:207), medical treatment and other activities.

All plants are composed of cells comprised of cellulose, hemicellulose, lignin, water soluble sugar, amino acids and aliphatic acids, ether and alcohol soluble constituents (resins) and proteins (Fullagar 2006:216). Some contain starch. Each of these components has a unique make up and some, like cellulose and starch, are easily observed under the microscope. Animal residues such as blood, muscle, fats, collagen and shells do not have distinctive cellular structures (Fullagar 2006: 219) and must be stained and viewed at high resolution in order to be detected. Objects like hair, horns and feathers are highly distinguishable and may be observed under light microscope.

Potentially use wear and residue analyses can be conducted on any artefact. However, as no material was allowed to be removed from the islands as part of the research permit, swabs (via damp cotton tips) were taken of some flaked stone and glass tools some medicine bottles, ceramic crucible, microscope slides and smoking pipes.

Unfortunately, all of the stone tool', glass tool', medical slides' and smoking pipes' swabs produced no result. This was likely a result of the poor collection methods and storage of the cotton tips (all got wet during downpours), or may have been because no residue was present.

The two artefacts that did produce evidence of residue, the ceramic crucible and the medicine bottle were further analysed. Further analysis was to compare the visual residue with known samples. Due to the expense, chemical analysis was not done on the residue.

ARTEFACT ANALYSIS

The two main methods of analysis used in this research were the calculation of minimum vessel counts and the calculation of mean start and end dates of deposits. Minimum vessel counts use the representative part of an object for extrapolating the number of complete objects represented in an assemblage. For example, if there are seven ceramic teapot spouts, three bases and six handles there must have been a minimum of seven teapots represented in that assemblage. The calculation of mean start and end dates of a deposit is achieved by taking a particular artefact type (clay pipe, glass bottles, buttons) and determining the median or midpoint and the average of the manufacturing dates of all of that type of artefact, weighted according to their frequencies. The earliest artefact of a particular type and the latest artefact are also recorded. Mean start and end point dates do produce problems of interpretation as they tend to lump together all phases of a site's occupation, regardless of periods where that artefact was not present or over represented (Lawrence 2006:381).

STASTISTICAL ANALYSIS

Once all the artefacts were identified and their attributes with respect to class, type, date, colour, size, presence of residues recorded in Microsoft Excel spreadsheets, the data were transferred to Statistical Package for Social Sciences (SPSS) Program Version 17.0 for analysis.

Descriptive statistics were presented mainly in terms of proportions, to allow direct comparison of sites, groups and island usages. The differential association of artefacts and structures with different groups of people, different times, different locations and different islands was analysed using the χ^2 test function in SPSS, to address the aims

of the study. χ^2 tests were chosen as the variables used in this study were one independent variable with two or more independent groups (Europeans, Aborigines, male, female) were compared against a categorical dependent variable (stone tools, food, ceramics, location etc).

ARCHAELOGICAL THEORY BEHIND ANALYSIS

This project looks at not only the portable artefacts left on Bernier and Dorre Islands but at the landscape for evidence of land use, services, transport and natural resource limitations. All of these factors contribute to an overall picture of what was happening under the Lock Hospital Scheme. In order to address the aims of the research, the artefacts were used to identify particular groups of people (Europeans and Aborigines), their gender, and their hierarchical status.

FINDING DIFFERENT GROUPS IN THE ARCHAEOLOGICAL RECORD

Any society is divided into groups defined by particular behaviour patterns and recognised social positions. Archaeologists can infer information about different groups of people from the evidence they leave behind of their behaviour in their artefacts. People of particular groups will tend to have artefacts typical of that group. The groups of people represented on Bernier and Dorre Islands under the Lock Hospital Scheme should be identifiable in terms of culture, gender and hierarchy.

CULTURAL GROUPS

Anthropologists and archaeologists most commonly use the term "culture" to refer to a group which classifies and recognises its experiences, symbols and material culture in the one way. Sub cultures may also exist inside a larger culture. My definition of culture in the archaeological record is recognised in terms of artefacts, modification to the environment and in the remains of the people themselves.

For the purpose of this research, the types of archaeological material to be discussed relate to both the European and Aboriginal contexts. European material culture was defined to include both imported and local artefacts of a European-settler origin predating 1918 (which marks the end of the occupation of the Lock Hospitals on Bernier and Dorre Islands) and associated sites. The Aboriginal material culture was held to include artefacts and technologies characteristic of precontact culture as well

as European material. For example, an object of European origin such as a glass bottle can be transformed in function and form as a result of Aboriginal methods and technologies to form a sharp blade for use in a traditional context, but could also be considered to be Aboriginal in context if the bottle itself was used by Aborigines or found associated with other uniquely Aboriginal objects.

Problems of identifying different cultures in the archaeological record arise from the fact that many cultures share common artefacts and incorporate foreign artefacts into their society. For example the presence of porcelain with geisha and cherry blossoms (typically found in Asian cultures) does not mean that Asian people were at a site or in direct trade contact with a site, as many Asian ceramics were copied by Europeans in the nineteenth and twentieth centuries. Nevertheless, as Europeans and Aborigines have been observed in historical records (Bates 1938, Watson 1968) to have highly differentiated backgrounds and understandings it was expected that these two cultures would show two separate patterns in the archaeological record in this research.

GENDER

Gender is a socially defined categorisation, based on enculturated human sexual similarities and differences (Beck and Balme 1994). It is through gender roles, the differential participation of males and females in various social, economic, political and religious institutions of a given cultural groups that we see reflections of gender in the archaeological record. Gender may be read from the artefacts themselves, for example sewing machines for women and metal working tools for males, and the composition of the sites associated with these artefacts. Obviously, again, this is not straightforward.

Many of the usual problems of interpreting gender in the archaeological record were avoided in this study, as the islands' patients were separated by sex. It is assumed that all Aboriginal artefacts on Dorre Island were associated with women and those on Bernier Island with men. While both European male doctors, their families and European female nurses were known to be on one or the other of the islands at times, the historical records assisted with the gender interpretation of artefacts associated with them. As it is possible for males and females to exchange roles from time to time, in some cases it may be only possible to determine general gender specific activities rather than assigning them directly to males or females. Of particular interest in this study were the patterns of resource exploitation usually assessed as

complementary halves within normal society, but in this case restricted to a single sex on each island.

HIEIRARCHY/ STATUS

Hierarchy is a system of ranking and organising things or people. This is most obvious in the case of class systems and is often associated with social inequity, and an imbalance in the distribution of objects, foods, space, and resources between members of the society (Douglas Price 2007). Those parts of society with access to more artefacts, artefacts made of better and rarer materials and those that have objects and dwellings of the best materials or situated in the most advantageous positions have higher status and positions of greater power. An hierarchical system can be revealed in the archaeological record by an uneven distribution of artefacts associated with individuals or groups. Historically, status has been influenced by both culture and gender. Members of the more favoured culture or gender hold higher status in that society.

Given that the Lock Hospital system was formulated by the Europeans with Aboriginal people having no control over it, it was expected that a large imbalance would be seen between artefacts left behind by the European medical practitioners and the Aboriginal patients. However, status differentiation was also considered between particular Aboriginal groups, between the different types of Europeans and between those that dwelled on the different islands.

SUMMARY

Categories of culture, gender and status were used throughout the remainder of this research to better understand the archaeological record and the relationship between the people on the islands. Analysis of data and incorporating the differences in observed archaeological traits at the Lock Hospital sites was carried out to answer the questions of the thesis. The results are addressed in the following chapters.

Chapter EIGHT

RESULTS – BERNIER ISLAND

Chapter Eight

RESULTS – BERNIER ISLAND

INTRODUCTION

This chapter provides a description of the Bernier Island Lock Hospital sites and associated artefacts including European and Indigenous manufactured imported goods, personal objects, medical equipment, water supplies, food and fuel. Archaeological evidence as well as data from archival sources is presented for each.

CONFIRMATION OF SITES

A number of different archaeological sites associated with the Lock Hospital period were located in and around Hospital Bay and along the coast of Bernier Island. A sign posted on the islands (Figure 8.1) during the 1990s by CALM, DIA and various Indigenous groups confirmed the existence of the sites in this area. No attempt was made to search for sites outside of this study area. There is no mention of Lock Hospital occupation outside these areas in the historical documents and the limited time available, sheer size of the island, and lack of any form of assisted transport did not facilitate its discovery.

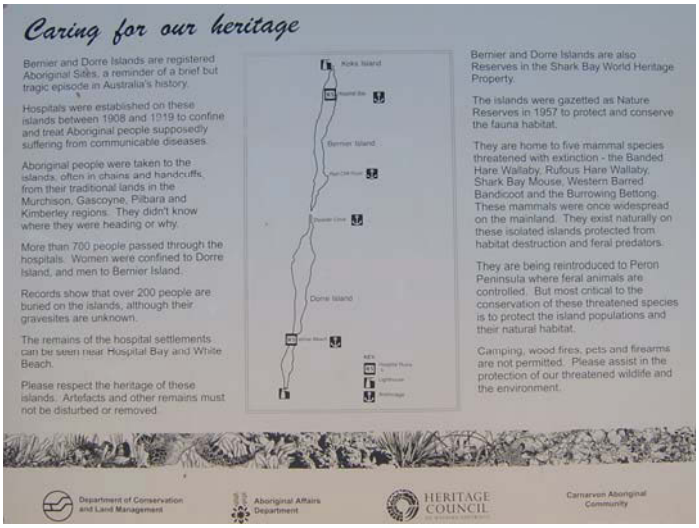


Figure 8.1. Photograph of sign on Hospital Bay displaying information about the Islands, the Lock Hospital Scheme and where the sites sit on the islands. This sign was also found on Dorre Island at White Beach Landing.

PRESERVATION OF ARCHAELOGICAL MATERIAL AND SOIL CONDITIONS

The overall preservation of archaeological material on Bernier Island was good. It was expected that as these islands are close to chartered fishing grounds they would be disturbed by passing fisherman, but this was not the case. Perhaps the distance from the hospital structures to the boat mooring, plus the difficulty of getting to the islands from the larger boats needed for the long journey from mainland Western Australia, deter visitors.

Very little of the archaeological material had been disturbed and no cross contamination between other occupations or visitations of the Lock Hospital sites was evident. The only material found associated with the modern period was plastic containers, ropes and plastic water bottles. All of these items were found washed up on the eastern side of the island (the Australian coast side) with evidence of haven been water worn. This material most likely was rubbish washed up on the shore from boats or from mainland Western Australia. None of this material was located near to what I have called archaeological sites. If there was cross contamination it would have been expected that objects like modern beer bottles, aluminium cans, fires, and other modern rubbish typical at visitation sites would have been found. On Bernier or Dorre Islands, this was not the case.

There was a question of whether equal decay of different types of artefacts on different parts of the island could be expected from the distribution of alkaline soils (which destroy metal objects) on the one hand or acidic soils (which destroy biological material like plant and bone remains) on the other. So soil samples were taken from four separate locations on Bernier Island (Figure 8.2). The first and second were taken from the beach dunes and the dunes at Hospital Bay respectively. They both consisted of very coarse white sand grains and some shell particles and were of pH 8. The third was from the interior of the island which consisted of very fine red soil with a pH of 6.5. The fourth sample was from the hospital site which was a combination of the two soil types above (light red and coarse white grain sands), had a pH of 7, but was without shell particles. All of these soils conditions sit around pH neutral, suggesting that the preservation of different types of artefacts would be similar at sites across the study area.

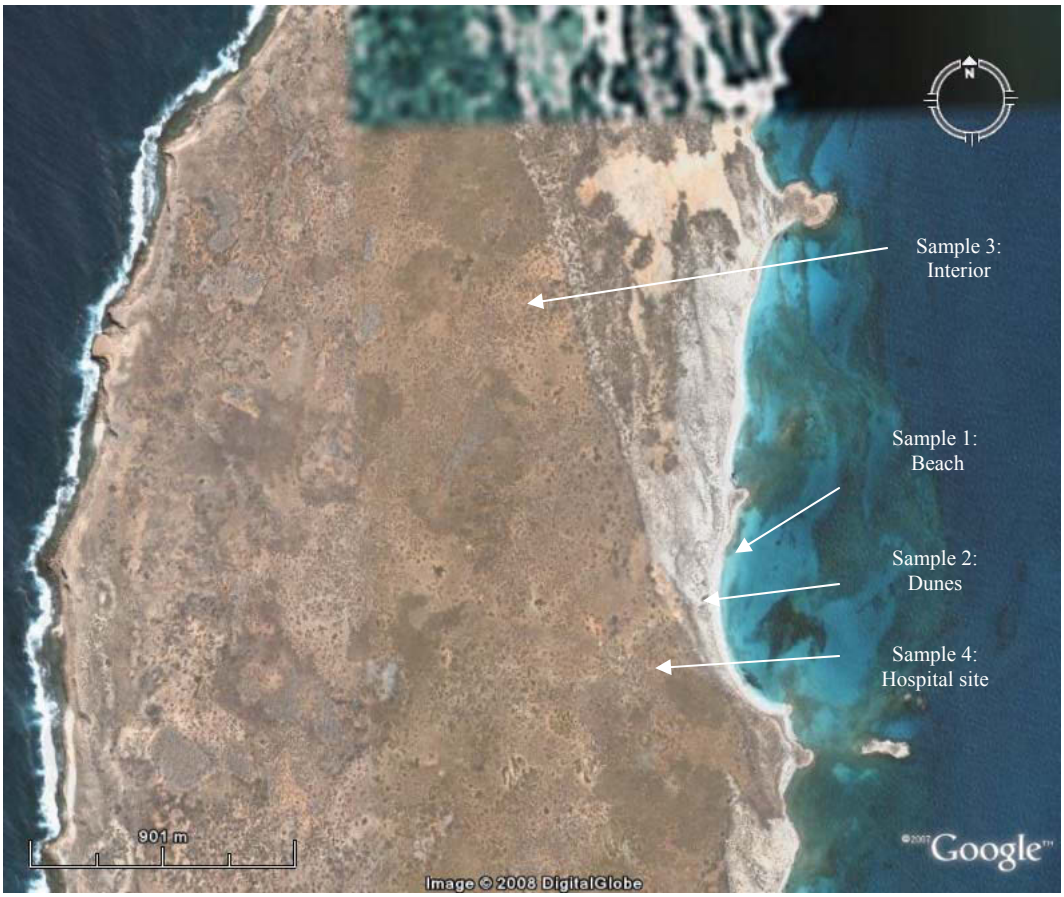


Figure 8.2. Locations where soil samples were taken on Bernier Island.

ARCHAEOLOGICAL SITES

In total 70 separate sites were found during the field work. These sites ranged from small clusters of artefacts to concrete pad structures over 10 metres long.

Visibility of most of the sites was high, with 52 sites (74.3%) having a 'good' rating (all visible artefacts could be recorded), 17 sites (24.3%) at which the visibility was 'alright' (most of the artefacts could be recorded) and only one site (1.4%) at which there was 'poor' visibility (ground cover and natural flora densely covered the site). Ground surface visibility was deemed good if between 76-100% of the ground was visible, alright if between 51-75% was visible and poor if less that 50% was visible.

Because Bernier Island is an A class reserve, the conditions of the permit to conduct archaeological work meant that flora could not be removed to better record artefacts. The recording of portable artefacts was not affected by the vegetation as they could be picked up through the flora. Vegetation only affected the recording of large non-

portable objects such as the concrete pads, corrugated iron sheets and water tanks, as plants grew out of numerous cracks and breaks within the cement or corrugated iron.

Deposition of artefacts by the soil across Bernier Island did not seem to affect visibility of artefacts as most of the hundreds of individual artefacts recorded across the island were located at the scattered rubbish dump sites or on top of concrete pads which no chance of sub surface deposition. If an artefact was slightly buried within the surrounding soil they were removed for recording. Although no sub surface testing was conducted, there was little evidence to suggest that artefacts were found within a depositional environment, and hence it is believed that most artefacts would be found on the surface or within the topsoil (0-3cm of soil). As most of the artefacts were larger than 3cm, these items were either found sticking out of the soil or on the surface.

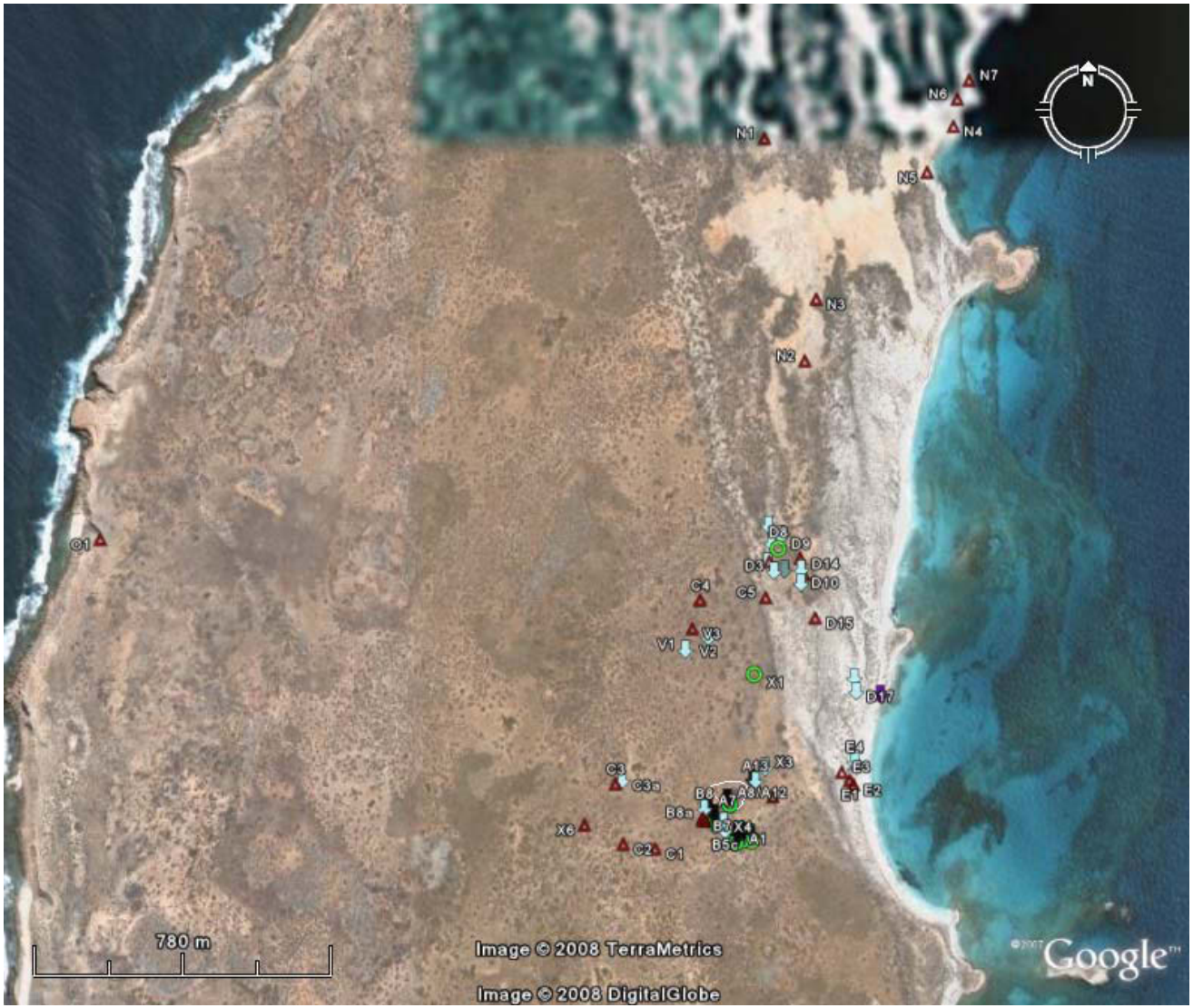
Table 8.1 lists the site names, inferred human associations and interpretations of use. Comparisons of historical records and the artefacts found at each site assisted this interpretation. Appendix D details each site in more detail. Figure 8.3 shows the sites recorded in the survey area. Each of these sites is described in more detail in this chapter.

Table 8.1. Sites recorded on Bernier Island Associated with the Lock Hospital Scheme.

Site Name	Symbol	People	Interpretation
A1	⬇	European	Hospital Administration
A1a	⇩	European	Rubbish scatter
A2	⇩	European	Bricks and Rock pile
A3	◎⬇	European	Underground water tank
A4	⇩	European	Garden wall
A5	⇩	European	Garden wall
A5a	⇩	European	Doctor's house artefact scatter
A6	⬇	European	Ward
A7	⬇	European	Laundry
A8/A12	⬇	European	Stables and Paddocks
A9	⬇	European	Outpatients
A13	⇩	European	Square brick pad
B1	⇩	European	Rubbish scatter
B3	⇩	European	Rubbish scatter
B4	⇩	European	Rubbish scatter
B5a	⇩	European	Rock pad (small shed)
B5b	⇩	European	Rock pad (small shed)
B5c/B6	⇩	European	Rock pad (small shed)
B7	△	Aboriginal	Large repeat use campsite
B8	⇩	European	Rubbish scatter near Ward #
B8a	△	Aboriginal	Large repeat use campsite
B9	△	Aboriginal	Large repeat use campsite
B10/B10a	⇩	European	Rubbish scatter
C1	△	Aboriginal	Rubbish scatter
C2	△	Aboriginal	Rubbish scatter
C3	△	Aboriginal	Repeat use campsite
C3a	⇩	European	Rubbish scatter
C4	△	Aboriginal	Repeat use campsite
C5	△	Aboriginal	Repeat use campsite
C6	⇩	European	Windmill flats and rubbish scatter
D3	⇩	European	Single artifact
D2b	△	Aboriginal	Rubbish scatter
D2c	△	Aboriginal	Rubbish scatter
D4	⇩	European	Rubbish scatter
D5	△	Aboriginal	Rubbish scatter
D6	⇩	European	Rubbish scatter
D7	⇩	European	Rubbish scatter
D8	◎⬇	European	Well
D9	△	Aboriginal	Repeat use campsite
D10	⇩	European	Rubbish scatter
D11	⇩	European	Rubbish scatter
D12	⇩	European	Wagon
D13	△	Aboriginal	Repeat use campsite
D14	⇩	European	Rubbish scatter
D15	△	Aboriginal	Rubbish scatter
D16	⇩	European	Rubbish scatter
D17	△	Aboriginal	Rubbish scatter
E1	△	Aboriginal	Rubbish scatter
E2	△	Aboriginal	Rubbish scatter
E3	△	Aboriginal	Repeat use campsite
E4	⇩	European	Rubbish scatter
F1	⬇	European	Doctor's House
J1	⬇	European	Jetty
N1	△	Aboriginal	Single use campsite
N2	△	Aboriginal	Single use campsite
N3	△	Aboriginal	Single use campsite
N4	△	Aboriginal	Single use campsite
N5	△	Aboriginal	Single use campsite
N6	△	Aboriginal	Single use campsite
N7	△	Aboriginal	Single use campsite
O1	△	Aboriginal	Repeat use campsite
R1	△	Aboriginal	Rubbish scatter
S2	⇩	European	Single artefact
V1	⇩	European	Single artefact
V2	⇩	European	Single artefact
V3	△	Aboriginal	Repeat use campsite
X1	◎	European	Well
X2	⇩	European	Rubbish scatter
X3	⇩	European	Single artefact
X4	⇩	European	Rubbish scatter
X5	⇩	European	Rubbish scatter
X6	△	Aboriginal	Repeat use campsite

⬇ European Structure ⇩ European artefacts ◎ Water storage △ Aboriginal site

Note: justifications for which site is associated with which people and use are explained throughout this chapter. # probably deposited at end of scheme



Aboriginal Site

Water Storage

European Artefacts

European Structures

Figure 8.3. Archaeological Sites associated with the Lock Hospitals recorded during surveys on Bernier Island. (Map modified from GoogleEarth 2007). Sites are numbered in accordance with Table 8.1.

The 70 sites were classified into two main types based on the archaeological remains, the historical documents and an understanding from Aboriginal ethnography of the types of areas they tended to occupy.

The **first main type** (Type I) of site was characterised by

- concrete pads of buildings or other functional structures
- living quarters within 200m of concrete pads or associated with them
- a high percentage of European artefacts such as
    - imported building material
    - expensive ceramics (porcelain and patterned) and complete sets
    - whole bottles
    - medical equipment
- discrete dump sites out of sight but near concrete pads
- a paucity of faunal material
- absence of local resources

Type I sites were situated just west of the dune system that runs almost parallel with the coast. Structures such as building pads were located on elevated ground and the associated artefact scatters to the north of them. In total 41 (58.6%) sites were of this type (Figure 8.4.). Type I sites yielded a total of 325 artefacts. Sites like this were classified as 'European' as they matched the known historical architectural plans and photographs of buildings and known objects used by Europeans on the islands. However, although the major structures like the ward, the jetty, roads and tracks were put into the European category it is noted that they were shared between both European workers and Aboriginal patients.

Figure 8.4. Type I sites: European artefacts and structures associated with the Lock Hospitals on Bernier Island. (Map modified from GoogleEarth 2007). Sites are numbered in accordance with Table 8.1.

The **second main type** (Type II) of site was characterised by

- living quarters or campsites out of sight or more than 500m away from concrete pads
- a small percentage of associated European artefacts including
    - few ceramics
    - highly fragmented broken glass
- refuse in living areas
- burnt animal bones (domestic and native)
- marine shells
- flaked glass artefacts

Such sites were situated away from the hospital building sites, usually to the north and east of the concrete pads. They were also located near tall scrub (in particular quandong trees) and inland or on the coast north of Hospital Bay (Refer to Figure 8.5).

There were 29 (38.6%) Type II sites yielding a total of 739 artefacts. Sites like this were considered to be 'Aboriginal'.

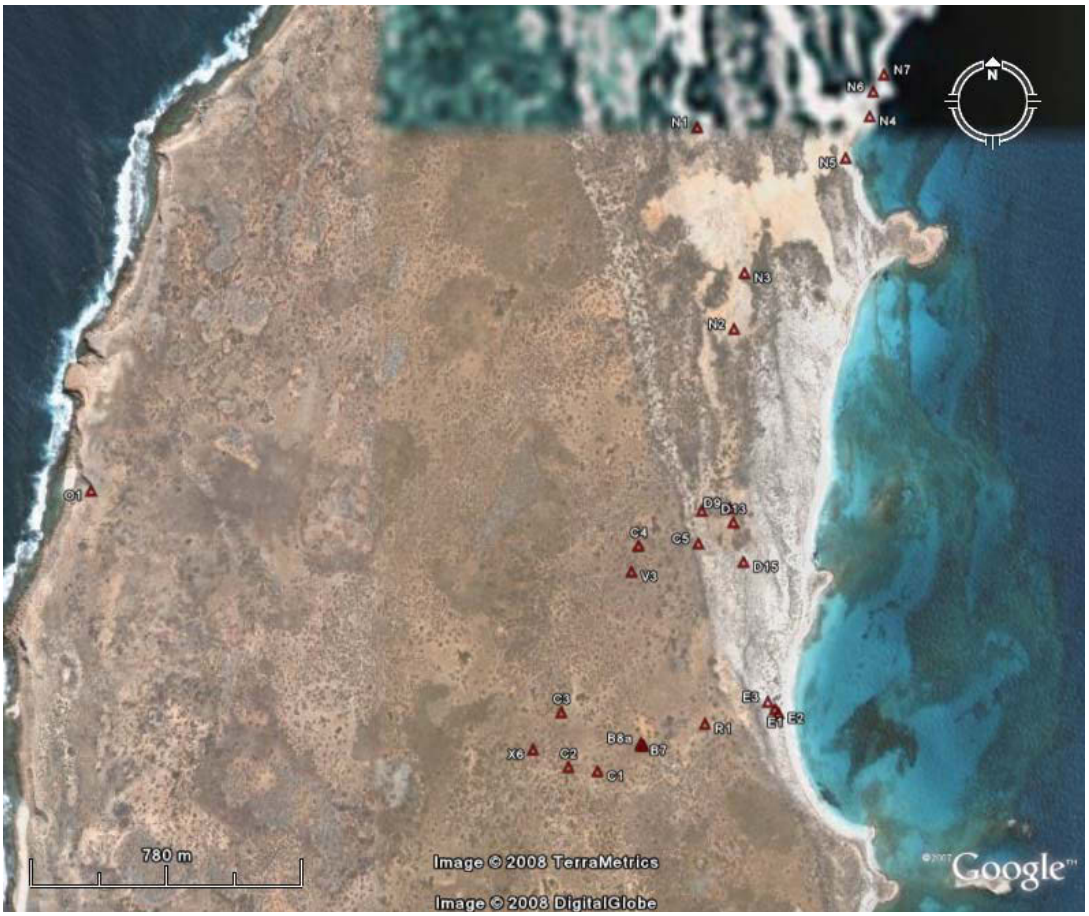


Figure 8.5. Type II sites: Aboriginal sites associated with the Lock Hospitals on Bernier Island (Map modified from GoogleEarth 2007). Sites are numbered in accordance with Table 8.1.

Historical and archaeological data pertaining to these two types of sites are described separately.

EUROPEAN SITES

The European sites (41) recorded on Bernier Island ranged from concrete pads to disposal areas and scattered objects. They included hospital buildings and associated European accommodation (6), other structural features such as stables, fences, jetty,

roads/paths, garden walls, water tank (7), discrete rubbish disposal areas (2), artefact scatters (23) and single artefacts (5) (Figure 8.6).

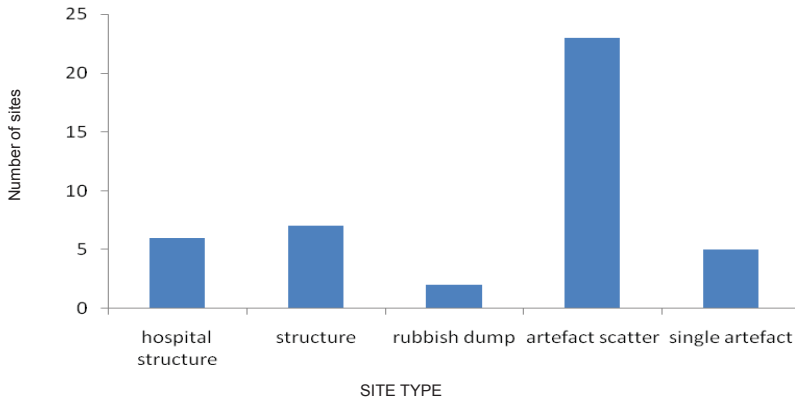


Figure 8.6. The frequency of European (Type 1) site types found on Bernier Island.

HOSPITAL STRUCTURES

According to written documentation and photographs a number of buildings associated with the hospital were built on Bernier Island between 1909 and 1918 (Figure 8.7) including

- Hospital Ward
- Administration building (where nurses also lived)
- Doctor's house
- Laundry
- Outpatients building
- Stables/ Paddocks

These lay in a cluster just behind Hospital Bay, as indicated on Figure 8.8. Some of these structures, in particular the large concrete building pads of the wards, outpatients, administration building and doctor's house are visible from aerial photographs (1959 DOLA survey) and satellite imagery (GoogleEarth 2007) (Figures 8.9, 8.10 and 8.11). The archaeological investigations located all of the sites mentioned in the historical record.

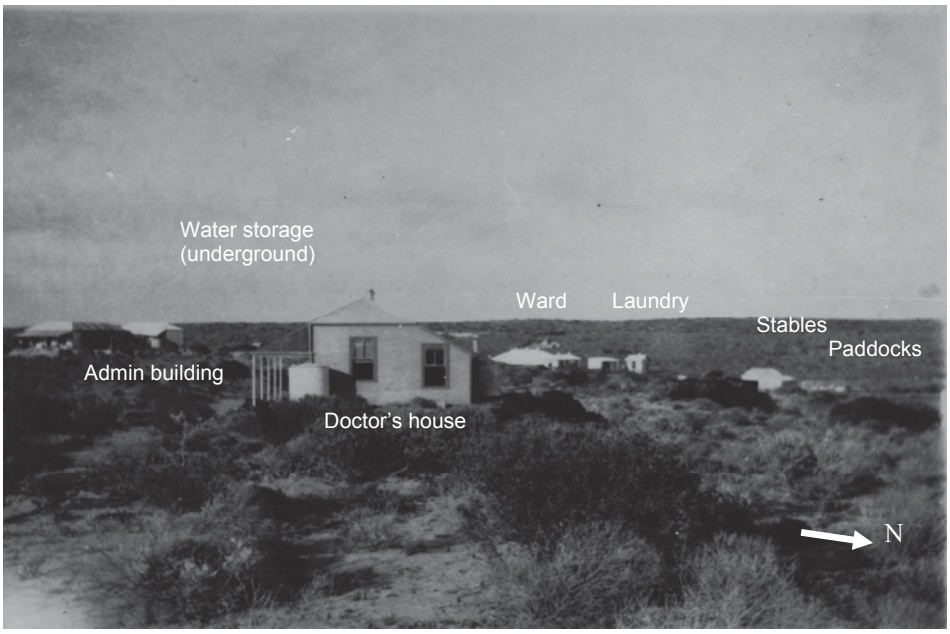


Figure 8. 7. Photograph (taken in 1911) of buildings on Bernier Island (Battye Library 3185B/13).

Figure 8.8. Hospital structures grouped together inland from Hospital Bay. (Map modified from GoogleEarth 2007). Sites are numbered in accordance with Table 8.1.

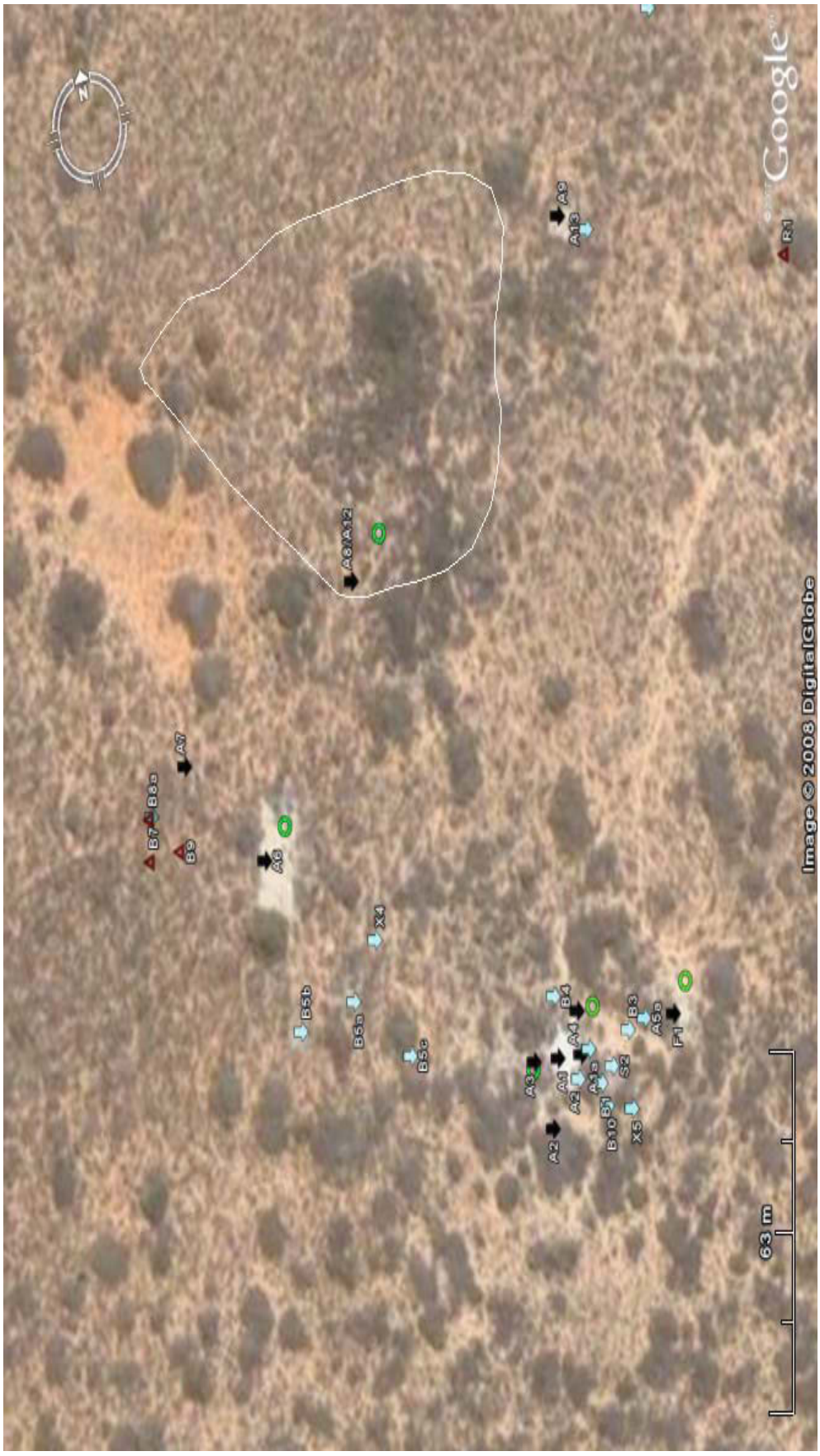


Figure 8.9. Visible structures in satellite photographs . (Map modified from GoogleEarth 2007). Sites are numbered in accordance with Table 8.1.

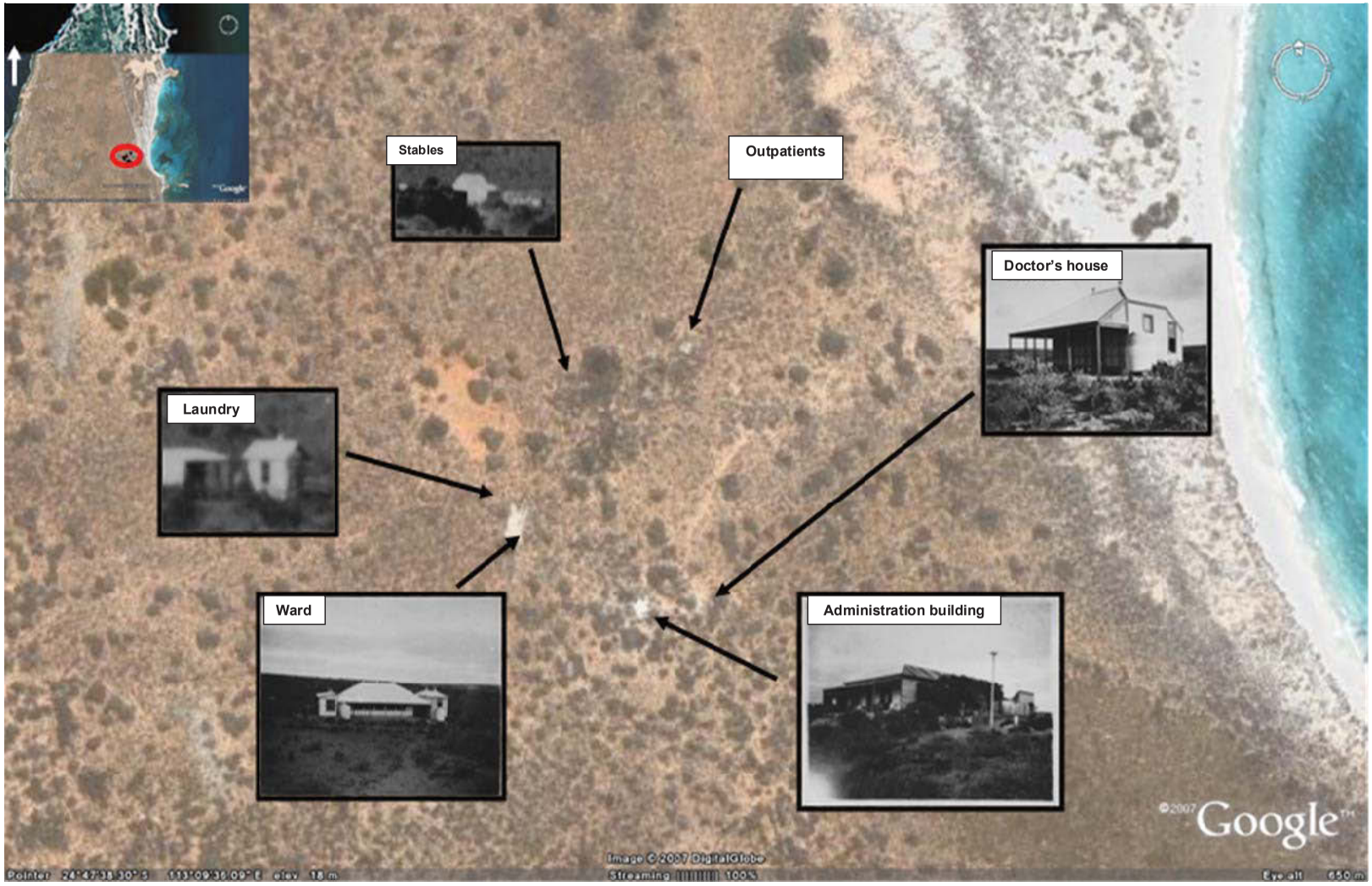


Figure 8.10. Close up of hospital structures and their locations as determined by the archaeological surveys. (Map taken from GoogleEarth 2007, photographs taken from Battye Library 3185B/13, 3185B/44, 3185B/46).

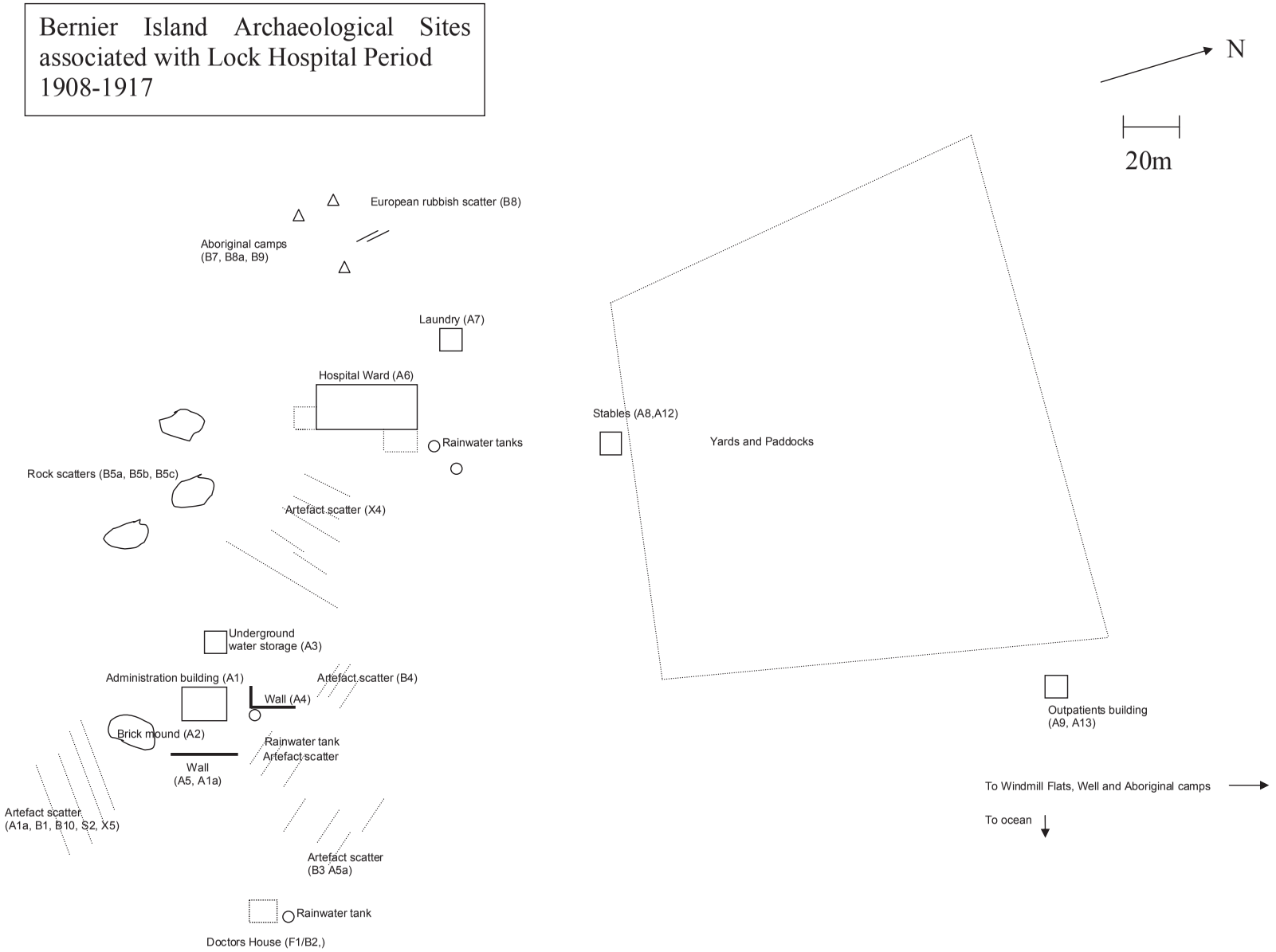
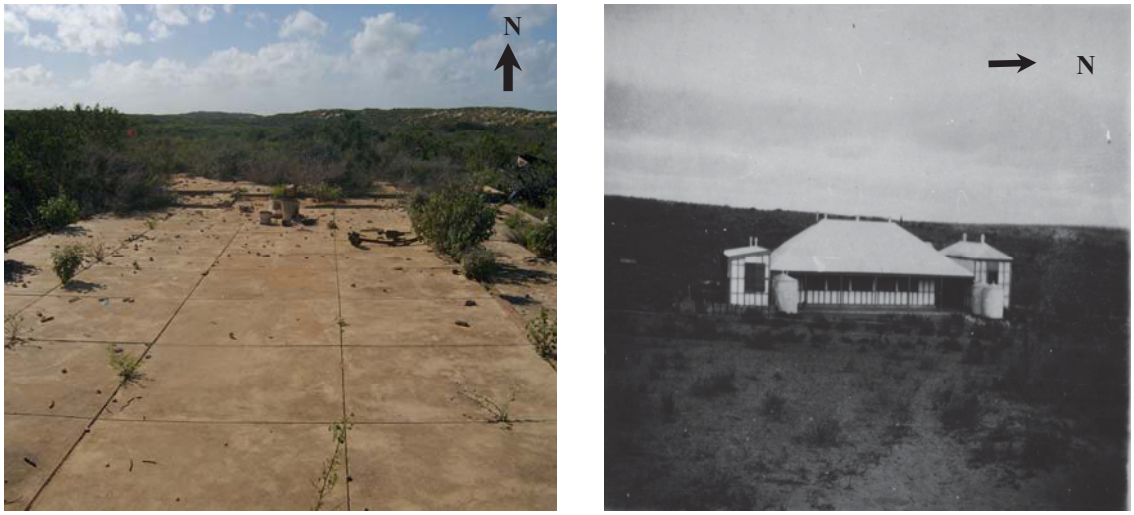


Figure 8.11. Sites identified during the archaeological survey of Bernier Island.

THE WARD (Site A6)

The ward site was identified by its size and similarities in layout to the architectural plans and photographs of the ward taken during the period of operation (Figures 8.12, 8.14). The ward was the largest archaeological site found and would have been the biggest structure built on the island. Located on flat ground towards the interior of the island, the building faced the doctor's house and administration building to the east. The building was identified by its concrete base pad which measured 24.4 m long and 10.5 m wide. Part of this pad was likely to be a veranda as there was no evidence of built structures on it. A number of individual rooms were identified within the building by comparisons with the historical documents. Artefacts found within each room, such as wash basins or ceramics, also gave clues to use. The operating rooms were assumed to be attached to the north end, on the basis of comparisons with the historical records. Attached to the south end of the building was the wash house, which contained a number of wash basins and toilet cans (Figures 8.12b, 8.13). Historical records state that the ward housed the chronically ill male patients. Operations took place here if needed. It is unclear whether any of the European nurses stayed in parts of the ward.



a) b)

Figure 8.12. Photographs of the ward on Bernier Island. a) Concrete pad taken during fieldwork and b) taken during the Lock Hospital Scheme (right) (Battye Library, 3185B/46).

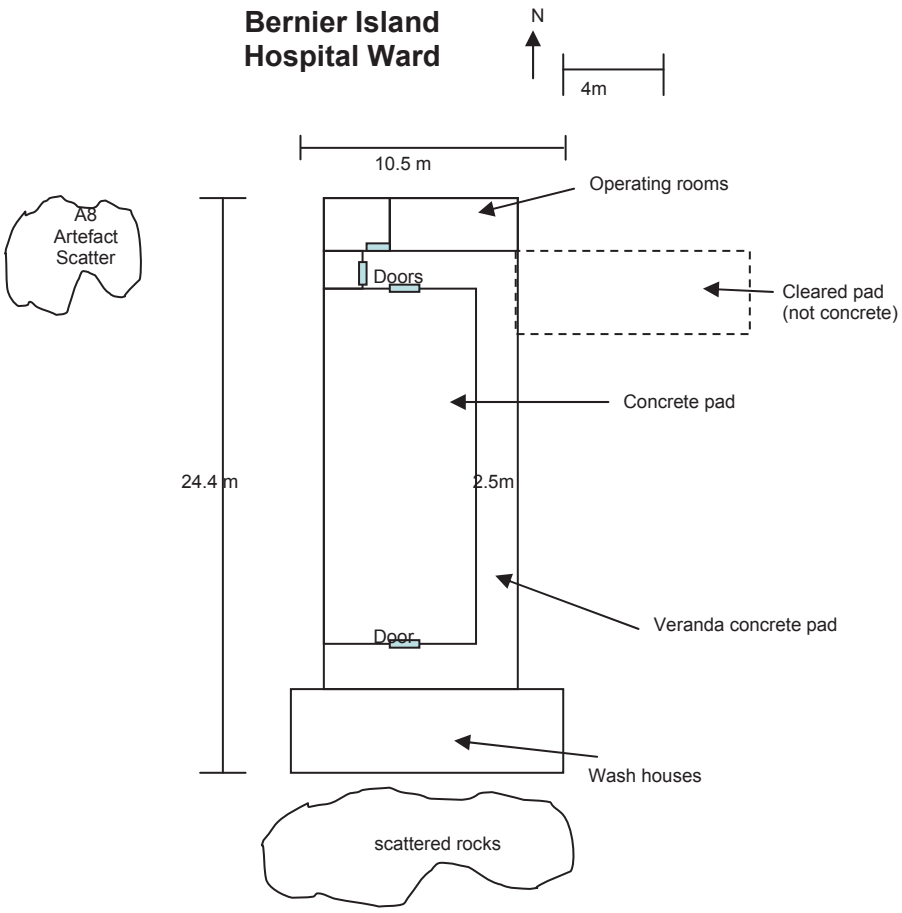
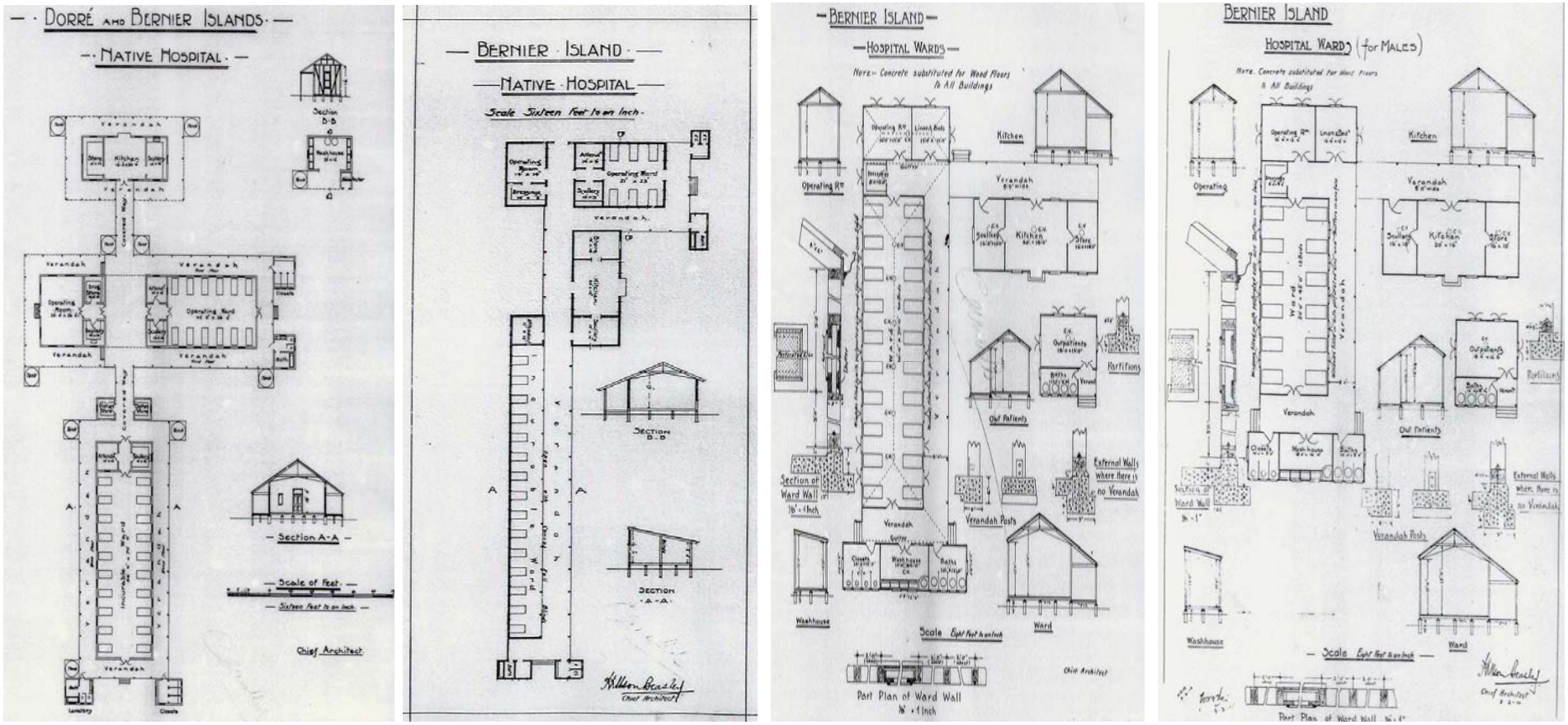


Figure 8.13. Dimensions of the ward on Bernier Island from the archaeological surveys.

A number of different architectural plans exist for the ward structure (Figure 8.14). The site revealed by the archaeological surveys matched the fourth plan. The other plans have 'cancelled' hand written across them. The archaeological observations support the assumption that they were never built. It is unclear why the plans were continually redrafted but it is likely that improvements were made based on the lessons learnt from the building of the Dorre Island ward in the previous year.



a) b) c) d)

Figure 8.14. Four architectural plans for the Bernier Island Lock Hospital. Plans a, b, c, are marked 'cancelled' and are assumed to be earlier superseded versions of the ward . Plan d, dated 1910 appears to be the plan that was actually built on the island as it matches both the photographs taken during the Lock Hospitals period (Figure 8.12b) and the dimensions recorded during the archaeological surveys (Figure 8.13) (State Records Office, Cons 1647 P.W.D WA15024).

Archaeological material associated with the ward (site B8) included European ceramics, enamelware, fragmented glass, whole bottles, clay smoking pipes, scattered building materials, bed frames and metal tins. Aboriginal flaked glass artefacts were also found on this site (described in detail later in this chapter and in Appendix D).

ADMINISTRATION BUILDING (A1, A2, A3, A4, A5)

The administration building was the second biggest structure on the islands. No architectural plans for this structure were found. It was identified as the administration building on the basis of the location and size established during archaeological surveys and compared with historical photographs (Figures 8.15, 8.16). The administration building faced north, sitting on top of the dune system and overlooking the ward. It consisted of concrete pads with associated rock walls and brick and rock piles. The remains of a fireplace, located on the western side of the administration concrete pad (A1), was identified by the presence of coke and its overall size and shape dimensions. The construction of the fireplace was of standard imported red brick and local shell aggregate (Figure 8.18c).

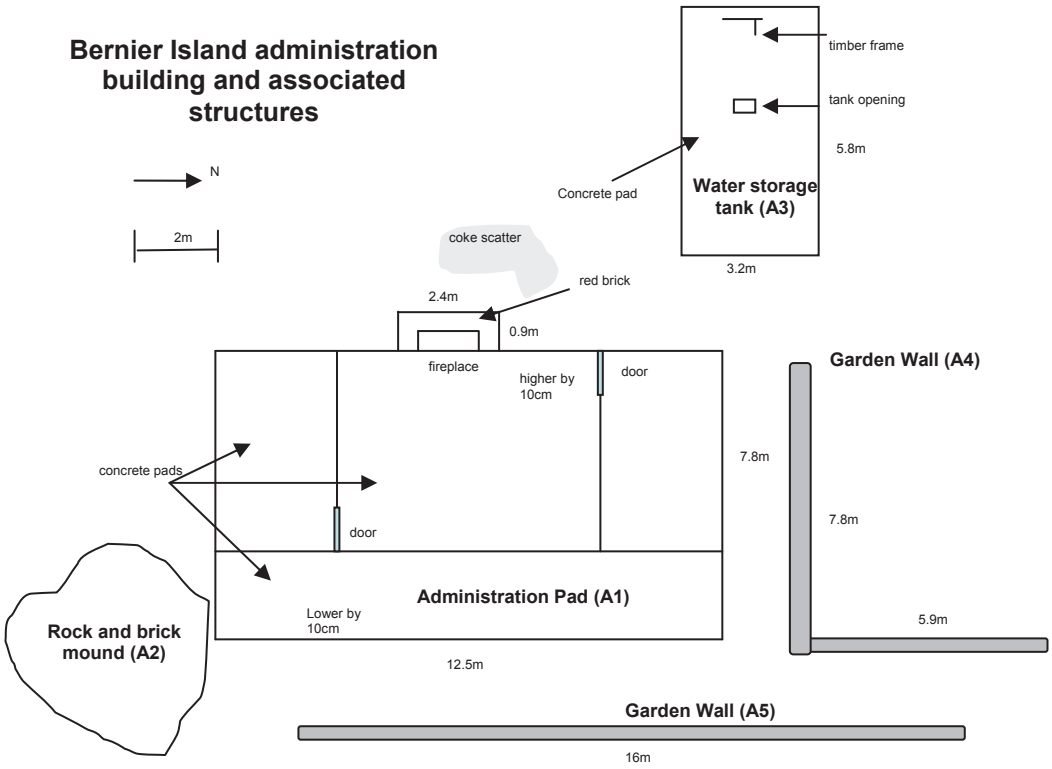


Figure 8.15. Archaeological recordings of features associated with the administration building found on Bernier Island.

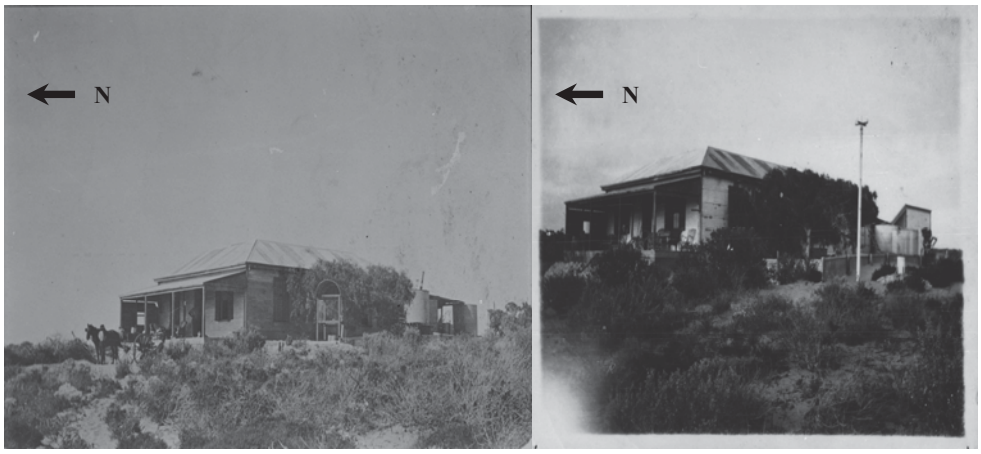


Figure 8.16. a, b) Two photographs of the administration buildings (dates unknown) during the scheme. Note the changing structures to the right of the building and the height of the vegetation (Battye Library 3185B/43, 3185B/45).

Site A1, the biggest concrete pad, measuring 12.5m by 7.8m, was the closest structure to the shore landing. It now displays a sign to visitors (Figure 8.17).

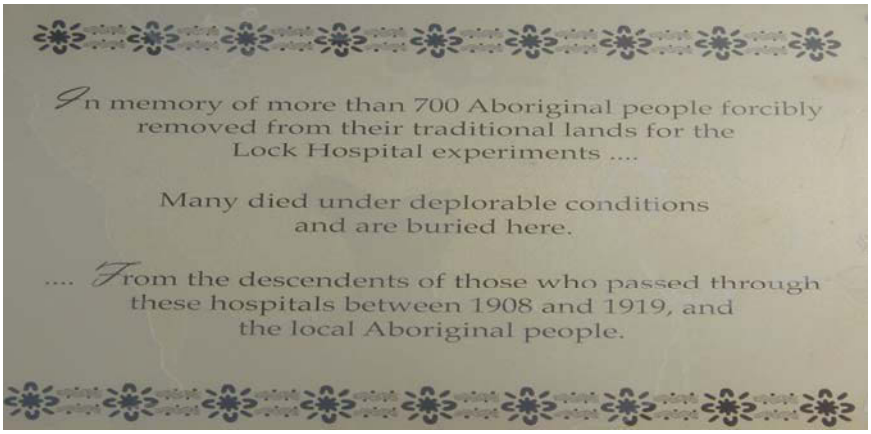
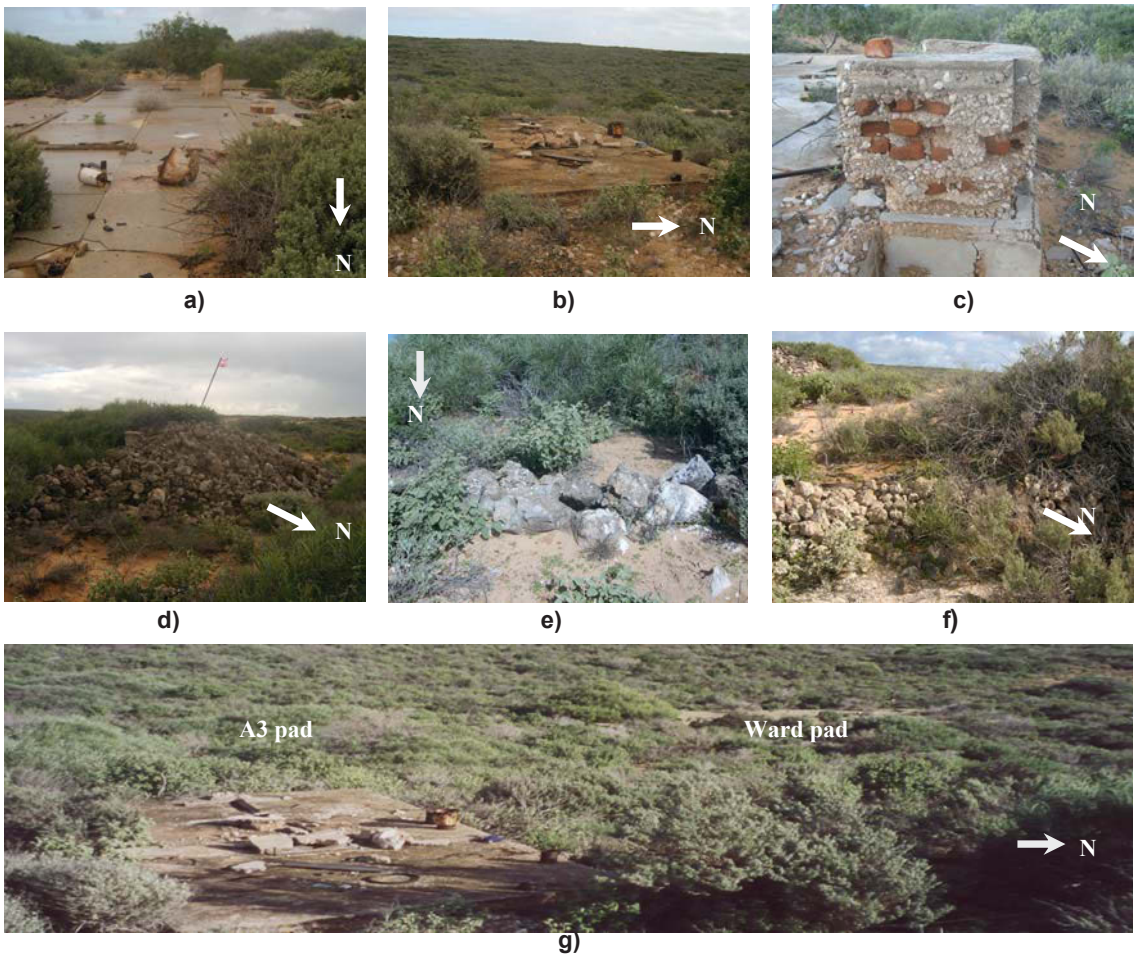


Figure 8.17. Sign displayed on Bernier Island reminding visitors of Lock Hospital occupation.

The pile of rocks and bricks approximately 6m in diameter and 1.5m high (site A2) at the south west corner of the administration area (Figure 8.15) was likely to have derived from the demolition of the administration building structures and was not originally a structure of the building. This was concluded because the bricks had evidence of use (attached mortar), was in a neat pile and matched those bricks attached to the concrete pads. Another concrete pad (A3), containing an unground water storage tank measuring 3.2m by 5.8m, was located east of A1. There was no sign that any structure had ever been built on this pad. The garden walls (A4 and A5), associated with this site were made of coral and concrete aggregate (Figures 8.16, 8.18e,f). Located next to the area was an exotic plant, 'a peppermint tree', *Schinus molle*, documented as being planted during the Lock Hospital Scheme (Royce 1962).



a) b) c) d) e) f) g)

Figure 8.18. Sites associated with administration building. a) Administration building A1 b) underground water tank pad (A3) c) fireplace associated with A1 d)brick and rock pile (A2) e) garden walls (A4,) f) garden wall (A5) and g) view from administration building (A1) overlooking water tank pad (A3) and ward (A6).

General scatters (A1a, B1, B10, S2, X5) of archaeological material including expensive ceramics, glass bottles and broken glass, enamelware, building materials (especially bricks), metal containers, tiles and some medical artefacts lay on and around the concrete pads. Scattered artefacts similar to those found around the administration building were also found on the slope between the administration building and the ward (B5a, B5b, B5c, X4) (Artefacts described in details later in this chapter and in Appendix D).

DOCTOR'S HOUSE (F1)

The doctor's house was identified by its location in the landscape and comparisons with general dimensions taken during archaeological surveys (Figure 8.19a) with historical photographs (Figure 8.19b). No architectural plans were found of the doctor's house on Bernier Island, but the ones for Dorre Island are marked 'these quarters were also built on Bernier'.

Our survey confirmed that this was so (Figure 8.20). The doctor's house was located on the highest point of the hospital complex overlooking all of the sites within Hospital Bay and the ocean towards the mainland. It was approximately 50m north west of the administration site. The doctor's house was not represented by a concrete pad, but by a levelled area resembling a house pad and scattered timber, iron and down pipes. It measured approximately 4.5m by 4m (Figure 8.19a). The presence of a number of stump caps suggested that the building was raised off the ground.

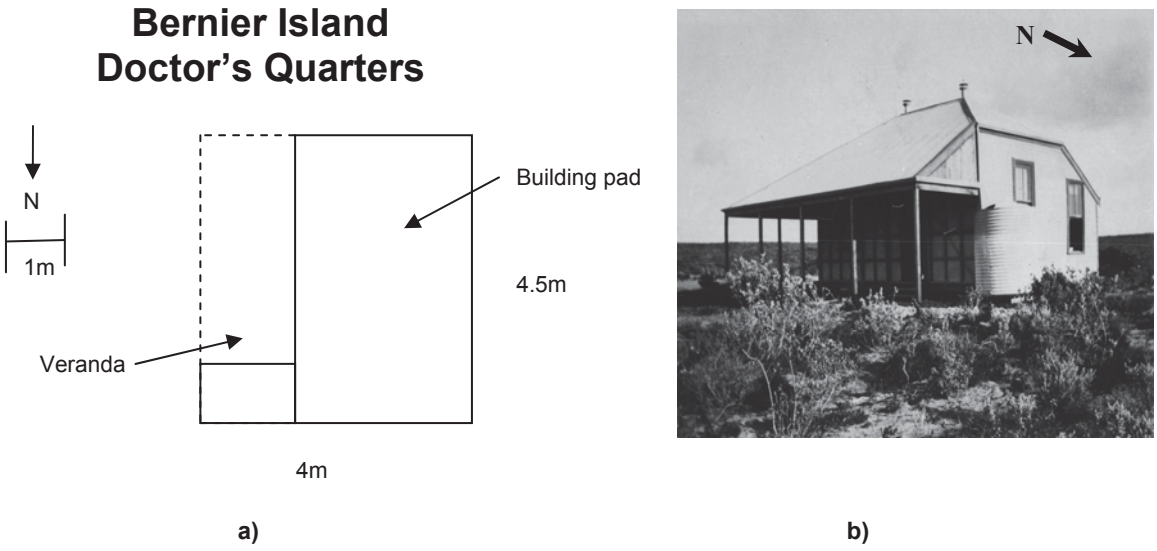


Figure 8.19. a) Drawings of the doctor's pad observed during archaeological surveys and b) photograph of the structure during the scheme (Battye Library 3185B/44).

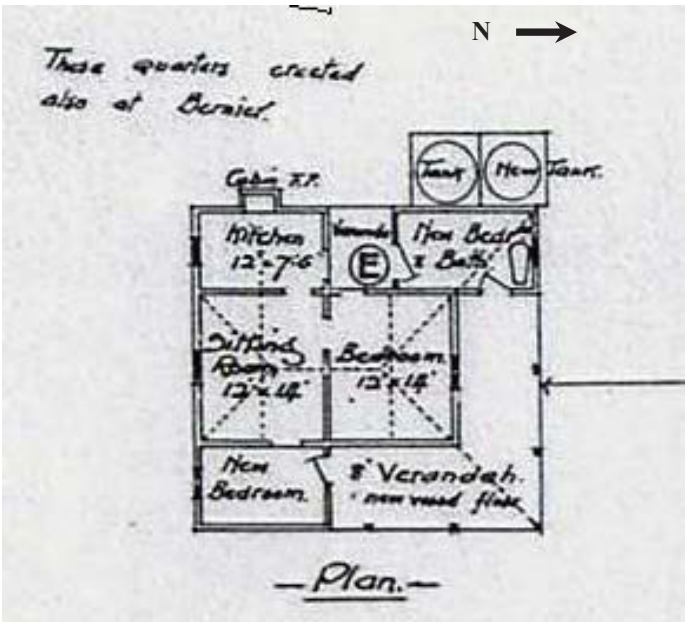


Figure 8.20. Plans for Dorre Island Doctor's quarters August 1911. Marked in top left corner 'these quarters erected also on Bernier' (State Records Office, Cons 1647 P.W.D WA15024).

Artefact scatters consisting of building materials, glass bottles, ceramics and tiles were present across this site as well as on the dune ridge south east towards the administration building (A5a, B3). (Artefacts described in detail later in chapter and in Appendix D).

THE OUTPATIENTS BUILDING (A9)

Although no historic photographs of the outpatients building exist, the site could be identified by its distance from the main hospital buildings and its size and shape compared with architectural plans. The outpatients building was the most northern of the hospital sites, located on flat land but still visible in the landscape. It consisted of a concrete pad measuring 5.4 m by 5.4 m (Figure 8.21). Architectural plans (Figure 8.22) of the outpatients building while marked 'cancelled' match the archaeological survey recordings, except that the building on the plans sat on stumps, while that located in the archaeological surveys rested on a concrete pad.

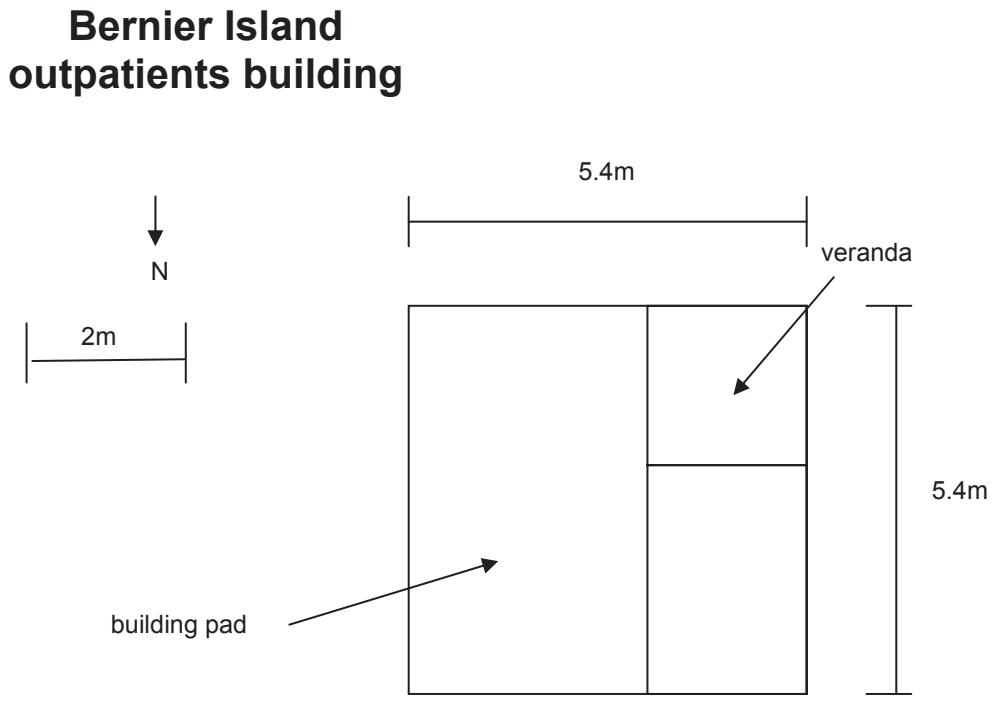


Figure 8.21. Archaeological plans of the outpatients building.

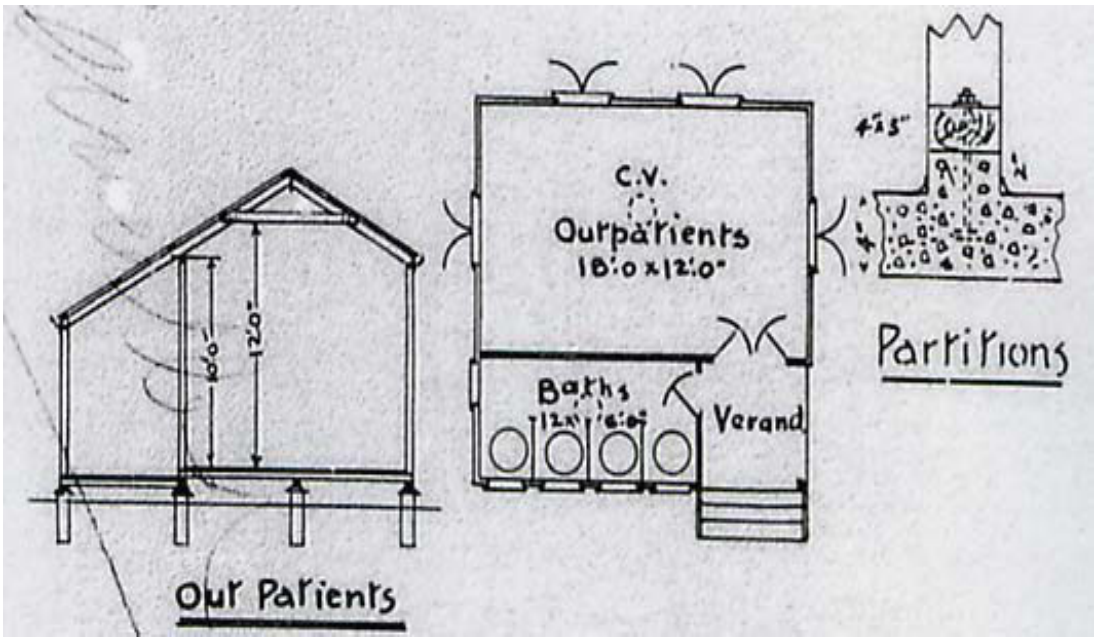
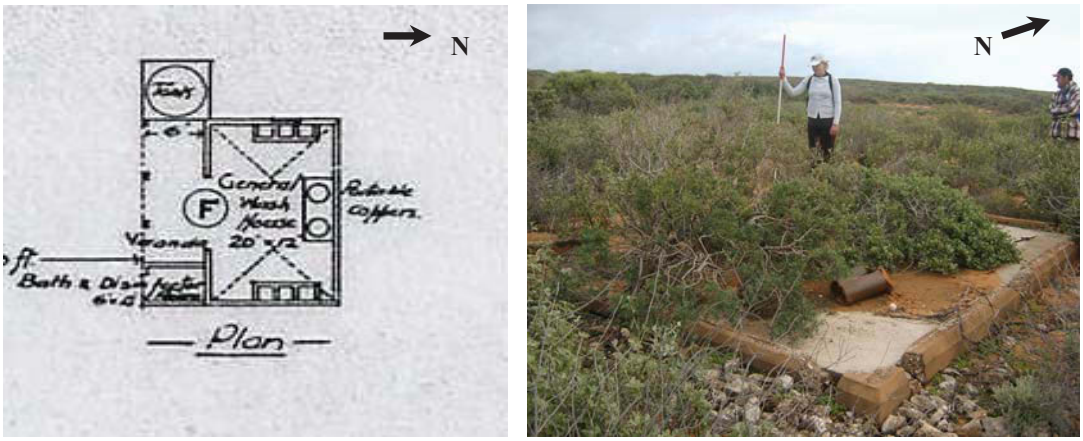


Figure 8.22. Plans of the outpatients building in August 1911 (State Records Office, Cons 1647 P.W.D WA15024). Archaeological surveys suggest that these plans were followed closely.

Very few artefacts were associated with this site. Those that were present included building materials, window pane glass and enamelware. (Artefacts described in detail later in chapter and in Appendix D). Site A13, a brick pad suitable for bearing a water tank was approximately 10m south east of the outpatients building.

THE LAUNDRY (A7)

The laundry, the most eastern of the hospital structures, was identified by its position relative to the ward, its dimensions and its associated artefacts. The laundry pad was a simple rectangular structure measuring 3.6 m by 3.4 m of concrete outlined with red bricks (Figure 8.23b) with a doorway in the northwest corner lying to the north east of the ward. No architectural plans exist for the laundry on Bernier Island as such, but the structure surveyed fitted the architectural plans for the laundry on Dorre Island and is assumed to be an identical structure (Figure 8.23a). Artefacts associated with this site included a large spread of coke (fuel) approximately 4 m by 2 m, various building materials and metal containers. (Artefacts described in detail later in chapter and in Appendix D).



a) b)

Figure 8.23. a) Architectural plans of the laundry in August 1911 (State Records Office, Cons 1647 P.W.D WA15024) and b) photograph of the laundry pad located during the archaeological survey.

OTHER STRUCTURES

THE STABLES/ YARD (A8/A12)

The stables and associated yard were located between the ward and the outpatients building. The stable had a pad made of an aggregate of concrete and what seems to be local stone rubble, measuring approximately 6.8 m by 3.4 m. The yard measured approximately 100m by 100m (Figure 8.24). The yard itself lay on flat ground and was fenced off by wooden posts and wire. In one area chicken wire seemed to define a smaller fenced-off area inside the larger yard. Numerous sheets of corrugated iron, a stock trough and a water tank which was probably for storing water for the stock trough were also identified (Figure 8.25). While no architectural plans exist for the stables on Bernier Island, they lay in the same position relative to the other hospital structures as the stables in the Dorre Island plans. Reference in historical documents (Battye Library Collection 3185B) to the 'Bernier Island horse' provides supportive evidence for the existence of stable and yard. The only other artefact present was a horseshoe.

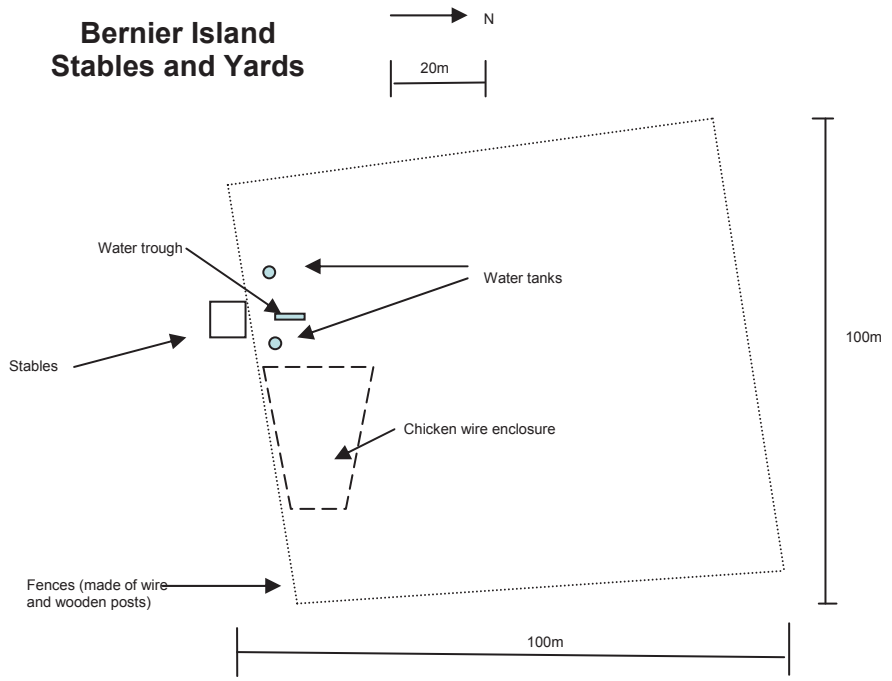


Figure 8.24. Archaeological drawings of the stables and associated yards on Bernier Island.

a) **b)**

Figure 8.25. a) Photographs of the water tank and b) trough associated with the stables and yards on Bernier Island.

JETTY (J1)

Other structures mentioned in historical documents as being built on Bernier Island included a jetty and a dispensary office or dressing shed on Windmill Flats. Evidence for both of these was found during surveys.

Remains of the jetty (J1) were found in the middle of Hospital Bay directly over the dune from the hospital sites. It consisted of wooden beams and bolts (Figure 8.26) attached to the rock and coral structure. It extended into the bay for at least 20 metres.

Figure 8.26. Wooden beams of part of the jetty on Bernier Island, location of the jetty (insert left) and one of the bolts that was attached to the coral bed (insert right).

WINDMILL FLATS (C6)

The other site mentioned in the historical records is that of a dressing shed on Windmill Flats. 'To accommodate the Lock Hospitals a one-room dispensary was built on Windmill Flats on Bernier Island where Aboriginal inmates were to make their camp and an office was built on the beach where baths were to be taken' (Brodribb 1909) (Figure 8.27). The only archaeological evidence for these structures consisted of wooden posts and scattered artefacts (D3, D4, D6, D7, D9, D11, D14) (Figure 8.28).

Figure 8.27. Photograph of the structure built on Windmill Flats (Battye Library 3185B/42, 3185B/48).

Figure 8.28. Windmill Flats: area where dispensary was located, location of Windmill Flats (insert left) and wooden post left in the area (insert right).

It is interesting to note that no windmill justifying the naming of this area was found on Bernier Island during archaeological surveys, nor does any appear in any historical photographs. Two wells were found within the area however and may have been the source of the name 'Windmill Flats'.

WELLS AND WATER TANKS

Two wells (D8, X1) were found to the north of the hospital site (Figures 8.29, 8.30). Both consisted of cement or limestone lined holes measuring approximately 1.5 m by 2.5m.

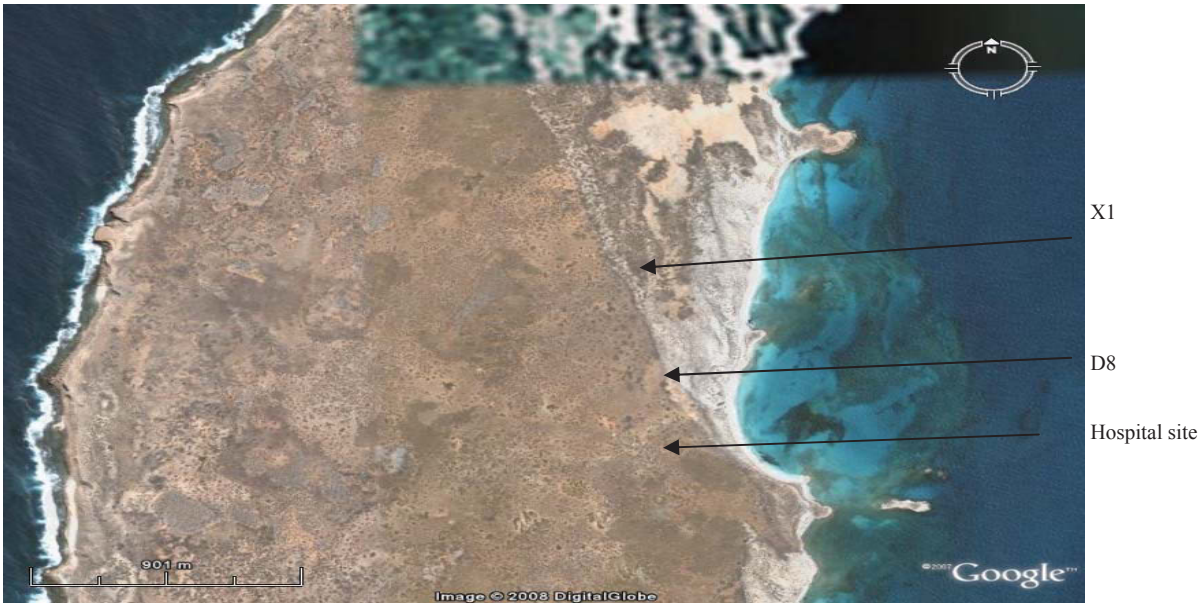


Figure 8.29. Location of two wells on the Bernier Island.

Site D8 also contained a hand pump and pump stand labelled F.E. Myers & Son (Figure 8.30).

a) b) c)

Figure 8.30. Photographs of parts of the well site D8, a) pump handle, b) pump stand and c) well.

In total, remains of six water tanks corresponding to those described or pictured in the historical records (Battye Library 3185B/43, 3185B/44 3185B/45, 3185B/46, State records Office Cons 1647 P.W.D 15024) were found on the island in association with the administration building, the ward, the doctor's house and the stables (Figure 8.31). As indicated in the historical records all were approximately 1.5 m in diameter.

a) b)

Figure 8.31. Remains of water tanks found on Bernier Island associated with a) administration building (A1) and b) ward (A6).

Numerous pieces of guttering and down pipes were also found near the hospital sites (Figure 8.32) suggesting that at least some of the water was collected as rainwater. A tap found near the administration buildings suggests that water was pumped through a water system.

a) b)

Figure 8.32. a) Remains of guttering and down pipes found east of the hospital buildings (C3a) and b) a tap found near the administration building (S2).

Figure 8.33 illustrates the distribution of water tanks, underground storage tanks (A3) and wells (D8 and X1) on the island.

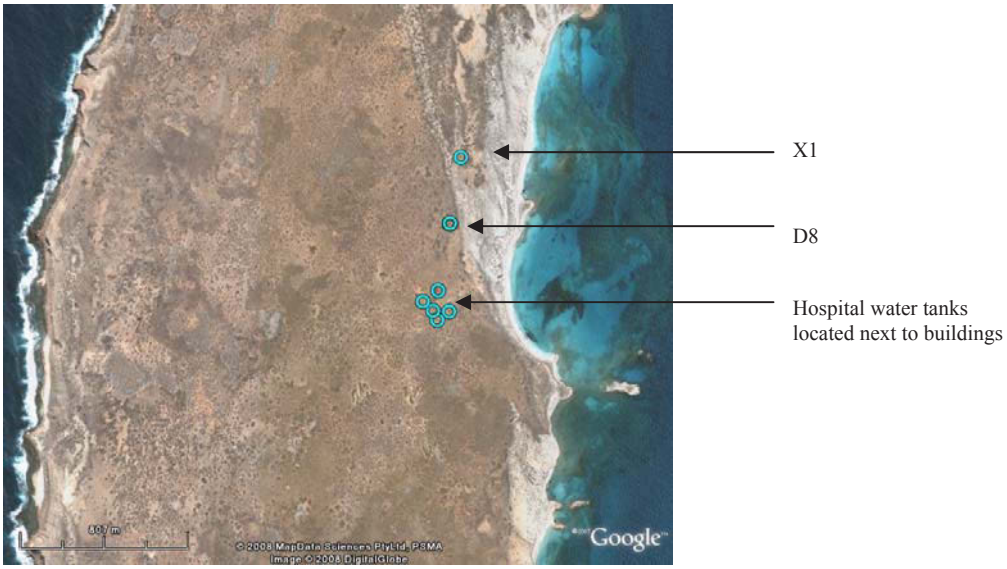


Figure 8.33. Map of distribution of water tanks and wells (X1, D8) on Bernier Island.

TRANSPORT AND TRANSPORT ROUTES

The only other observable European features on the island were the artificial paths or roads across the landscape. One path ran from the administration area to the doctor's house and the other to Windmill Flats. Both of these paths also led to the wells, as can be seen circled in the black and white 1959 DOLA satellite image of the islands (Figure 8.34).

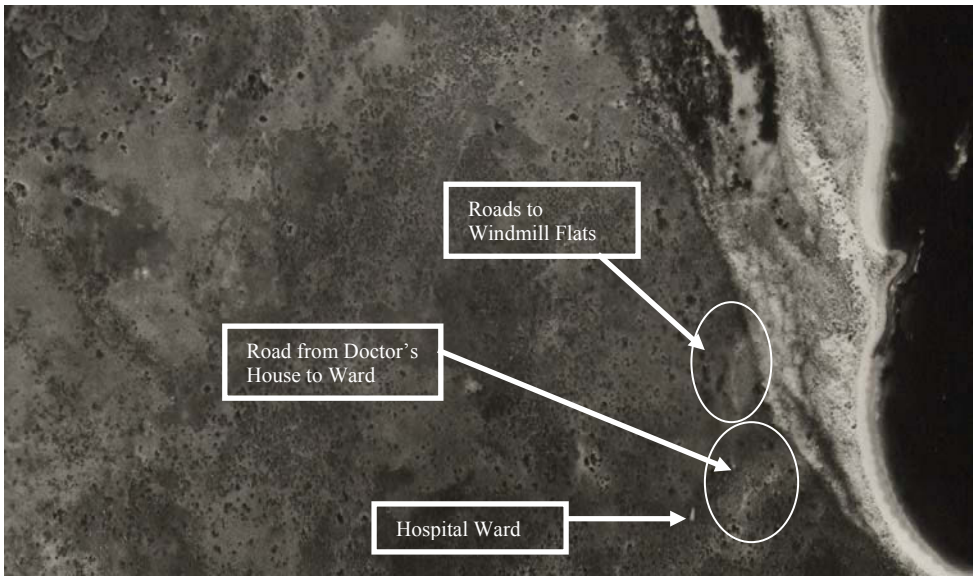


Figure 8.34. 1959 Aerial Photograph of Bernier Island showing the outline of roads or paths associated with the Lock Hospitals (DOLA).

A wagon was associated with the road near Windmill Flats (site D12) (Figure 8.35b,c). The dimensions of the cart approximately matched those seen in the historic photographs (Figure 8.35a), the frame being 1.2 m wide and 2 m long and the wheel spokes about 1.5m in diameter. Ride *et al.* (1962), in their 1957 survey of the islands also photographed and recorded the cart, indicating that it must have sat untouched for at least 50 years. A horseshoe was associated with this site.

a) b) c)

Figure 8.35. a) Historical photograph of the cart on Bernier Island (Battye Library 3185B-51) and b, c) photographs of remains of cart (D12) from archaeological surveys.

RUBBISH DISPOSAL AREAS AND ARTEFACT SCATTERS

Historical sources rarely discuss the location of rubbish sites in relation to European housing. There are no written sources of information concerning where the Europeans on Bernier Island disposed of their unwanted goods. Only two sites (B8, B10) on Bernier Island were considered to be rubbish dumps on the basis of the large proportion of artefacts concentrated in one area out of visible site of living areas. Other sites (23) gave the appearance of scatters of artefacts (Figure 8.36) (smaller rubbish disposal areas with less variety of artefact types). The dump sites contained European imported manufactured goods, such as building materials, glass ware, bottle glass, ceramics, enamelware, metal containers, personal items such as buttons, clay pipes, buckles, and domestic animal remains.

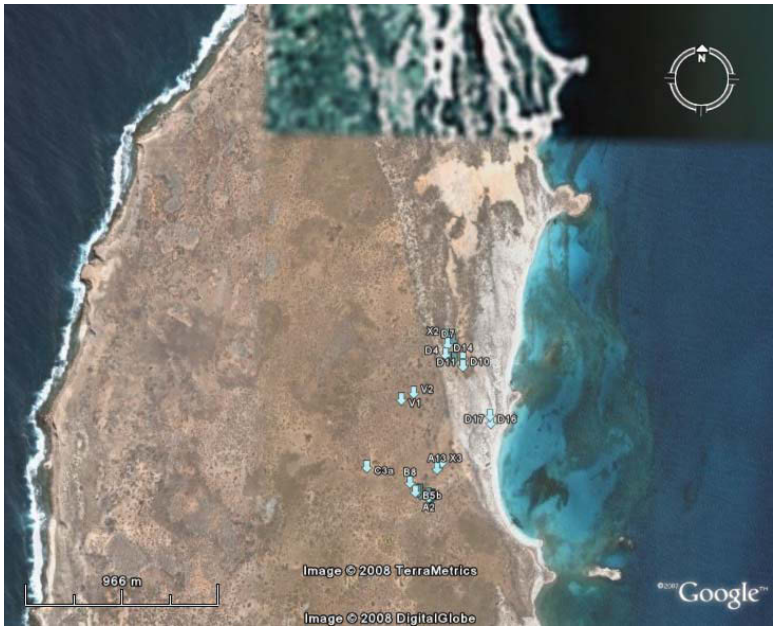


Figure 8.36. Location of European artefact scatters and dump sites across Bernier Island (modified from GoogleEarth). Sites are numbered in accordance with Table 8.1

ARTEFACTS

BUILDING MATERIALS

Buildings on Bernier Island were described in the historical records as being constructed on concrete pads with jarrah and asbestos walls and corrugated iron roofs (Mulvaney 1989:189). While it is believed by Jebb (pers comm:2004) that the timber frames of these buildings were removed from the islands at the end of the scheme and taken to the Moore River Indigenous Settlement, no formal records for this relocation have been found. However, it is also believed by Warren (2000) that in 1918 a number of former buildings in use at Bernier and Dorre Islands were transported to Port Hedland and re erected at the new hospital site. These buildings included separate men's and women's wards said to accommodate up to 20 individuals (Warren 2000).

On the other hand, the fact that remnants of building materials were found scattered across the survey area, most close to the hospital pads may contradict the idea of their relocation. Forty building objects including jarrah beams, red bricks, asbestos, corrugated iron, water/sewage pipes, nails and window pane glass were identified (Figure 8.37), in addition to structures like brick fire places and bolts still attached to the concrete pads.

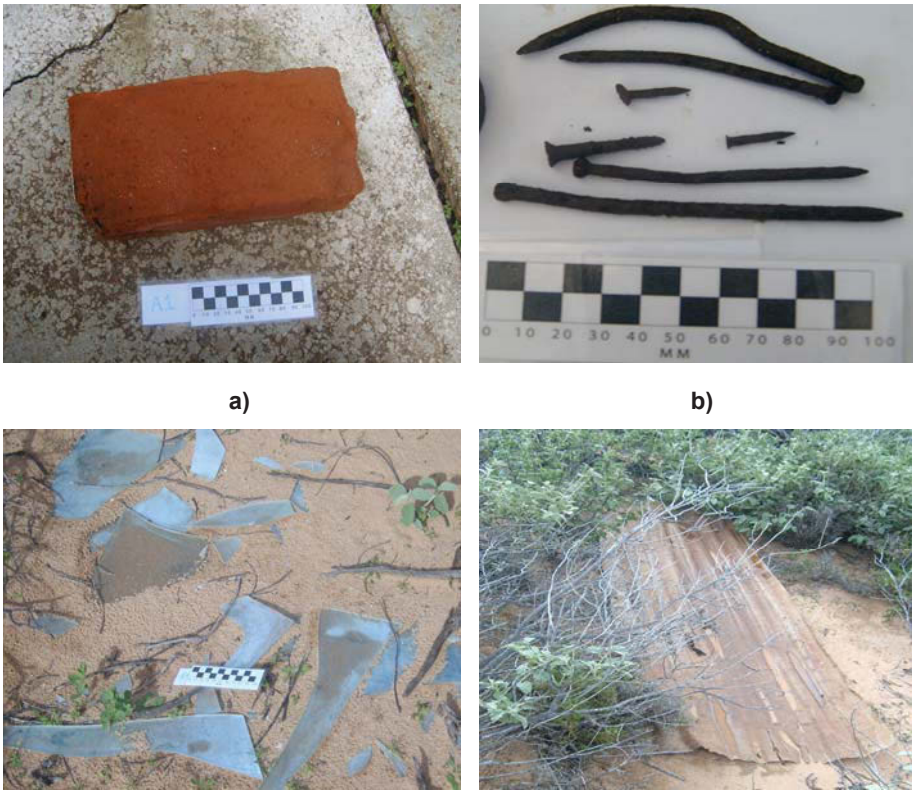


Figure 8.37. Examples of building materials found associated with hospital structures on Bernier Island a) red brick (A1), b) nails (A9), c) windowpane glass (A1), d) corrugated iron (A8).

The pieces of jarrah beams and asbestos lying across the building pads were taken to be part of the building frames. While corrugated iron, mostly highly corroded, was found scattered across the island it was associated with only eight (18.6%) European sites including the hospital buildings, the stables and the building pads to the east of the hospital buildings. The scarcity of corrugated iron associated with European sites was surprising, as historical records indicate that most of the structures were made in part of corrugated iron. Its absence may support Jebb's suggestion that the buildings were removed.

Red bricks were only found in association with fireplaces at the administration and outpatients buildings. The consistency of quality and uniformity of bricks and the presence of the frog (indent in top of brick) indicated they were machine made. No makers' marks were present.

The majority of nails were badly corroded, making detailed identification and recording difficult. They ranged in size from 2.5 cm to 11 cm long. Most had no markings, but one was labelled 'nail head Jeffery No 12 Guildford' (common nail produced in Guildford, WA), suggesting that at least some were Western Australian made. Bolts of different thicknesses were found embedded in the concrete pads of the

buildings and in the coral bed at the jetty site. None bore makers' marks or any other form of identification. Window pane glass of a uniform thickness (0.5mm), and colour (clear) was found associated with the administration and outpatients buildings, the laundry, and the stables.

No evidence was found that the buildings were constructed in any other manner than that described in the historical records.

GLASS WARE AND BOTTLE GLASS

One hundred and twenty one non medicinal individual glass artefacts were found on Bernier Island in association with European sites (Figure 8.38, Table 8.2). Only the full bottles and larger intact pieces of glass, like bottles, were able to be identified. The overwhelming majority (88.7%) of glass artefacts were fragmented. Only 12 glass objects in total, mainly beer bottles, were complete (Figure 8.39).

Figure 8.38. Examples of glass artefacts found at European sites on Bernier Island, in this case at the ward site (A6).

Glass artefacts were classified into alcohol bottles (beer/wine glass, spirits bottles) condiment bottles (oils, sauces, stocks) poison bottles, chemical bottles, containers for household toiletries (creams, makeup) dinnerware and table glass wares and other glass artefacts like lamps, lights and ornaments.

a) b) c) d) e)

Figure 8.39. Examples of intact alcohol bottles a), spirit bottle from V3 b), beer/wine bottle from X1c), beer/wine bottles from X2, condiment bottle d), Bovril jar from B3 and household toiletries e), cream jar from A8.

Table 8.2. Glass artefacts found at European sites on Bernier Island.

Site	Number	Beer/wine	Spirits	Condiment	Storage food jar	Poison	Chemical	Perfume	Toiletries	Dinner ware	Other	Unknown	Highly fragment	Whole pieces
A1	*22*	*6*	*9*	*6*	*0*	*0*	*0*	*0*	*0*	*0*	*1*	*0*	*no*	*no*
A1a	*1*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*1*	*no*	*no*
A3	*3*	*0*	*0*	*1*	*0*	*0*	*0*	*0*	*0*	*1*	*0*	*1*	*yes*	*no*
A4	*5*	*3*	*0*	*2*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*no*	*no*
A5	*5*	*2*	*0*	*1*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*2*	*no*	*no*
A5a	*9*	*6*	*0*	*2*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*1*	*yes*	*no*
A6	*15*	*4*	*1*	*4*	*1*	*1*	*1*	*0*	*0*	*0*	*0*	*3*	*no*	*no*
A7	*2*	*0*	*1*	*1*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*no*	*no*
A8	*1*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*1*	*0*	*0*	*0*	*no*	*no*
B1	*3*	*3*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*yes*	*no*
B3	*24*	*14*	*2*	*5*	*0*	*0*	*1*	*0*	*0*	*0*	*0*	*2*	*no*	*yes*
B4	*4*	*1*	*1*	*2*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*yes*	*no*
B5c	*1*	*0*	*0*	*1*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*no*	*no*
C6	*3*	*3*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*yes*	*no*
D10	*1*	*0*	*0*	*1*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*no*	*no*
D11	*2*	*0*	*0*	*0*	*0*	*1*	*0*	*0*	*0*	*0*	*1*	*0*	*no*	*no*
D14	*2*	*1*	*0*	*1*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*no*	*no*
D6	*1*	*1*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*no*	*yes*
E4	*1*	*0*	*0*	*0*	*0*	*0*	*1*	*0*	*0*	*0*	*0*	*0*	*yes*	*no*
V3	*1*	*0*	*1*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*no*	*Yes*
X1	*1*	*1*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*no*	*Yes*
X2	*6*	*6*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*no*	*Yes*
X3	*1*	*1*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*no*	*Yes*
X4	*4*	*3*	*0*	*1*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*no*	*No*
X5	*3*	*3*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*no*	*No*
Total	***121***	***58***	***15***	***28***	***1***	***2***	***3***	***0***	***1***	***1***	***2***	***10***	*-*	*-*

Most of the glass artefacts were located at artefact scatters associated with the European accommodation sites (B3, A5, A6), and were beer/wine bottle glass. Figure 8.40 is an analysis of the total number of glass artefacts of different types found at European sites.

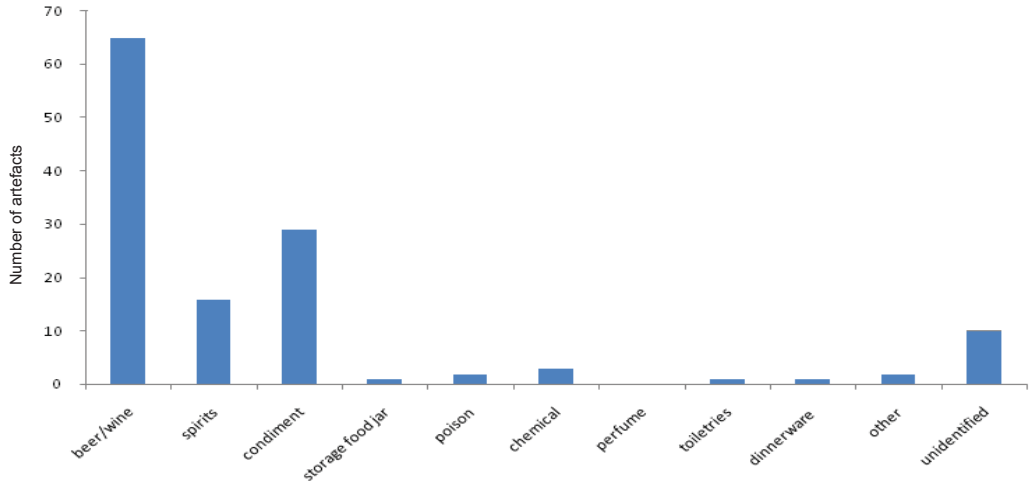


Figure 8.40. Frequency of glass object types found at European sites on Bernier Island.

Two metal seals from alcohol bottles were also found associated with European rubbish sites (B4, B8). A Penfold's port bottle seal (Figure 8.41) was found at B4 and a 'Cognac' seal at B8.

Figure 8.41. Penfold's port bottle seal (B4).

A piece of glass lampshade (labelled 'other') was found at the administration area (A1). The hospital sites (A1, A6) and their associated artefact scatters (B3, A5a) contained the largest variety of glass artefacts, including household glass and glass containers for consumables. It is noteworthy, however, that little household glass was found at these sites. Chemical and poison bottles identified from their large size and labels were found associated only with the ward site (A6) and administration area (A1, A2, A3, A4, A5).

ENAMELWARE

Mass production of enamelled kitchenware started in the latter part of the nineteenth century and has been common in archaeological sites dated since that time. Enamelware, that is steel, iron or aluminium objects covered with a glass-like porcelain enamel, was only found in association with European sites on Bernier Island. Only eight sites (18.6%), all of which were hospital structures or associated artefact scatters, contained enamelware. In total 12 individual blue or white enamelware objects were found, consisting mostly of plates and cups, and one jug. All

artefacts had a recognisable form. All were consistent with the date of the hospital scheme.

Figure 8.42. Examples of enamelware found at European sites on Bernier Island a) jug from the administration area (A1) and b) blue mug from the ward (A6).

METAL CANS

A total of ten cans was found at the hospital sites and their associated artefact scatters (A1, A6, A7, C6, D7, X5) (Figure 8.43). All food cans observed exhibited double sided seams. Poor preservation made it difficult to determine the function of most, but they could be broadly divided into two categories based on shape: those that contained food (9) and those that contained tobacco (1). The food cans all had double sided seams. None of the markings were identifiable and no clues as to their exact contents were evident.

Figure 8.43. Example of poor preservation of metal cans found on Bernier Island (A1).

CERAMICS

Sixty two ceramic items (both whole objects and sherds) were found at 12 of the 43 European sites, namely the administration building and its associated scatter (A1, A1a, A3), at the laundry (A4), the doctor's house and associated scatter (A5, A5a), the ward (A6), in isolated artefact scatters (B1, B4, D10, X5) and at the large rubbish dump behind the ward (B8). The type or form of ceramic found at each site is set out in Table 8.3.

Table 8.3. Ceramics found at European sites on Bernier Island.

Site	Total	Cream ware	Earthen ware	Stone Ware	Porcelain	Bone china	Presence whole pieces	Relative Expense
A1	32	29	1	1	1	0	no	medium
A1a	1	0	0	0	0	1	yes	medium
A3	1	0	0	0	0	1	no	medium
A4	4	0	2	0	1	1	no	High
A5	4	1	0	0	3	0	no	High
A5a	1	0	0	0	1	0	no	High
A6	1	0	1	0	0	0	no	Low
B1	1	1	0	0	0	0	no	Low
B4	1	1	0	0	0	0	no	Low
B8	12	3	0	0	5	4	yes	High
D10	1	1	0	0	0	0	no	Low
X5	3	3	0	0	0	0	no	Low
Total	**62**	**39**	**4**	**1**	**11**	**7**	-	-

Five main types of ceramics were associated with European sites: creamware, earthenware, stoneware, true porcelain and bone china (Figure 8.44). Thirty nine (60%) pieces were government supply plain and willowware and patterned cream ware (Figure 8.45a,b). There were eleven (15.9%) porcelain pieces (Figure 8.45c). Some whole pieces of ceramics were found at the administration area and the large rubbish dump behind the ward (B8). Sites associated with the administration building and doctor's house (A4, A5, A5a) and the rubbish dump behind the ward (B8) contained the most expensive ceramics, including the porcelain pieces. The ward site and isolated artefact scatters north of the ward towards Windmill Flats contained few, simply designed and cheap ceramics.

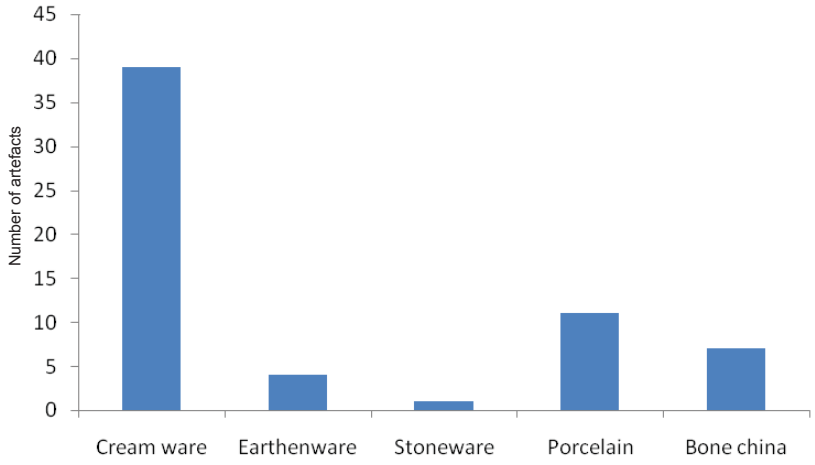


Figure 8.44. Frequencies of different ceramic types found at European sites on Bernier Island.

a) b) c)

Figure 8.45. Examples of different types of ceramics found at European sites on Bernier Island, a) willowware pattern vase (B8), b) patternware plates, stoneware ginger beer bottle, creamware cups (B10), c) and earthenware and porcelain sherds (A4) .

Most ceramics were pieces of plates, bowls and cups. A few vases and one porcelain container, probably for cosmetic cream, were also found. Very few ceramic pieces displayed makers' marks but those that did revealed a mix of locally produced pieces and pieces obtained through international trade (England, China) (Figure 8.46).

a) b)

Figure 8.46. Makers' marks on ceramics which shows where some items have originated a) stoneware with Bourne, Derby (A1) b) willowware pattern vase (B8).

Three ceramic tiles (Figure 8.47) were found in association with the administration building and the doctor's house. They were of the wrong shape and design for wall or floor tiles.

a) b) c)

Figure 8.47. Ceramic tiles found associated with the administration building (A5, A4, A1).

CLAY AND BAKELITE PIPES

Fifteen fragments of clay pipes and one fragment of a bakelite pipe (Figure 8.48) were found across seven European sites: the ward (A6), the large rubbish dump (B8), at isolated scatters (A5a, D14, X4), the well (X1) and Windmill Flats (C6) (Table 8.4). None of these pieces could reasonably be considered parts of the same pipe.

Table 8.4. Clay pipes found on Bernier Island.

Site	Total clay pipes	Stems	Bowls	Whole	Bakelite
A5a	2	1	1	0	0
A6	1	1	0	0	0
B8	8	5	2	0	1
C6	1	1	0	0	0
D14	2	0	2	0	0
X1	1	1	0	0	0
X4	1	1	0	0	0
Total	**16**	**10**	**5**	**0**	**1**

All pipes were consistent in style with the period of the Lock Hospitals in the early 1900s. Most were simple (no ornamentation) and made of white clay or kaolin in a mould, indicated by the presence of mould marks on the pipes, like those commonly found in historical sites in Western Australia and imported in quantity from Europe. Most bore no makers' marks (Figure 8.48b), but some pipes were marked with W.White and Ben Nevis. Only one ornate pipe, bearing a simple fluted design and spur, was found between the administration area and the doctor's house (A5a) (Figure 8.48a). One bakelite pipe mouthpiece was found at B8 (ward rubbish dump) which must date to after 1910, the date of the invention of bakelite.

a) **b)**

Figure 8.48. Examples of smoking pipes found at European sites. a) Fluting design with spur found near A5a and b) examples of simple pipes found at ward rubbish dump B8.

CLOTHING (BUTTONS, SHOES AND BUCKLES)

Buttons were found at five European sites including the ward (A6), the underground water tank (A3), at two artefact scatters (A5a, B1) and at a dump site near the ward (B8). In total 12 buttons were found, including both four hole and two hole types made of bone or pearl shell, between 12-15 mm of the type generally used on underclothes (Figure 8.49). A few flat copper metal buttons between 16-18 mm with no markings, like the bases for cloth covered buttons from outer clothing were also found.

a) b)

Figure 8.49. Examples of buttons found at European rubbish sites. a) A bone four-holed button found at A5a and b) a pearl shell two-holed button found at B1.

Two metal buttons (one of standard large size and one of small size) labelled 'Australian Commonwealth' with King Edward VII insignia in the middle were found in the European rubbish dump behind the ward (Figure 8.50).

a) b)

Figure 8.50. Military Buttons a) found on Bernier Island (B8) and b) taken from known collection from Cossum (1988:30) 'Australian Commonwealth' with King Edward VII insignia in the middle.

These buttons were standard Australian military forces jacket buttons from the first decade of the twentieth century (Cossum 1988:30). The presence of military buttons does not necessarily indicate that military personnel were present, as the buttons may have come to be on the island in numerous ways. They or the jacket to which they were attached could have been lost, stolen or given as a gift and taken to the islands by anyone, though historical evidence suggests at least the occasional presence of uniformed personnel (Figure 8.51). The back of the large button bears the words Gaunt & Son, Birmingham. Such buttons were produced in Melbourne by Gaunt and Sons during the latter part of the 1910s. The fact that the buttons were inscribed with Birmingham rather than Melbourne indicates that they date from before the period when Gaunt and Son were producing these buttons in large enough quantities for trade between the Australian states.

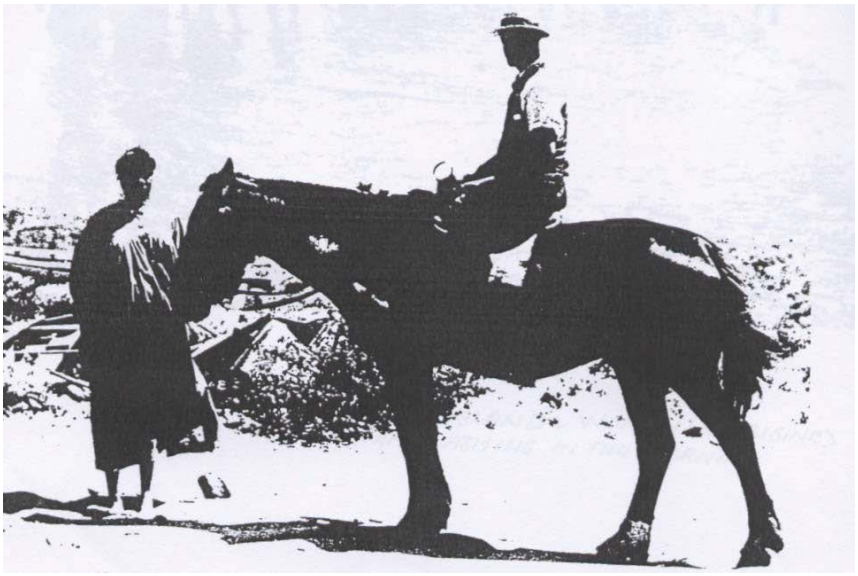


Figure 8.51. Historical photograph of government official, wearing a uniform which may have included the military buttons found on Bernier Island. (Battye Library Collection 3185B). This picture was labelled 'the Bernier Island horse'.

The remains of three shoes with stitching across the sides were found at the stables (A8), the wagon remains (D12) and the well. They were extremely crude in nature and poorly preserved. Their association with the stables, wagon and well (D8) may suggest that they were working shoes, though it is possible that shoes were repaired at the stables.

One large buckle was found on Bernier Island (Figure 8.52) at the European rubbish site (B8). None of the photographs show the nurses wearing such buckles, but photographs do show Dr Pritchard's children wearing a similar if not identical buckled belt (Figure 4.12). Aboriginal male patients are also photographed wearing similar buckles (Figure 4.6).

Figure 8.52. Belt buckle found on Bernier Island (B8).

OBJECTS (CLOCKS, LOCKS, AND DOORBELLS)

Other objects found on the island included clock and lock parts and a doorbell. These objects were found at two sites, the administration building (A4) and the rubbish dump associated with the ward (B8). The doorbell, found at the administration building, was presumably used to notify staff of patient arrivals (Figure 8.53). The clock and lock parts were found near the ward dump (B8) (Figures 8.53, 8.54). The clock was most likely used by nursing staff or doctors to keep track of time. The lock has inscribed on it 'Fisher 188 Strand Lever'. Its presence most probably relates to medicines, valuables or food rations that needed to be locked away. A photograph (Figure 4.10) shows one of the nurses with keys attached to her belt. As she has more than one key, and some quite large keys, it was likely that other areas were locked at times.

a) b) c)

Figure 8.53. a) Door bell found at A4 and b, c) clock parts found at European sites (B8) on Bernier Island.

Figure 8.54. Lock part found at European rubbish site near ward (B8) on Bernier Island.

OTHER OBJECTS OF INTEREST

Parts of bed frames were found scattered across the hospital sites, particularly in association with the ward and the administration building (Figure 8.55). Bed frames from the ward and the administration building were different. Those found at the administration site were more intricate than those from the ward.

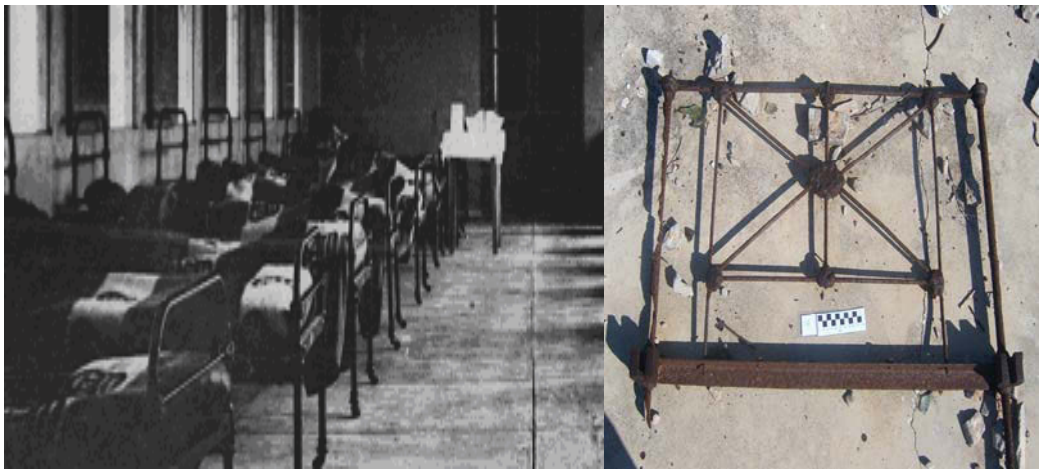


Figure 8.55. Bed frames found on Bernier Island. Note dissimilarities between a) the ward (Battye Library 725B/67) and b) the ones at the administration building (A1).

A piece of writing slate (Figure 8.56) was found on Bernier Island associated with the European accommodation area (A1).

Figure 8.56. Writing slate found associated with European accommodation (A1).

A chape (Figure 8.57) was found on the island at site V1, close to Windmill Flats. Two wash baths were found on the island, one associated with the administration building and the other at Windmill Flats (Figure 8.57).

a) **b)**

Figure 8.57. Example of a) wash baths (D6) and b) chape (V1) at Windmill Flats.

Another object of interest was a metal toilet can with the words 'Bernier Island' on it (Figure 8.58). A watering can, missing a spout, was also found on Bernier Island, suggesting gardening activities or the production of plants for consumption.

a) b)

Figure 8.58. a) Toilet can on Bernier Island that displays the name 'Bernier', the word 'Island' is on the other side (A6) and b) watering can (A1).

FOOD (BONE, SHELL AND PLANT REMAINS)

Very few food related items were found associated with European sites. In total three sheep bones were found at European scatters (B10, C6, D8). All were highly fragmented and further information could not be obtained.

Eight oyster, abalone, baler, cockle, clam and/or cowrie shells were found associated with European accommodation sites (A1a, A3, A5, X4). Site A5, part of where the site doctor's children would have lived, contained five different shell types, probably reflecting the collection of the shells for aesthetic value rather than food.

No remains of any plants eaten were identified.

MEDICAL EQUIPMENT AND BOTTLES

In total 19 medical related artefacts were found across nine European sites (Table 8.5). Eleven were medical bottles (Figure 8.59a), four tonic bottles (Figure 8.59b) and four other medical objects (Figure 8.59c-f), all identified from their shape and colour of glass.

Table 8.5. Medical objects found on Bernier Island at European sites.

Site	Total artefacts	Medicinal Bottles	Tonic Bottles	Medical equipment
A1a	3	0	3	0
A4	1	0	0	Ceramic crucible
A5	5	4	1	0
A5a	4	3	0	Shaker lid
B3	2	2	0	0
A8	1	0	0	Funnel
D7	1	0	0	Glass test tube
V2	1	1	0	0
V3	1	1	0	0
Total	**19**	**11**	**4**	**4**

All of the tonic bottles were associated with the administration building and most of the medical equipment with the administration building (A1-A5) and ward sites (A6). Isolated medical artefacts were found scattered throughout sites A4, A5a, A8 and D7.

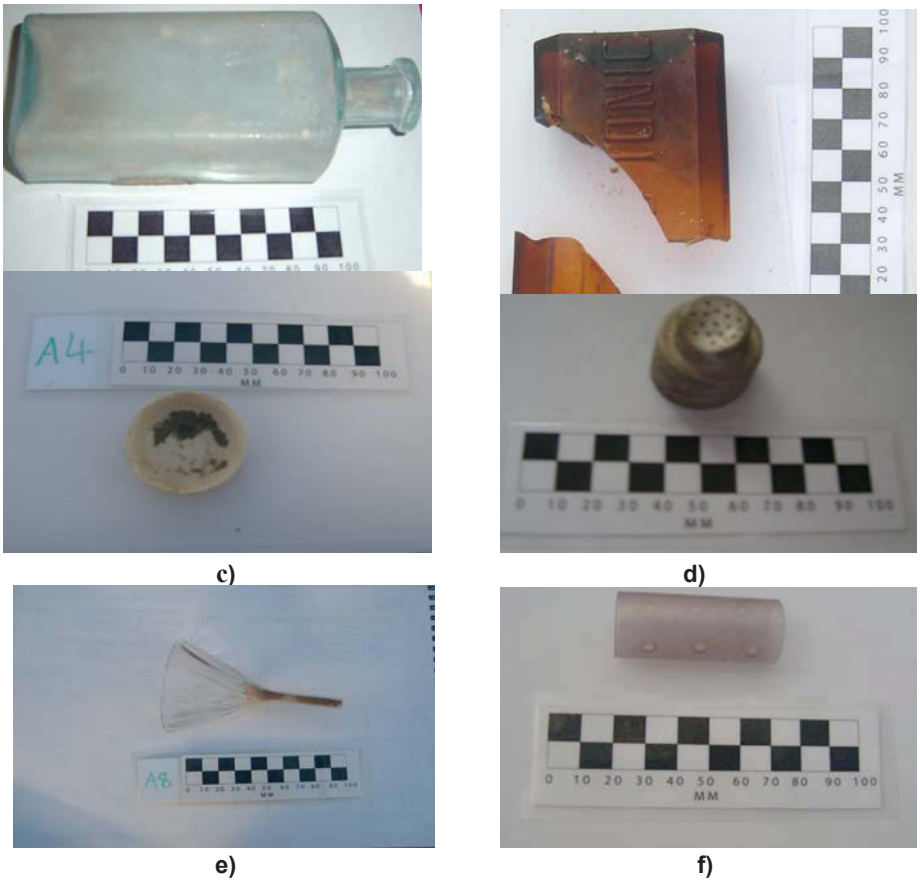


Figure 8.59. Medical objects found on Bernier Island a) medical bottle (V2), b) tonic bottle (A1a), c) ceramic crucible (A4), d) powder shaker lid (A5a), e) glass funnel (A8), f) test tube (D7).

Residue of heavy metal compound contained within a medical bottle and a ceramic crucible (Figure 8.59c) was noted. None of the medical objects bore makers' marks. All medical articles were imported into Western Australia from Europe during the period of the Lock Hospital Scheme.

EUROPEAN SITES – SUMMARY OF RESULTS

A summary of the artefacts found on Bernier Island, the origins and the dates of manufacture as determined by makers' mark or known production from historical sources is set out in Table 8.6.

Table 8.6. Summary of artefact types, number and origin of artefacts found on Bernier Island associated with European occupation.

Artefact Type	Number of artefacts	Date of artefacts	Origin of artefacts
European building materials	40	1890s -1918	Local
Glass	121	1900-1915	Interstate
Enamelware	12	Post 1900s	International
Metal Cans	10	Post 1850s	interstate and international
Ceramics	65	1906 – 1915	International
Clay pipes	16	Post 1890's	International
Clothing items	16	1902-1915	Local and international
Bone	3	1908-1918?	Local
Shell	8	1908-1918?	Local
Lithics/Vitrics	0	-	-
Medical	19	1900- 1915	International
Other	15	-	International
Total	**325**	-	-

In summary the evidence associated with European sites suggests that:

Buildings/ Accommodation/ Infrastructure

- European accommodation was situated on dunes overlooking ocean, ward and Aboriginal accommodation

- Buildings were made of Western Australian imported materials, as described in the historical records/ architectural plans indicating no great need to modify to suit the environment
- Transport included roads, jetty, use of horses and carts
- There was little exploitation of natural island resources by Europeans for accommodation or other structures

Subsistence – food and water

- Rainwater was collected and stored in underground cisterns with evidence of a water distribution system
- Very few European food materials were identified
- There was little evidence of exploitation of natural resources by Europeans for food

Manufactured goods

- The majority of glass objects were beer/wine and condiment glass and most were highly fragmented
- Enamelware was mostly found at hospital sites
- Very few tin cans were found
- Expensive and intricately designed ceramics were found around European accommodation sites
- Clay smoking pipes were inexpensive and of simple design
- Very few clothing remains were found
- Most artefacts were imported either from interstate or internationally and all were in use on the island within a few years of being produced.

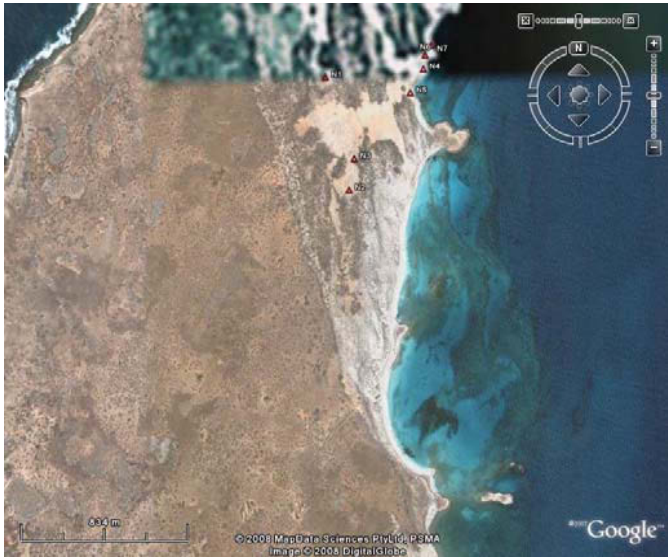
Medical

- Many medically related objects were identified, imported from international sources.

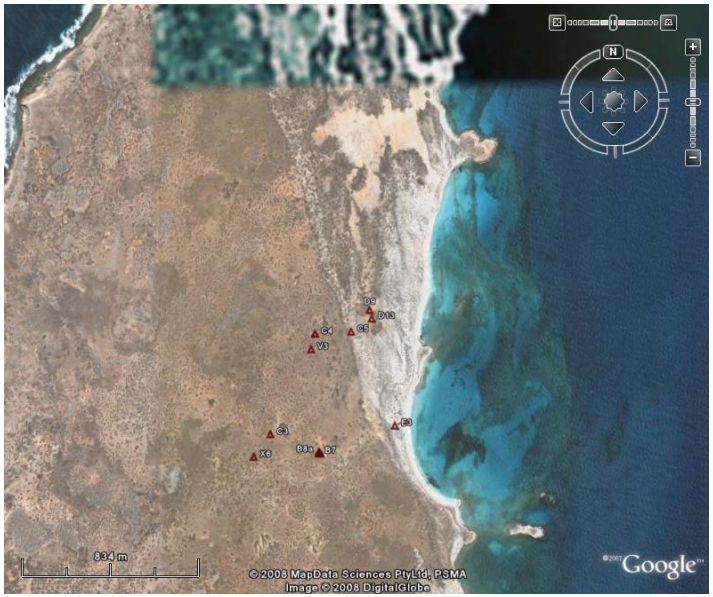
ABORIGINAL SITES

Twenty nine sites spread both inland and on the coast of Hospital Bay were associated with Aboriginal activity (Figure 8.60). Three types of sites were identified. Firstly, there were general artefact scatters with no well defined occupational area. Secondly, there were single use campsites which usually bore evidence of a one-off meal of oysters with some scatters of Aboriginal tools and metal objects. Finally, there were campsites used more than once which had large quantities of artefacts, including personal items, cooking material, accommodation remains, tin cans, shell and bone and broken bottle glass. There were ten artefact scatters (C1, C2, D2b, D2c, D5, D15, D17, E1, E2, R1), seven single use campsites (N1, N2, N3, N4, N5, N6, N7) and 12 repeat use campsites (B7, B8a, B9, C3, C4, C5, D9, D13, E3, O1, V3, X6) (Figure 8.61 and 8.62).

a) artefact scatters



b) single use campsites



c) repeat use campsites

Figure 8.60. Spread of Indigenous sites (Type II) sites (red triangle) across Bernier Island. Sites are numbered in accordance with Table 8.1

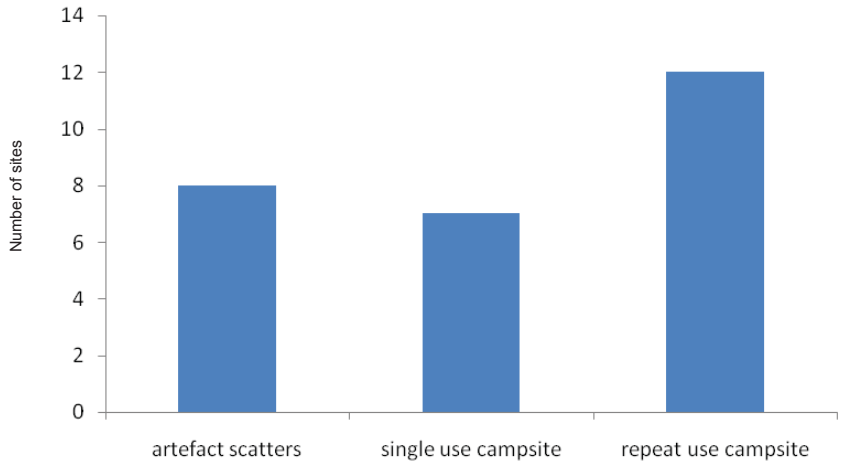


Figure 8.61. Frequencies of Indigenous site types on Bernier Island.

a) **b)**

Figure 8.62. Example of a) single use campsite N5 and b) repeat use campsite B8a.

The average distance of Aboriginal sites from the ward was 647m, though most fell within the 301 – 450 m range. All of the single use campsites lay to the north of Hospital Bay near oyster beds and at least 1200 m from the ward. The scattered artefacts and the repeat use campsites were within the Hospital Bay area, within 600 m and in direct sight of the hospital buildings and European living areas. Three repeat use sites (B7, B8a, B9) were less than 30 m from the hospital site (Table 8.7).

Table 8.7. Distance Aboriginal Sites are located from the ward.

Distance from ward	Artefact scatters	Single Use campsite	Repeat use campsites
Less 50m	-	-	B7, B8a, B9
51-150m	C1, R1	-	-
151-300m	C2	-	C3
301-450m	D5, D15, D17, E1, E2	-	C4, C5, E3, V3, X6
451-600m	-	-	D9, D13
601-1200m	-	-	-
1200+	-	N1, N2, N3, N4, N5, N6, N7,	O1

OTHER ABORIGINAL SITES

No human remains or any indication of grave markers were found during archaeological survey of Bernier Island.

BUILDING MATERIALS

Six types of building material (corrugated iron, asbestos, timber, nails) were found associated with Indigenous sites. Corrugated iron, two pieces in total, was confined to a single site (N4). Sites B7 and C3 each yielded one piece of asbestos, N1 one nail and D15 a length of jarrah timber. Too little building material was found to locate accurately the original position of the structures depicted in historical photographs (Figures 8.63 and 8.64).

Figure 8.63. Historical photograph of Aboriginal accommodation on Bernier Island. Example of the corrugated iron structures that were provided during the scheme (Battye Library 21075P).

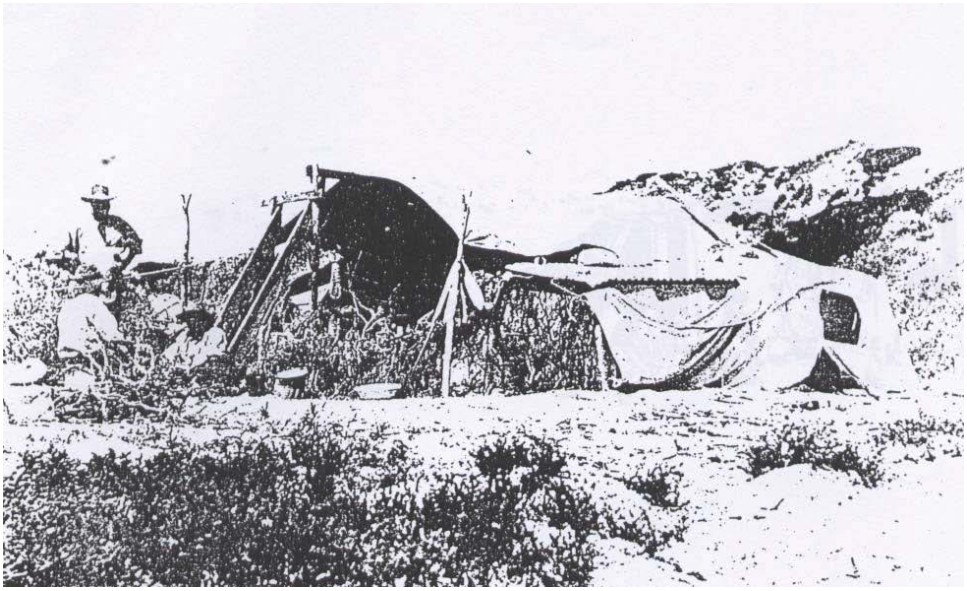


Figure 8.64. Historical photograph of Aboriginal accommodation on Bernier Island made from canvas and locally obtained timber (Battye Library 5021B/34).

GLASS

In total 56 glass artefacts were found associated with Aboriginal sites (Figures 8.65, 8.66, Table 8.8). The majority (96.4%) were fragmented. Only two whole bottles were found. The majority of the artefacts were beer and wine bottles or condiment jars. The Aboriginal sites differed from European sites in the absence of personal glass objects like toiletries containers and household glass. Very little poison or chemical bottle glass was recorded and only a few spirit bottle fragments. Sites C3, C1 and B7 had the most glass artefacts and B7 the largest variety of different types of glass.

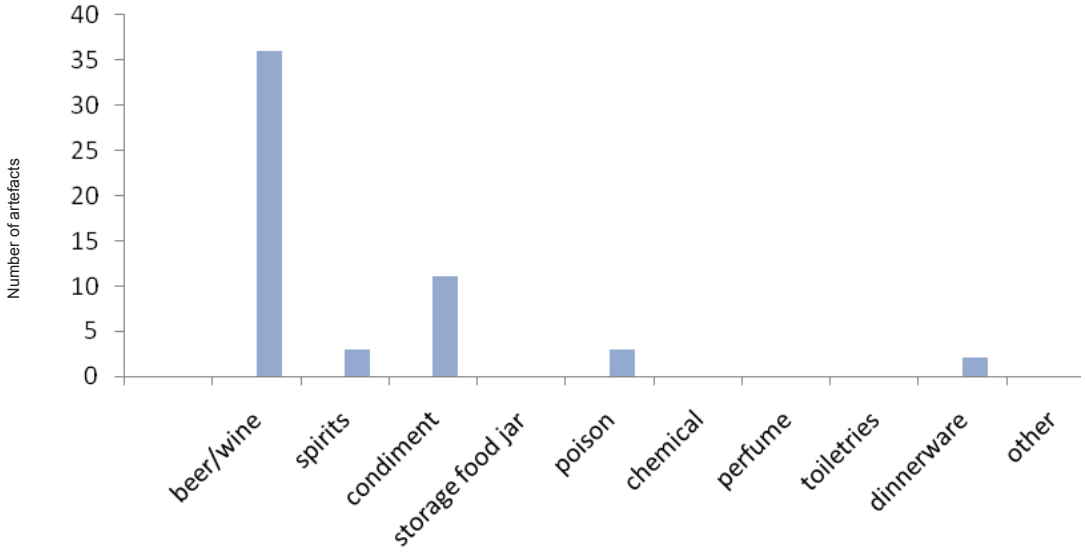


Figure 8.65. Frequencies of glass types found at Aboriginal sites on Bernier Island.

Figure 8.66. Examples of glass found at Aboriginal sites (B7) on Bernier Island.

Table 8.8. Glass artefacts found at Aboriginal sites on Bernier Island.

Site	No.	Beer/wine	Spirits	Condiment	Storage food jar	Poison	Chemical	Perfume	Toiletries	Dinner ware	Other	Unidentified	Highly fragment	Whole pieces
B7	6	2	1	2	0	1	0	0	0	0	0	0	yes	no
B9	1	0	0	1	0	0	0	0	0	0	0	0	yes	no
B10	2	0	0	0	0	0	0	0	0	1	0	1	yes	no
N4	5	2	0	3	0	0	0	0	0	0	0	0	yes	no
N5	3	2	0	0	0	1	0	0	0	0	0	0	yes	no
C1	9	7	0	1	0	1	0	0	0	0	0	0	yes	no
C2	2	1	1	0	0	0	0	0	0	0	0	0	no	yes
C3	15	14	0	0	0	0	0	0	0	1	0	0	yes	no
C4	2	2	0	0	0	0	0	0	0	0	0	0	yes	no
D5	1	0	0	1	0	0	0	0	0	0	0	0	no	yes
D9	1	1	0	0	0	0	0	0	0	0	0	0	yes	no
D13	2	1	0	1	0	0	0	0	0	0	0	0	yes	no
N6	2	0	0	2	0	0	0	0	0	0	0	0	yes	no
E3	1	0	1	0	0	0	0	0	0	0	0	0	yes	no
O1	2	2	0	0	0	0	0	0	0	0	0	0	Yes	no
X6	2	2	0	0	0	0	0	0	0	0	0	0	yes	no
Total	**56**	**36**	**3**	**11**	**0**	**3**	**0**	**0**	**0**	**2**	**0**	**0**	-	-

ENAMELWARE

Four white enamelware plates were found, distributed amongst three Aboriginal sites north and east of the hospital building. Three items were at repeat use sites, two at D13, and one at X6, and one at artefact scatter C2 (Figure 8.67). All showed signs of considerable weathering.

a) **b)**

Figure 8.67. a) Examples of enamelware (D13) and b) distribution of Aboriginal sites on Bernier Island where enamelware was located. Sites are numbered in accordance with Table 8.1.

METAL CANS

A total of 12 metal cans (11 food cans and one tobacco tin) were distributed between seven Aboriginal sites (C3, C4, D9, E3, N5, V3, X6). All were poorly preserved. The food cans exhibited double sided seams (Figure 8.68). No evidence was found of the specific types of food they contained.

a) b)

Figure 8.68. a) Examples of metal cans (N5) and b) distribution of Aboriginal sites on Bernier Island where metal cans were located. Sites are numbered in accordance with Table 8.1.

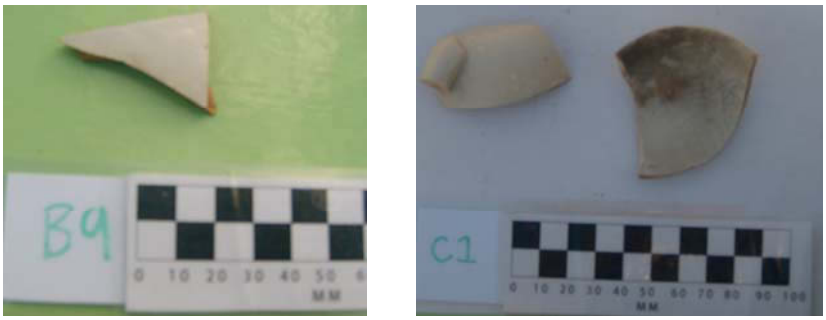
.

CERAMICS

Very little ceramic material was found at Aboriginal sites. Only 14 sherds were found across six sites (B9, B10, C1, C3, N4, N5) (Table 8.9, Figure 8.69). The majority (78.6%) were sherds of creamware. No porcelain or earthenware was found. Only one site (B10), which was close to the ward, yielded bone china. Whole ceramic objects were present at two sites (C1, C3). Only one piece of ceramic had any decoration or coloured glaze, the rest was plain. All were mass produced items easily accessible from Western Australia.

Table 8.9. Types of ceramics found at Aboriginal sites on Bernier Island.

Site	Total	Presence whole pieces	Creamware	Earthenware	Stoneware	Porcelain	Bone china	Relative Expense Compared to other sites
B9	1	No	1	0	0	0	0	Low
B10	7	No	4	0	1	0	2	Medium
N4	2	No	2	0	0	0	0	Low
N5	1	No	1	0	0	0	0	Low
C1	2	Yes	2	0	0	0	0	Low
C3	1	Yes	1	0	0	0	0	Low
Total	**14**	-	**11**	**0**	**1**	**0**	**2**	-



a) b)

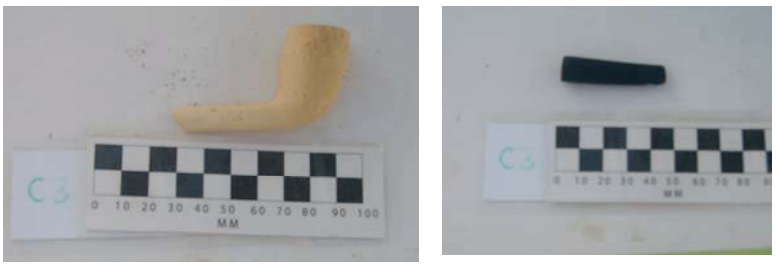
Figure 8.69. Examples of ceramics found at Aboriginal sites on Bernier Island a) creamware (B9) and b) creamware cup (C1).

CLAY AND BAKELITE PIPES

Smoking pipes were found at seven Aboriginal sites, five at repeat use campsites (B7, C3, E3, V3, X6) and two at single use campsites (N5, N7) (Table 8.10) (Figure 8.70). In total, parts of eight different pipes were found. Seven were clay and one bakelite. All of the clay pipes were plain and white of simple design with no markings, a type manufactured after 1900. The bakelite pipe was manufactured after 1910. No evidence suggested that they were reused once broken.

Table 8.10. Smoking pipes found at Aboriginal sites on Bernier Island.

Site	Total clay pipes	Stems	Bowls	Whole	Bakelite
B7	1	0	1	0	0
C3	2	0	0	1	1
E3	1	0	1	0	0
N5	1	0	1	0	0
N7	1	1	0	0	0
V3	1	0	0	1	0
X6	1	1	0	0	0
Total	**8**	**2**	**3**	**2**	**1**

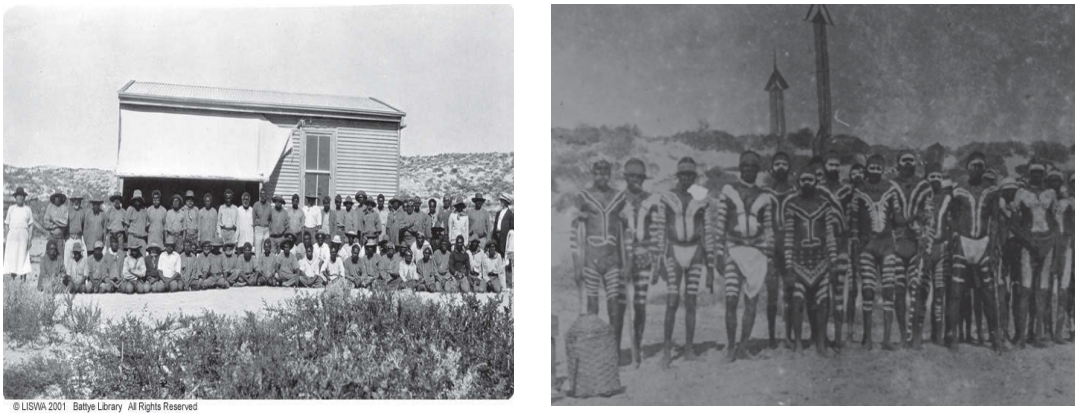


a) b)

Figure 8.70. Examples of smoking pipes found on Bernier Island at Aboriginal site C3 a) clay pipe and b) a bakelite pipe.

CLOTHING (BUTTONS, SHOES AND BUCKLES)

Historical photographs (Figure 8.71) show Aboriginal men wearing shirts, trousers and hats which were said to be given in exchange for helping construct the buildings on the islands. No photographs portray Aboriginal patients with shoes nor are there records of their being any issued. No archaeological evidence was found to further the story of what Aboriginal people wore on the islands.



a) b)

Figure 8.71. Historical photographs of Aboriginal males' dress a) European clothes and b) traditional clothes (Battye Library 3185B/42 and 5021B/53).

OTHER ITEMS (BODY ORNAMENTATION AND HORSESHOES)

Very few personal items were found at Aboriginal sites on the island. No evidence was seen of objects like the spears and body paint depicted in historical photographs. However two objects which could be used as body ornamentation were found at site B7, a perforated shell and a large metal backed, enamel clock piece. As the clock piece bears a perforation other than the original hole it is assumed that it was used for a purpose other than its original function (Figure 8.72).

a) b)

Figure 8.72. Two items that were probably used as body ornamentation from B7 a) pearl shell and b) clock piece.

Horseshoes were found at three coastal Aboriginal sites (D13, N5, N7). The fact that they were all out of their functional context and away from the stables or any horse routes suggests that they were collected for a reason other than their primary function.

FOOD (BONE, SHELL AND PLANT REMAINS)

Animal remains were found at 12 Aboriginal sites (Table 8.11). The greatest number of bones was found at sites B8, C3, D17, E3. Of the total of 100 bones, 68 were from sheep/goats, one from a turtle and six from native marsupials (bettong/wallaby). Twenty five bones were unable to be identified because of their poor state of preservation (Figures 8.73, 8.74). No bird or fish bones were identified. Twenty eight percent of bones were cut in a European style of butchery and 64% showed signs of having been burnt. No native animals showed evidence of western style butchery.

Table 8.11. Animal remains found at Indigenous sites on Bernier Island.

Site	Number	Sheep/goat	Turtle	Native animals	Unknown	European style cut marks	Burnt
B7	4	4	0	0	0	2	4
B9	2	0	0	2	0	0	0
C3	19	8	0	0	11	6	18
B8	20	4	0	3	13	5	19
R1	4	4	0	0	0	4	0
N7	1	1	0	0	0	0	0
O1	1	1	0	0	0	0	1
C1	3	3	0	0	0	0	0
D9	2	1	0	1	0	0	1
D17	18	17	1	0	0	0	18
D13	6	5	0	0	1	0	3
E3	20	20	0	0	0	11	0
Total	**100**	**68**	**1**	**6**	**25**	**28**	**64**

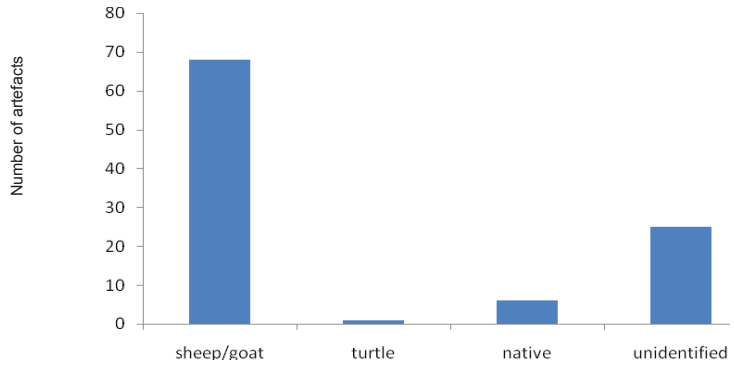


Figure 8.73. Frequencies of bones found at Aboriginal sites on Bernier Island.

a) b) c)

Figure 8.74. Example of animal bones found at Indigenous sites; a) native marsupials at B9, b) domestic sheep/goat at B8 and c) domestic sheep/goat at D17 (right). Note a number of bones in b) and c) have clear European style butchery marks.

Bones at three quarters (9) of the sites were mainly from adult animals. Eleven (11%) bones in all were from juvenile animals. Juvenile animal remains made up less than 20% of bony artefacts at sites when they did occur. Most were long bones (66%) (Figure 8.75). Most long bones and foot bones were from sheep/goats and the majority of skulls and body parts (vertebrae, pelvis, scapula) from native animals.

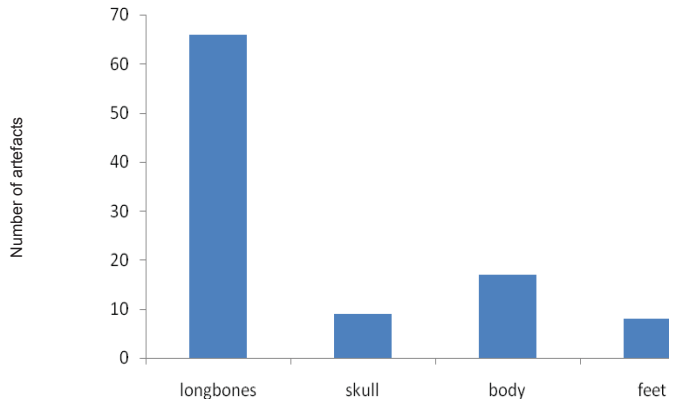


Figure 8.75. Frequencies of body parts of animals found at Indigenous sites on Bernier Island.

Crabs and turtle eggs were found along the coast and numerous birds (both land and coast dwelling varieties) and lizard species seen on the island. It would be expected that remains of these would have been found in archaeological deposits if they had formed part of the diet as other small animal bones prone to rapid decay were found, but none were. However, it is equally likely that the non-edible parts of these animals (crabs, turtle eggs) were disposed of in the ocean, close to their collection points.

Over 500 marine shells were found across 18 Indigenous sites on Bernier Island. Both gastropod and bivalve shells were found, including those of commonly eaten species such as oyster (*Ostreidae*), scallops (*Pectinidae*) and periwinkles (*Littorinidae*) and the more ornamental species such as a poisonous variety of pearl (*Pinctada*), top

(*Trochidae*), triton (*Cymatiidae*), conch (*Strombidae*), cowrie (*Cypraeidae*), cerith (*Cerithidae*) and limpets (*Patellidae*) (Table 8.12, Figure 8.76).

Table 8.12. Shell found at Indigenous sites on Bernier Island.

Site	No#	Location	Area (m)	Oyster	Scallop	Pearl	Top shell	Triton	Peri winkles	Conch Shell	Cowrie	Cerith	Limpet	Abalone
B7	1	inland	Na	0	0	1	0	0	0	0	0	0	0	0
B8a	1	inland	Na	0	0	0	1	0	0	0	0	0	0	0
B9	17	inland	0.3x0.5	17	0	0	0	0	0	0	0	0	0	0
B10	16	inland	0.2x0.5	0	0	0	10	0	0	2	2	2	0	0
N1	22	inland	0.2x0.5	22	0	0	0	0	0	0	0	0	0	0
N4	25	Cliffs	0.3x0.5	25	0	0	0	0	0	0	0	0	0	0
N5	36	Cliffs	1x3	33	2	0	0	0	0	0	1	0	0	0
C3	50	inland	3x4	50	0	0	0	0	0	0	0	0	0	0
C4	1	inland	0.5x0.5	0	0	0	0	0	0	0	0	0	0	1
C5	50	dunes	3x2	10	0	0	0	0	40	0	0	0	0	0
C6	12	inland	0.2x0.2	12	0	0	0	0	0	0	0	0	0	0
D5	26	inland	1x1.5	26	0	0	0	0	0	0	0	0	0	0
D9	26	inland	1x1.5	26	0	0	0	0	0	0	0	0	0	0
D7	23	inland	1x1.5	22	0	0	0	0	0	0	1	0	0	0
D13	25	inland	2x1	21	0	0	0	0	0	0	0	0	4	0
D15	20	dunes	0.5x0.5	15	0	0	0	5	0	0	0	0	0	0
N6	100	Cliffs	4x7	100	0	0	0	0	0	0	0	0	0	0
V3	50	inland	2x4	50	0	0	0	0	0	0	0	0	0	0
Total	**501**	-	-	**429**	**2**	**1**	**11**	**5**	**40**	**2**	**4**	**2**	**4**	**1**

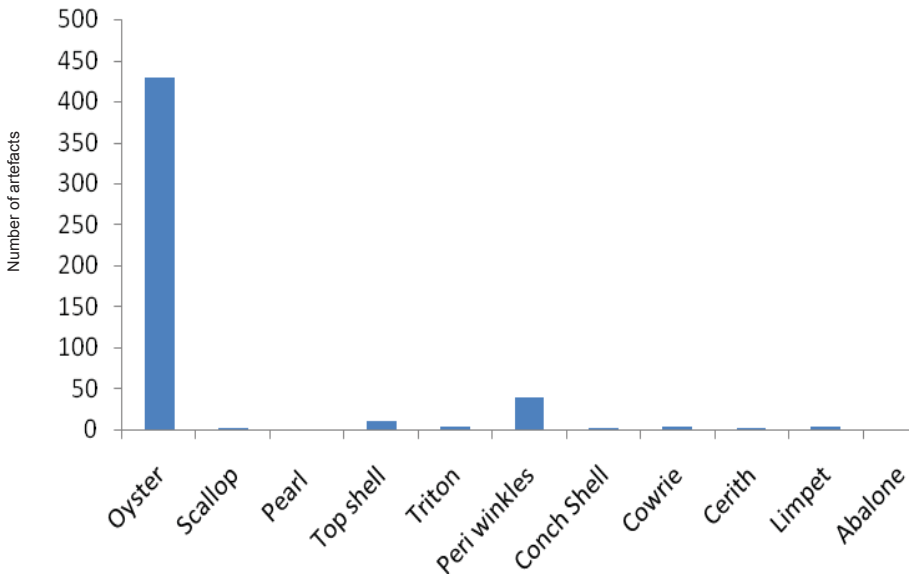
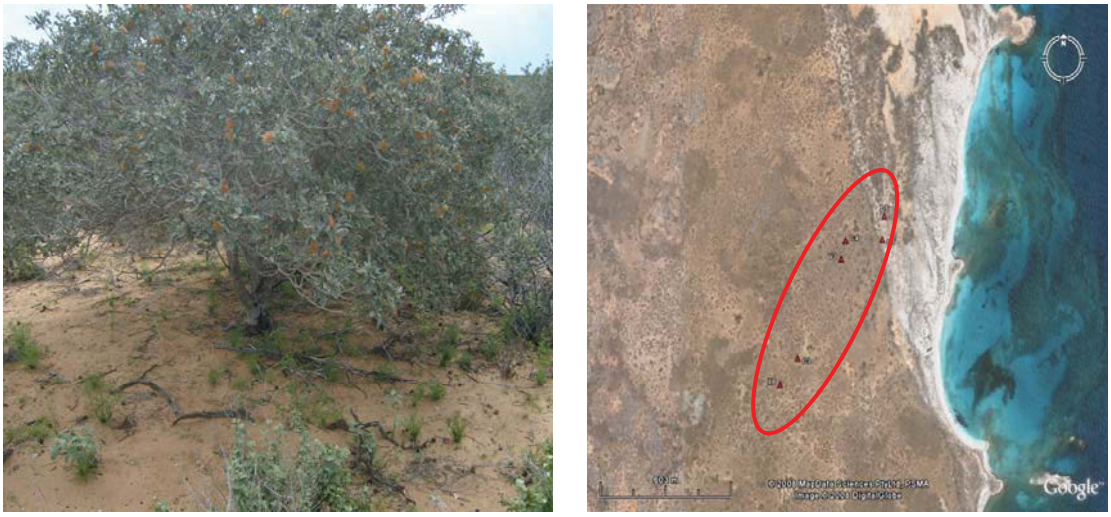


Figure 8.76. Frequencies of shells found at Indigenous sites on Bernier Island.

Most sites contained oyster shells and most over 25 individual shells. These sites were identified as places where shellfish meat was eaten. The four sites that did not contain oyster shells (B7, B8a, B10, C4) contained only one shell each, of types which could have been selected for their aesthetic value rather than as a food resource. The shell found at B7 (Figure 8.72) was the modified shell that was probably used as body ornamentation (above). Only two sites (C3 and D13) had burnt shell. No coral was found at any Aboriginal sites on Bernier Island.

From Table 8.12 it is clear that in general the smaller sites with shell scatters lay inland and the larger sites lay closer to the coast, or on the cliffs directly above where oyster beds are located. The more aesthetic shell types were found closer to the hospital buildings.

No plant remains were found associated with Indigenous sites, but sites C3, C4, C5, D5, V3 and X6 were all located beneath quandong trees (Figure 8.77). No other quandong trees were observed outside the region of these Aboriginal sites.



a) b)

Figure 8.77. a) A quandong tree on Bernier Island and b) distribution of where sites were located inland from Hospital Bay. Map modified from GoogleEarth 2008. Sites are numbered in accordance with Table 8.1

Driftwood was present along the west coast of the island and various types of native brush and trees which could have been used for firewood.

ABORIGINAL TOOLS (FLAKED VITRICS)

In total 31 flaked glass artefacts were found on Bernier Island (Table 8.13) distributed between seven Indigenous sites (four repeat use campsites, two single use campsites, one artefact scatter) and two European sites (the ward A6 and artefact scatter A5).

Vitric points, scrapers, flakes and cores were found. Overall, there were three worked points, eight scrapers, 18 flakes and one core (Figures 8.78, 8.79). Figure 8.80 illustrates a particularly interesting flake type found associated with broken and whole small white and dark brown periwinkle shells at various sites. Based on form and shape and association from the shells it is assumed that this tool was used to retrieve the meat from the shell.

Table 8.13. Aboriginal tools found on Bernier Island.

Site	Number	Points	Scrapers	Flakes	Cores
A5	1	0	1	0	0
A6	6	2	4	0	0
B8a	5	0	1	4	0
B9	2	1	1	0	0
C5	1	0	0	1	0
E1	4	0	0	4	0
N3	5	0	1	4	0
N4	7	0	1	5	1
Total	**31**	**3**	**9**	**18**	**1**

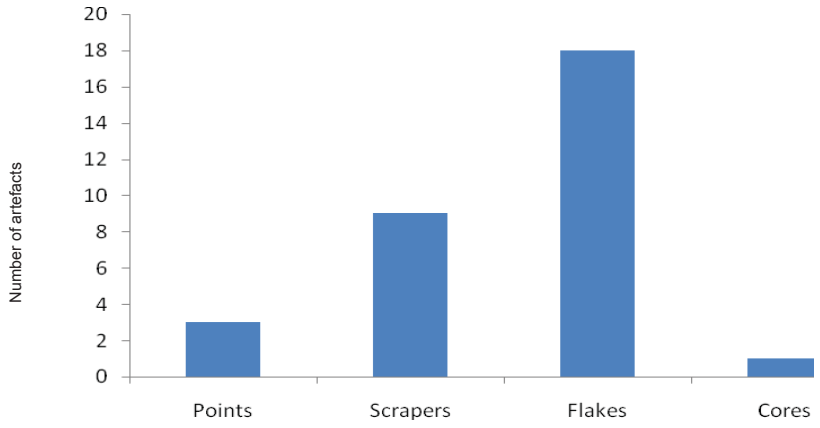


Figure 8.78. Frequencies of types of Aboriginal vitrics found on Bernier Island.

Figure 8.79. Examples of Aboriginal glass tools found on Bernier Island (A6, B8, B9, N3).

Figure 8.80. Example of specialised flakes found with small gastropods on Bernier Island (C5).

The majority of vitrics were derived from the bodies of dark green and very dark green bottles (Figures 8.81, 8.82).

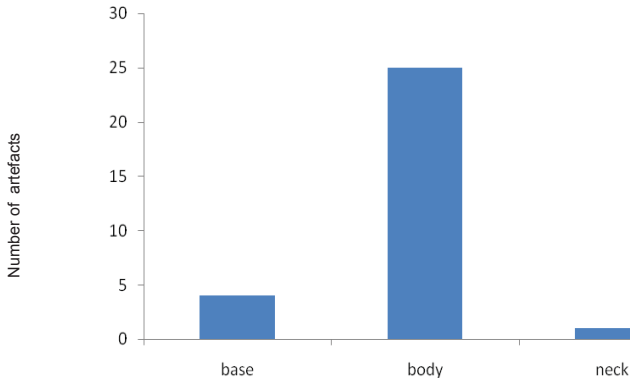


Figure 8.81. Frequencies of the different parts of bottle glass used for making vitrics on Bernier Island.

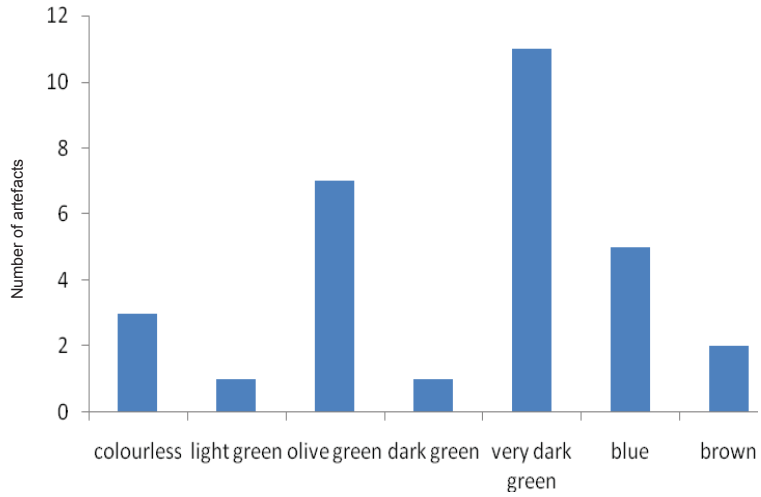


Figure 8.82. Frequencies of the colour of glass bottles used for the flaked glass tools on Bernier Island.

Retouching of glass artefacts was evident on half of the vitrics retrieved, the majority being points. While scrapers and points were found around hospital structures and repeat use campsites, cores and flakes were found in artefact scatters and at single use campsites.

MEDICAL EQUIPMENT AND BOTTLES

Only four medical artefacts were found associated with Aboriginal sites. One medical bottle and one tonic bottle were found at C1 and one medicinal bottle at each of C4 and D5. No residue which may have given an indication to their specific contents was found in any of these containers.

ABORIGINES – SUMMARY OF RESULTS

Table 8.14 summarises artefacts found in association with Indigenous sites on Bernier Island.

Table 8.14. Summary of artefact types, number and origin of artefacts found on Bernier Island associated with Aboriginal occupation.

Artefact Type	Number of artefacts	Date of artefacts	Origin of artefacts
European building materials	6	1908-1918?	Local
Glass	56	1900-1915	Interstate
Enamelware	4	Post 1900s	International
Metal Cans	12	Post 1850s	interstate and international
Ceramics	14	1906 – 1915	International
Clay pipes	8	Post 1910	International
Clothing items	0	-	-
Bone	100	1908-1918?	Local
Shell	500	1908-1918?	Local
Medical	4	1908-1915	International
Vitrics	30	1908-1915	Local
Other	5	-	local
Total	**739**	-	-

The number and distribution of artefacts associated with Aboriginal sites revealed that:

Buildings/ Accommodation

- Most sites were located inland, few were near the coast
- Some sites were located near the ward
- Some sites were located near quandong trees
- Very little evidence remained of building construction, possibly due to the impermanent nature of the accommodation

Subsistence – food and water

- European butchered domestic animals were probably given as rations
- Natural resources like native marsupials and shell meat were exploited for food

Manufactured goods

- The majority of unworked glass objects were from beer and wine bottles and were highly fragmented

- Enamelware was rare
- Very few metal cans were observed
- Very few ceramic artefacts were identified around Aboriginal accommodation – those that were, were of ordinary quality and plain design
- Clay pipes were inexpensive and of simple design
- No clothing remains were found
- Modified material (both European clock parts and native shell) was possibly used as objects of adornment
- Flaked vitric materials, including well-formed points were found

Medical/Mortality

- No medical equipment was found, and only tonic bottles and medical bottles were observed
- No burial sites or human remains were identified on the islands

Chapter NINE

RESULTS – DORRE ISLAND

Chapter Nine

RESULTS – DORRE ISLAND

INTRODUCTION

This chapter provides a listing of the Dorre Island Lock Hospital sites and associated artefacts including European and Indigenous manufactured imported goods, personal objects, medical equipment, water supplies, food and fuel. Archaeological evidence as well as data from archival sources will be presented for each.

CONFIRMATION OF SITES

Archaeological sites associated with the Lock Hospital period were found across the research area. The associated European (workers) and Aboriginal (patients) accommodation were found near White Beach Landing, as described in the historical documents (SRO Cons 1647 P.W.D. WA 15024; Mulvaney 1989:185). Some records, especially photographs (Battye Library photograph collections 3185B), show visits to parts of Dorre Island outside of the research area, but given the poor access to the island itself, and the limited time frame permitted by CALM to access the islands, the logistics of attempting to visit these areas fell outside the scope of this project.

PRESERVATION AND SOIL CONDITIONS

The overall preservation of the sites on Dorre Island was good and little of the archaeological material seemed to have been disturbed as there was no evidence of bottle collectors or any real evidence of visitation. There appeared to be little cross contamination between the Lock Hospital and other periods. Those artefacts not associated with the Lock Hospitals such as plastic bottles and fishing equipment found along the beach and bullets from the government feral goat shooting on the islands in the 1980s (DEC 2007) were clearly modern.

Soil samples were taken from three separate locations on Dorre Island (Figure 9.1). That taken from the dune system running parallel to White Beach Landing had a pH of 8 and consisted of very coarse white sand grains and some shell particles. That

from the immediate vicinity of the hospital had a pH of 7.5 and consisted of coarse white grains.

That from the tops of the cliffs on either side of the islands consisted of a combination of coarse white grains and coarse red grains and had a ph of 7.5. As on Bernier Island, all had neutral to alkaline pH, suggesting that preservation of artefacts would be relatively similar across the study area, and comparable to Bernier Island.

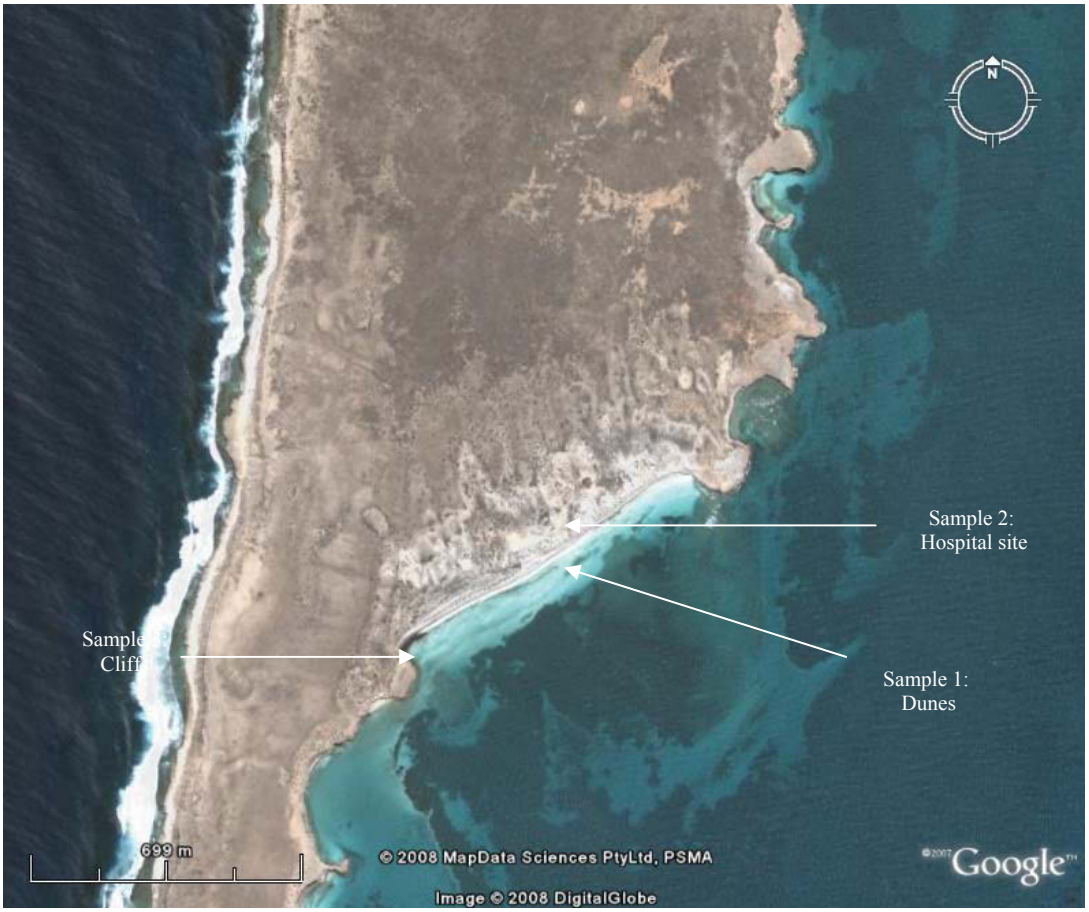


Figure 9.1. Locations where soil samples were taken on Dorre Island.

ARCHAEOLOGICAL SITES

Located sites ranged from single artefacts to metres-long concrete pads. In total 90 separate sites were identified during the field work. Table 9.1 shows the sites observed on the island and an interpretation of their use. Appendix E provides a detailed account of these sites. Figure 9.2 illustrates the location of the sites on the islands.

Table 9.1. Sites recorded on Dorre Island Associated with the Lock Hospital Scheme.

European Structure European Artefacts Water Storage Aboriginal Site

Site Name	Symbol	People	Interpretation
A1		European	Rubbish scatter
A1a		Aboriginal	Repeat use campsite
A2		Aboriginal	Repeat use campsite
AS1		European	Rubbish scatter
AS2		European	Rubbish scatter
AS3		European	Rubbish scatter
BH1		Aboriginal	Repeat use campsite
BH2		Aboriginal	Repeat use campsite
BH3		Aboriginal	Repeat use campsite
BH4		Aboriginal	Repeat use campsite
BH5		Aboriginal	Repeat use campsite
C1		Aboriginal	Single use campsite
C2		Aboriginal	Single use campsite
C3		Aboriginal	Single use campsite
C4		Aboriginal	Single use campsite
C5		Aboriginal	Single use campsite
C6		Aboriginal	Single use campsite
C7		Aboriginal	Single use campsite
C8		Aboriginal	Single use campsite
C9		Aboriginal	Single use campsite
C10		Aboriginal	Single use campsite
C11		Aboriginal	Single use campsite
C12		Aboriginal	Single use campsite
C13		Aboriginal	Single use campsite
C14		Aboriginal	Single use campsite
C15		Aboriginal	Single use campsite
C16		Aboriginal	Repeat use campsite
C17		Aboriginal	Single use campsite
C18		Aboriginal	Single use campsite
C20		Aboriginal	Repeat use campsite
C21		Aboriginal	Repeat use campsite
C22		Aboriginal	Repeat use campsite
C23		Aboriginal	Single use campsite
C25		Aboriginal	Single use campsite
C26		Aboriginal	Single use campsite
CW		European	Coral Wall
F1		European	Underground water tank
F2		European	Hospital Administration
F3		European	Hospital Administration
F4		European	Laundry
F5		European	Hospital Administration
F6		European	Brick and rock pile
F7		European	Garden
G1		European	Large Rubbish dump
GK1		Aboriginal	Repeat use campsite
GY		European	Possible graveyard site
J1		Aboriginal	Repeat use campsite
J1a		Aboriginal	Rubbish scatter
J2		Aboriginal	Rubbish scatter
J3a		Aboriginal	Repeat use campsite
J3b		Aboriginal	Rubbish scatter
J4		European	Ward
J4a		European	Artificial dune
J4b		European	Water piping for ward
K1		European	Rubbish scatter
K2		European	Artificial gully
K3		European	Large Rubbish dump
K4		European	Large Rubbish dump
K5		European	Single artefact
M		European	Mortuary
M1		European	Rubbish scatter
M2		Aboriginal	Single use campsite
M3		Aboriginal	Single use campsite
M4		Aboriginal	Single use campsite
M5		Aboriginal	Single use campsite
M6		Aboriginal	Single use campsite
M8		Aboriginal	Single use campsite
M9		Aboriginal	Single use campsite
M10		Aboriginal	Single use campsite
M11		Aboriginal	Single use campsite
M12		Aboriginal	Single use campsite
MON		European	Large rubbish dump
O1		Aboriginal	Single use campsite
O2		Aboriginal	Single use campsite
Q		European	Rubbish scatter
Q1		Aboriginal	Repeat use campsite
Q2		Aboriginal	Repeat use campsite
Q3		Aboriginal	Repeat use campsite
R1		European	Rubbish scatter
S1		European	Outpatients
S2		Aboriginal	Repeat use campsite
SM		Aboriginal	Single use campsite
T1		Aboriginal	Single use campsite
T3		Aboriginal	Single artefact
W1		European	Doctor's house
W3		European	Rubbish scatter
W4		European	Stables and Paddocks
WM		European	Windmill
X1		Aboriginal	Single use campsite
X2		Aboriginal	Single use campsite

Note: justifications for which site is associated with which people and use are explained throughout this chapter

Figure 9.2. Archaeological sites associated with the Lock Hospitals recorded during surveys on Dorre Island (Map modified from GoogleEarth 2007). Sites are numbered in accordance with Table 9.1.

As on Bernier Island, sites could be classified into two main types based on the archaeological remains, the historical documents and an understanding from ethnography of what types of areas Aboriginal people tended to occupy traditionally.

As on Bernier Island, the **first main type** (Type I) of site was characterised by

- concrete pads of buildings or other functional structures
- a high percentage of European artefacts including
    - building material
    - expensive ceramics (matching pieces)
    - whole bottles
    - medical equipment
- the absent of faunal material
- the absence of traces of local resources used for food

Unlike Bernier Island, on Dorre Island evidence was found of some use of local resources and rubbish pits were more discrete. The quantity of artefacts associated with rubbish dumps was much greater than that on Bernier Island. More personal objects were recorded and objects associated with women and children also found.

Type I sites on Dorre Island were situated in the dune system that runs almost parallel to White Beach Landing. The structures themselves were built on patches of level ground sheltered by surrounding dunes, with associated artefact scatters to the north east. In total 32 (35.6%) sites on Dorre Island were of this type (Figure 9.3). Nine hundred and fifty four of the artefacts found on Dorre Island were associated with this type of site. Sites like this were classified as ‘European’. However, although the major structures like the ward, the jetty, roads and tracks were put into the European category it is noted that they were shared between both European workers and Aboriginal patients.

Figure 9.3. Type I Sites: European artefacts and structures associated with the Lock Hospitals on Dorre Island. (Map modified from GoogleEarth 2007). Sites are numbered in accordance with Table 9.1.

The **second main type** (Type II) of site was characterised by

- discrete living areas or campsites out of sight of the concrete pad sites
- a small percentage of associated European artefacts including
    - plain inexpensive ceramics, all broken pieces
    - highly fragmented broken glass
- refuse in living areas
- burnt animal bones (domestic and native species)
- marine shells
- some flaked glass
- large amounts of modified natural material

Unlike the Bernier Island type II sites, these sites yielded very few flaked glass tools, but a couple of flaked stone tools were recorded. There was evidence of a larger reliance on marine fish and large amounts of modified local food remains. This type of site was located south of the hospitals or adjacent to the ward and on the coast in the dunes (Figure 9.4).

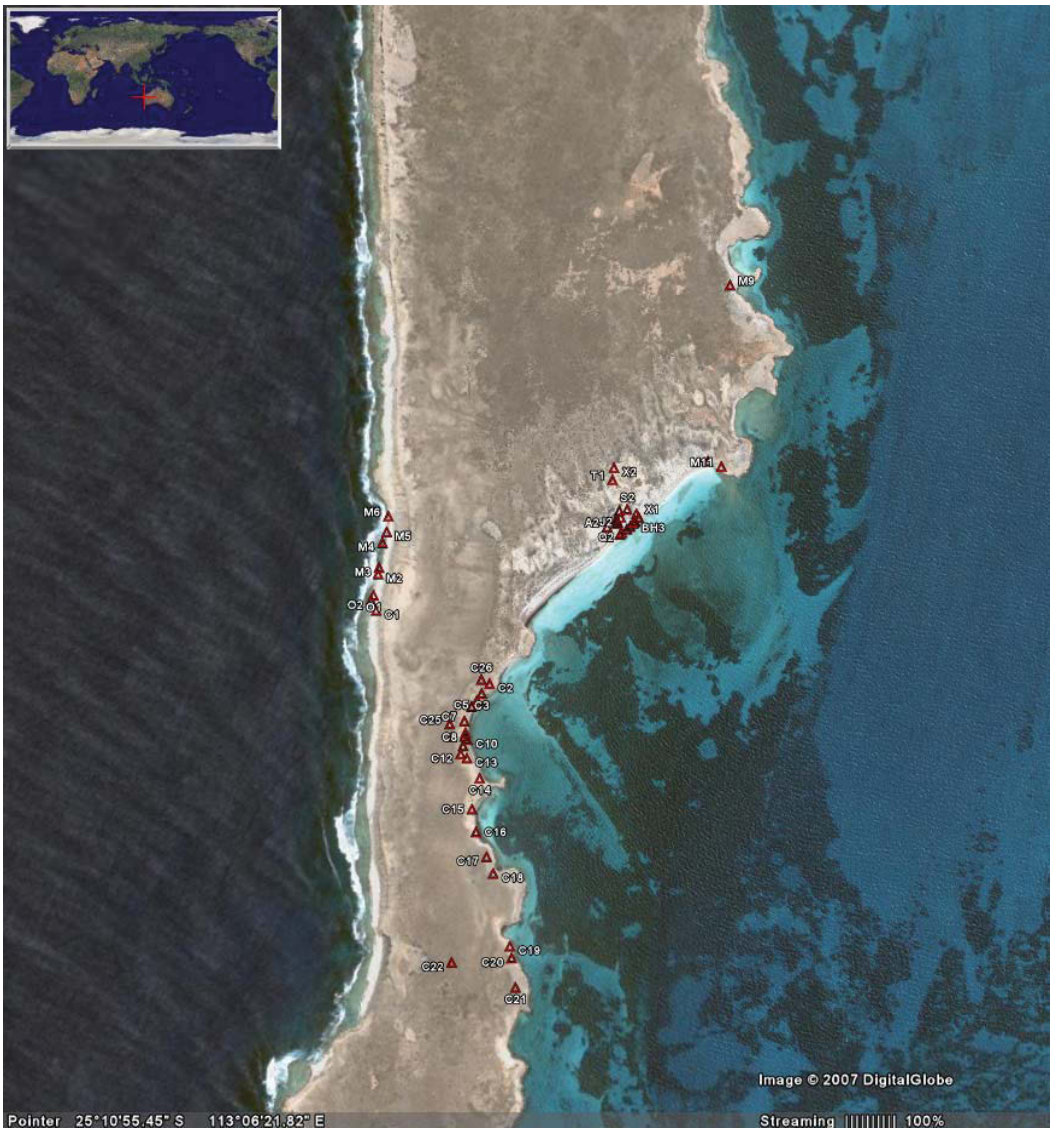


Figure 9.4. Type II sites: Aboriginal sites associated with the Lock Hospital Period on Dorre Island. (Map modified from GoogleEarth 2007). Sites are numbered in accordance with Table 9.1.

There were 58 (64.4%) type II sites on Dorre Island with 2289 (1900 being shells) associated artefacts. Sites like this were classified as 'Aboriginal'.

EUROPEAN SITES

The 32 European sites on Dorre Island ranged from concrete housing pads, through disposal areas to scattered objects. They consisted of hospital buildings (including European accommodation) (10), other structural features (including stables, gardens,

fences, jetty, roads/paths, windmill and garden walls) (8), discrete rubbish disposal areas (4), artefact scatters (9) and single artefacts (1) (Figure 9.5). Each of these site types and the artefacts of interest within are described separately.

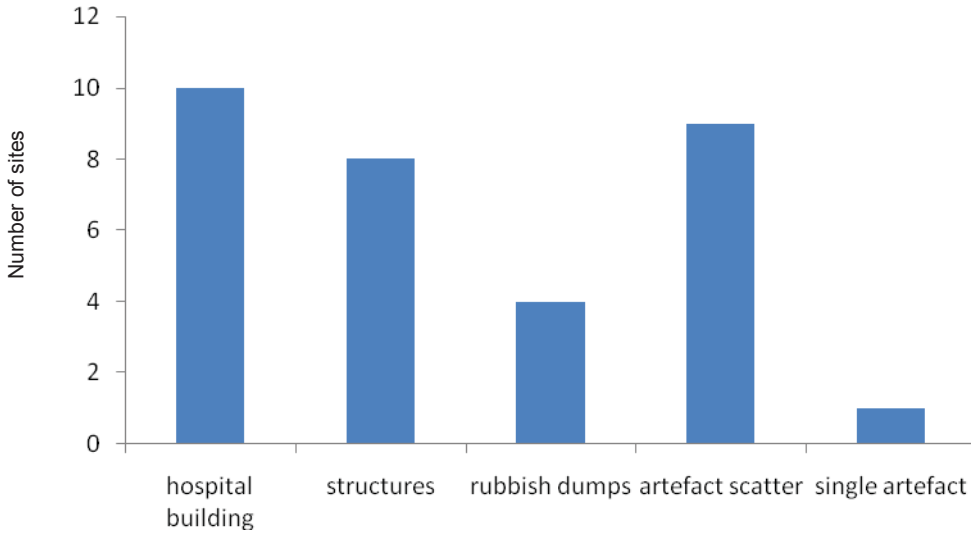


Figure 9.5. Frequencies of different European (Type 1) site types found on Dorre Island.

HOSPITAL STRUCTURES

Written records and photographs confirm that a number of buildings associated with hospital functions were built on the islands between 1909 and 1918. These have been termed

- Hospital Ward (where nurses also lived)
- Administration building (where nurses also lived)
- Doctor's house
- Laundry
- Outpatients building
- Mortuary (not present on Bernier Island)
- Stables/ Paddocks

These structures did not show up as well on recent satellite imagery (GoogleEarth 2007/8) (Figures 9.6, 9.8) or aerial photographs (DOLA 2004) as those on Bernier Island, though some specific areas and cleared land were visible on the black and white aerial photographs taken in 1959 (DOLA survey) (Figure 9.7). The decrease in visibility was accounted for by the growth of native flora and decay of the concrete pads. Well recorded plans of the Dorre Island Hospital sites, photographs, architectural plans and descriptions enabled locations of the sites, however. The

majority of the sites sat in a cluster just behind the bay (White Beach Landing) (Figures 9.6, 9.9, 9.10) surrounded by dunes on all sides.

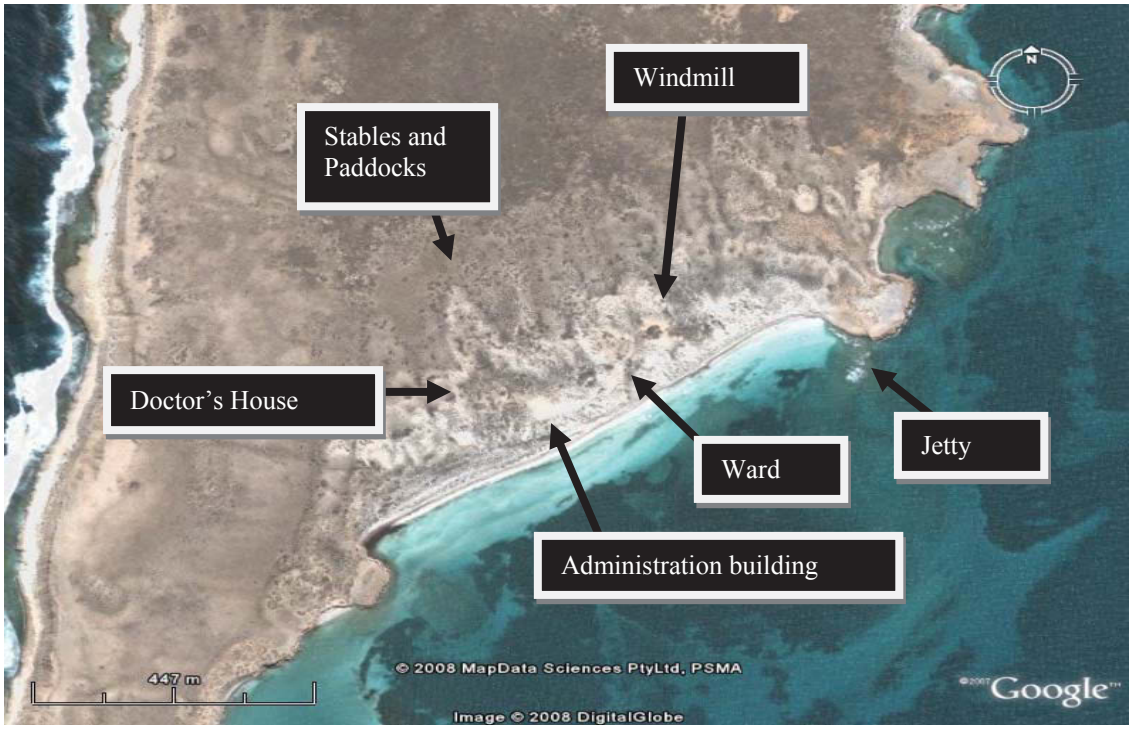


Figure 9.6. Close up of hospital structures and their locations on Dorre Island from modern satellite photographs (GoogleEarth 2008).

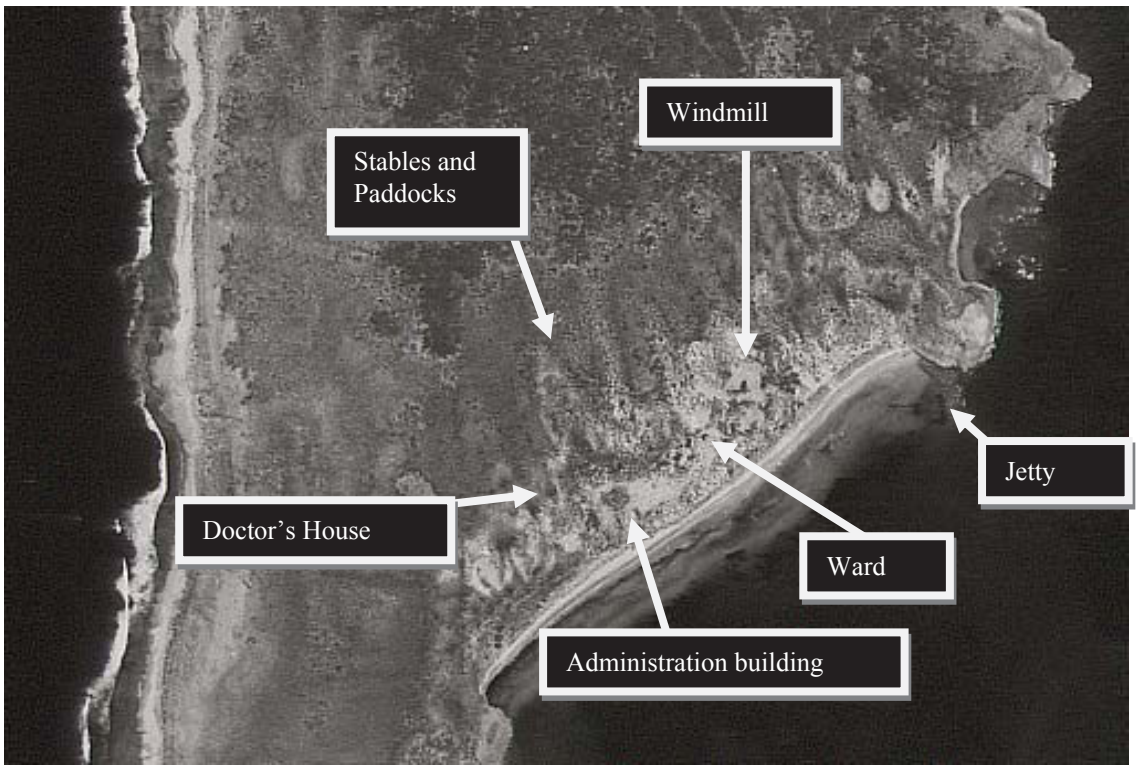


Figure 9.7. Close up of hospital structures and their locations on Dorre Island from the 1959 aerial photograph (DOLA surveys).

Figure 9.8. Map of cluster of hospital sites on Dorre Island (modified from GoogleEarth 2008). Sites are numbered in accordance with Table 9.1.

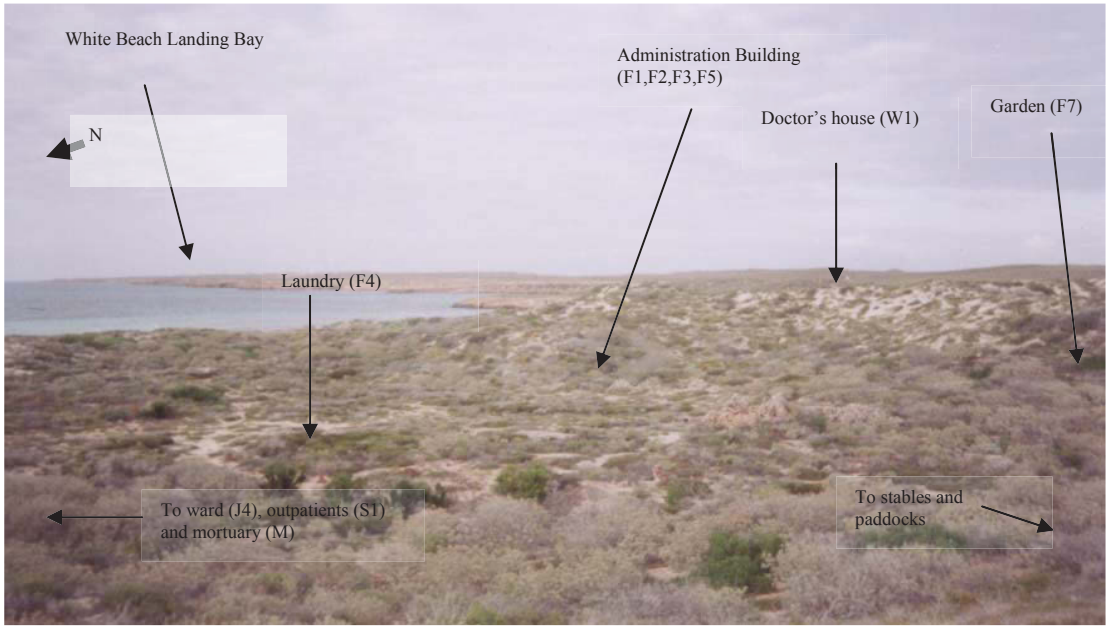


Figure 9.9. Location of the Hospital building within dune system. Photograph was taken looking south east on the highest sand dune in the area (Photograph taken by Stingemore 2004).

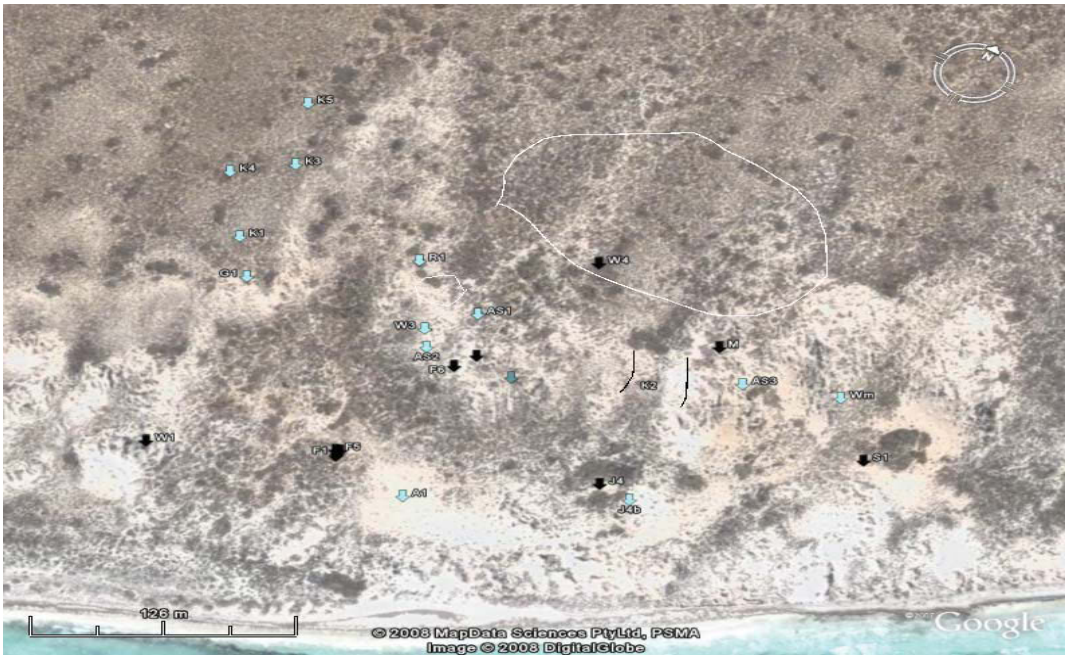


Figure 9.10. Hospital structures and artefacts associated with the European occupation of Dorre Island. The white boundary is the location of the animal yards (modified from GoogleEarth 2008). Sites are numbered in accordance with Table 9.1.

The archaeological survey confirmed the accuracy of the contemporary plans of the hospital sites and the distances marked between sites (Figures 9.11 and 9.12). The correspondence between these plans and the structures can be seen by comparing Figures 9.11, 9.12 and 9.13.

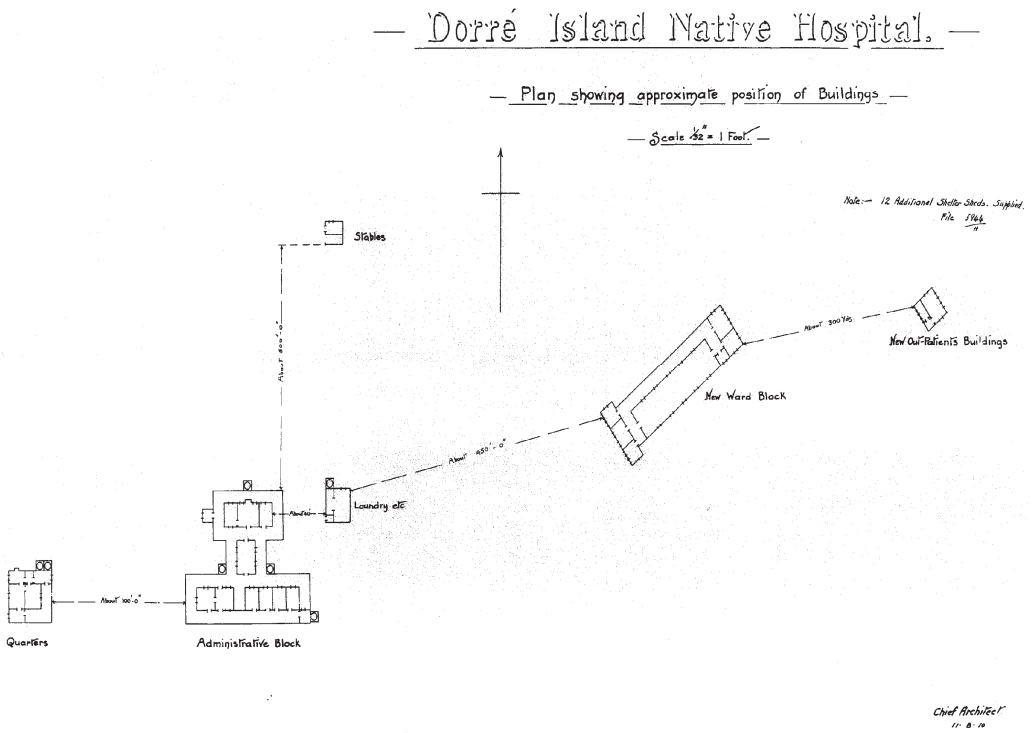


Figure 9.11. Plan of Dorre Island Hospitals in 1910 (Cons 1647 P.W.D WA15024).

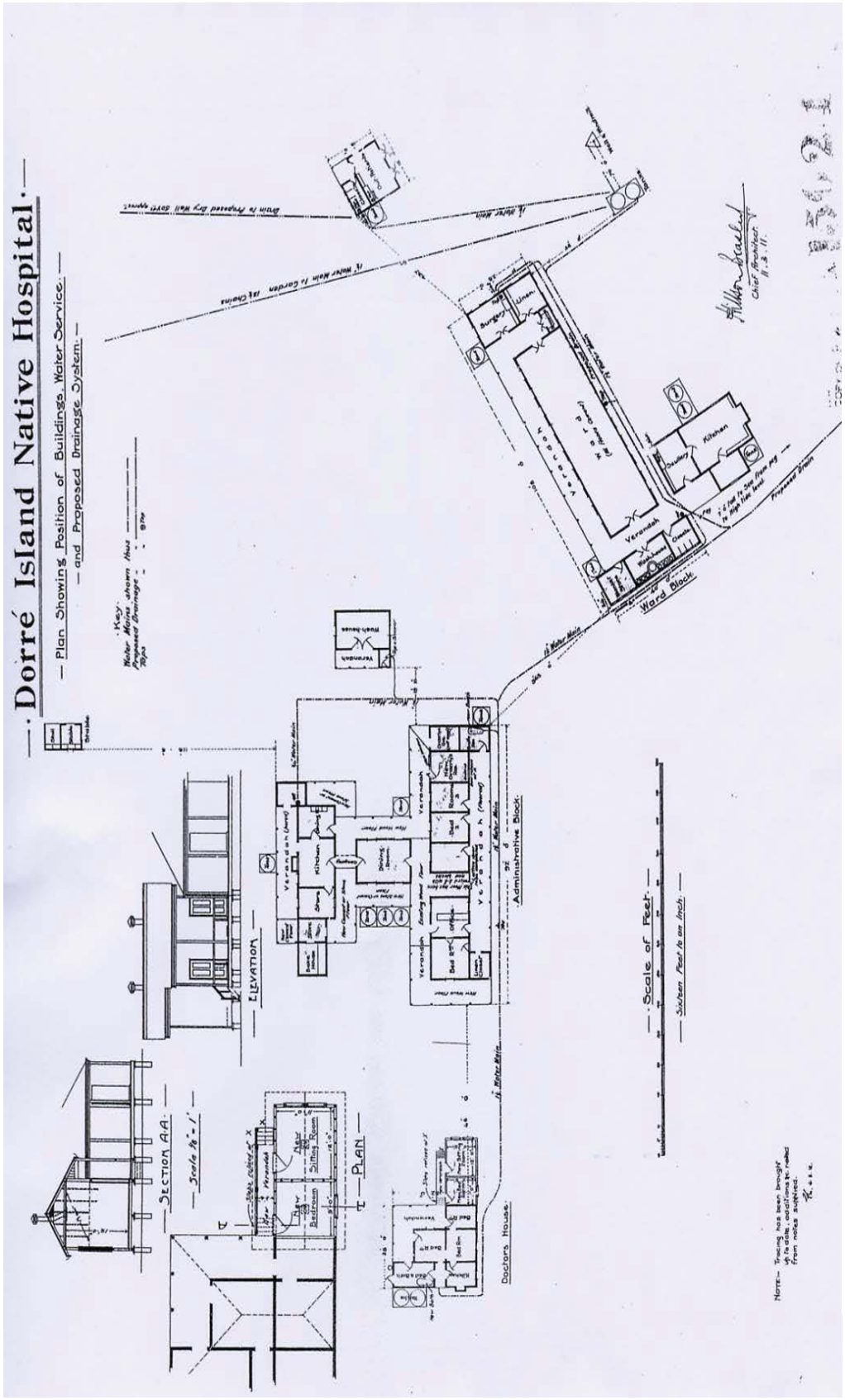


Figure 9.12. Plan of Dorre Island Hospitals in 1911 (States Record Office, Cons 1647 P.W.D WA15024).

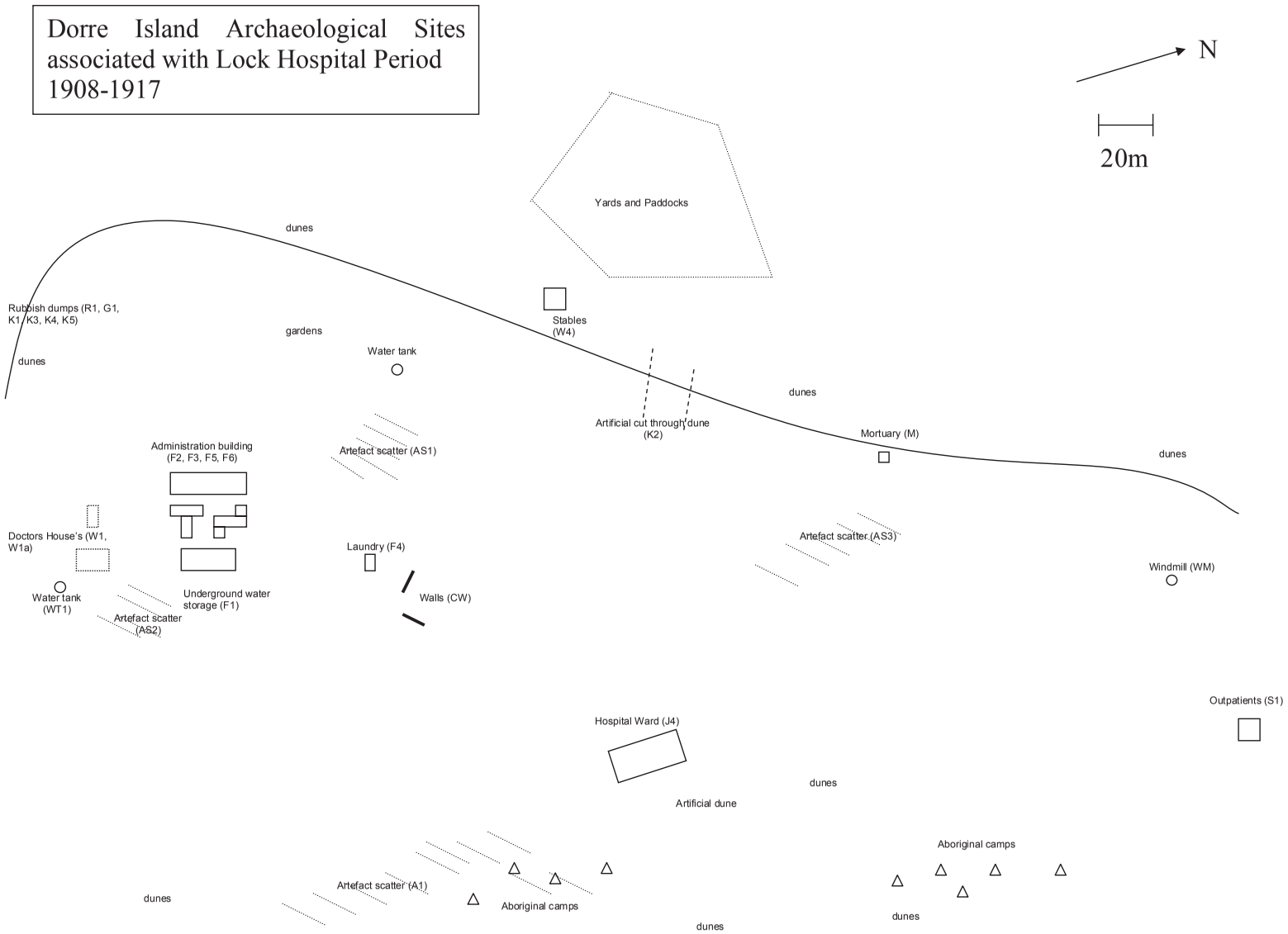


Figure 9.13. Sites identified during the archaeological survey on Dorre Island. Note: the north arrow in this map points in a different direction to those of the architectural plans, however the buildings are in the relative same positions.

The Ward (Site J4)

The ward was the largest archaeological site on Dorre Island and would have been the biggest structure built on either of the two islands. It measured 32.5 metres long and 13.4 metres wide with a smaller pad structure (~5x7 metres) attached on the east (Figures 9.14, 9.15). The ward sat on flat ground surrounded by natural dune systems to the west and east.

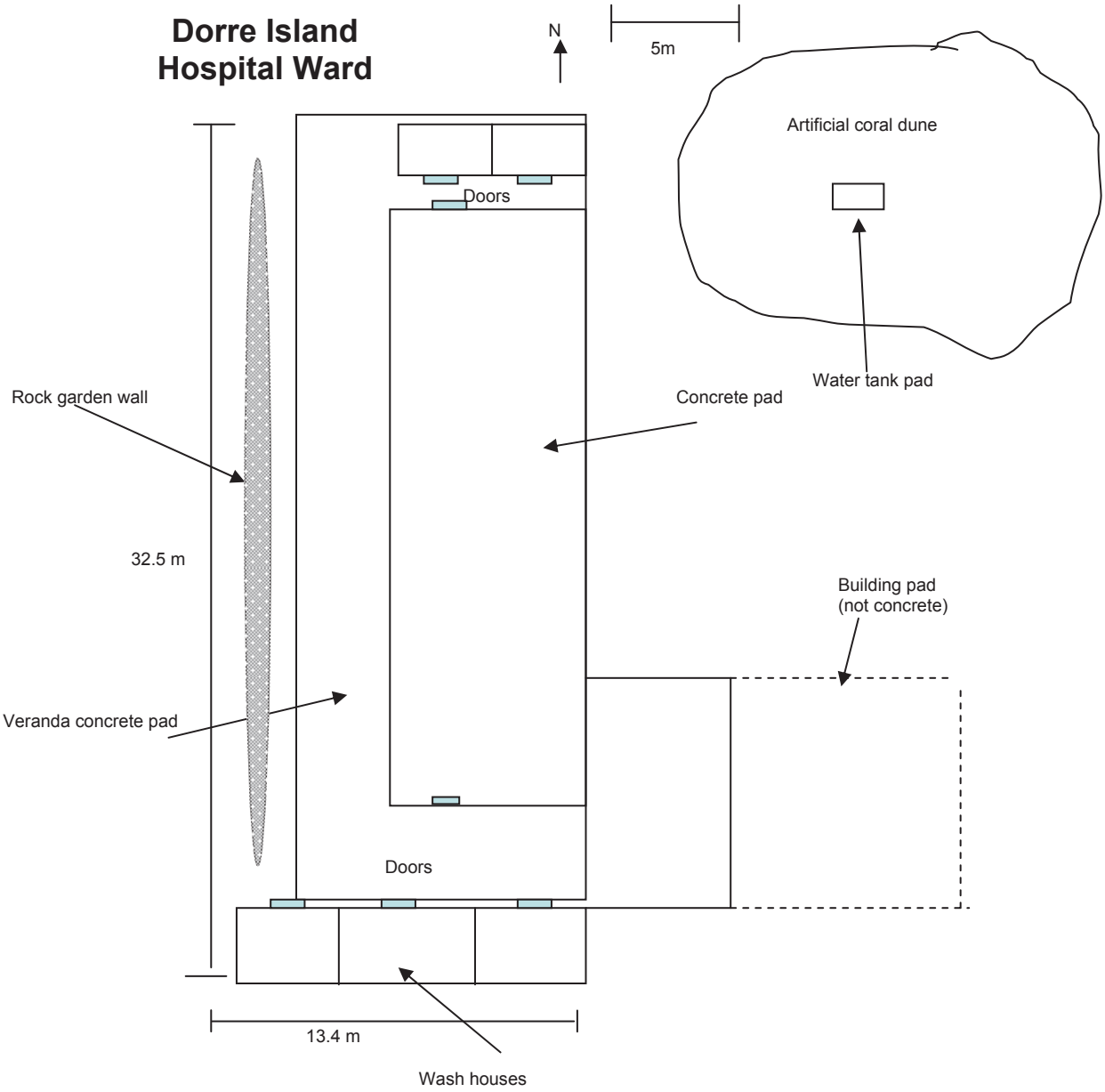


Figure 9.14. Dimensions of the ward on Dorre Island taken from archaeological surveys.

Figure 9.15. Concrete slab of ward structure on Dorre Island.

A rock garden wall was located on the west side (Figure 9.16a), as was the rock wall depicted in the photographs of nurses tending plants (Figure 9.16b).

a) **b)**

Figure 9.16. a) The rock garden wall outside the Dorre Island Ward and b) the nurses tending plants in the ward garden (Battye Library 3185B/28).

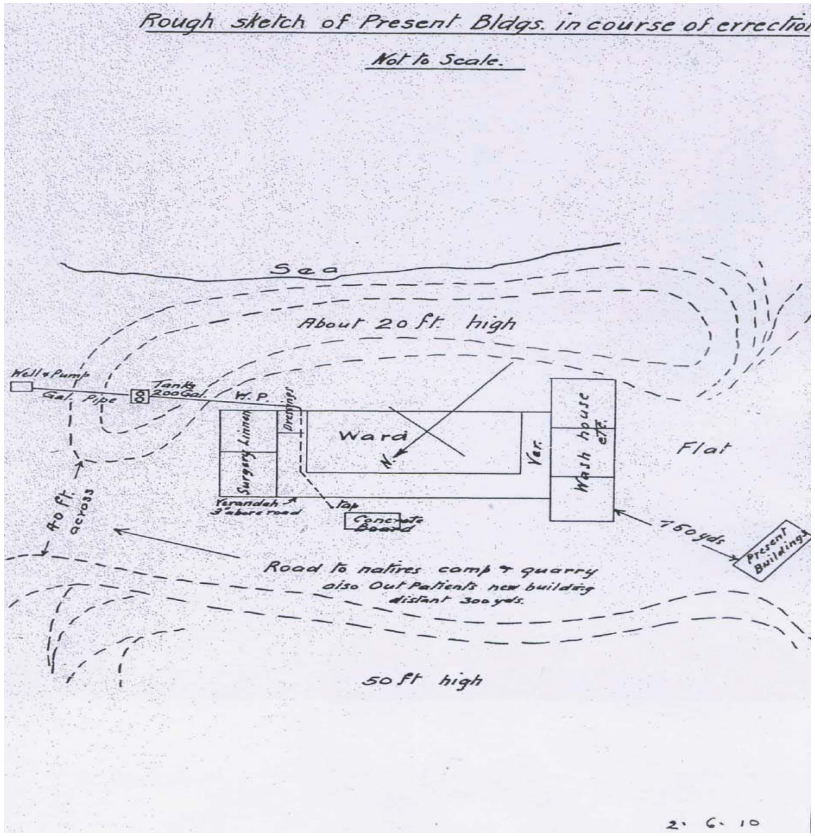
An artificial dune (J4a) measuring 12 metres by 12 metres constructed of shell, coral and local rock (limestone and sand) was located to the north east of the ward (Figures 9.14, 9.17, 9.20a). On its top was a small concrete pad similar to that seen in association with water tanks at other sites. It was assumed that the function of the artificial dune was to protect the ward from the ocean winds and to provide a pressure head for gravity-driven flow of water to the ward. Piping and wooden uprights (J4b) depicted on the east side of the dune in architectural sketches and plans lend support to this view (Figure 9.20a,b). The artificial dune may also have served to limit visual contact between the ward and the Aboriginal campsites that sat on the other side of it.

Figure 9.17. The artificial dune behind the ward on Dorre Island.

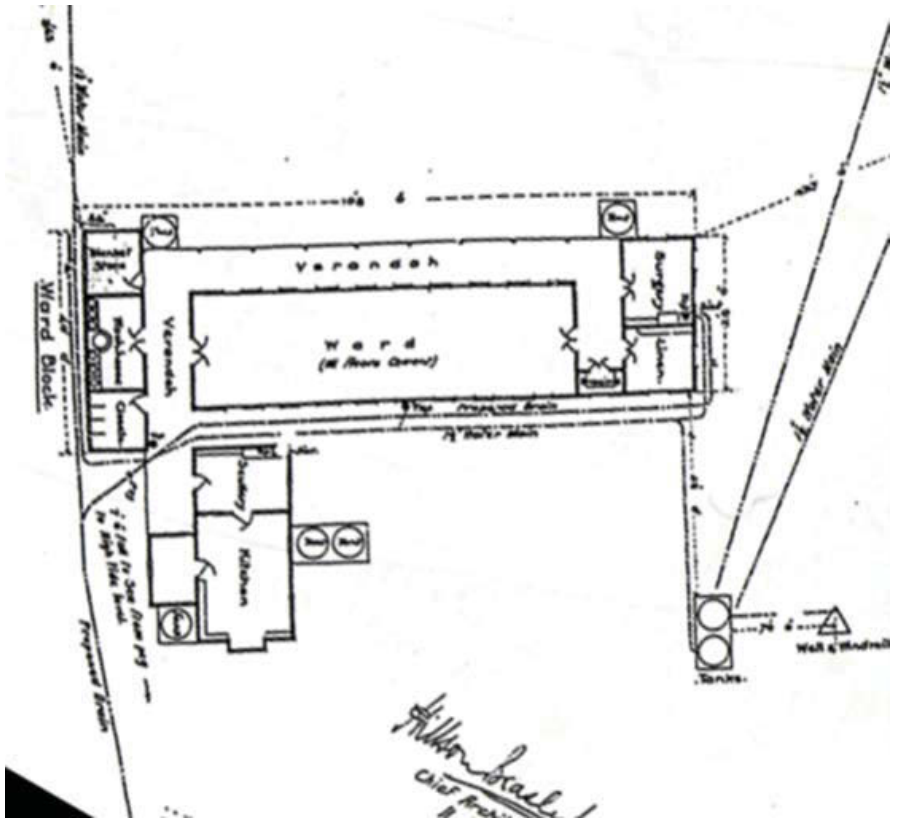
The ward was recorded as having housed the chronic female patients and where operations took place if needed. It is unclear whether any of the European nurses stayed in parts of the ward (such as the annexes on the sides) but there are many photographs of nurses in and around the structure (Figures 9.18, 9.19). A number of detailed plans of the site do exist. Based on the dimensions of the remaining structures it seems that the ward was constructed according to the plans in Figure 9.20, rather than those depicted in Figure 9.21, a view supported by the text on plans indicating buildings already built or under construction. No dates exist for either photograph in Figures 9.18 and 9.19, but it is assumed that Figure 9.19 (Battye Library 3185B/14) is later in the scheme as the rock garden wall at the front of the hospital was found intact during archaeological investigations and must have been built after the photograph seen in Figure 9.18 was taken (Battye Library 3185B/22).

Figure 9.18. Photograph of the Dorre Island ward (Battye Library, 3185B/22).

Figure 9.19. Photograph of the ward on Dorre Island (Battye Library, 3185B/14). Note the addition of the stone walled garden.

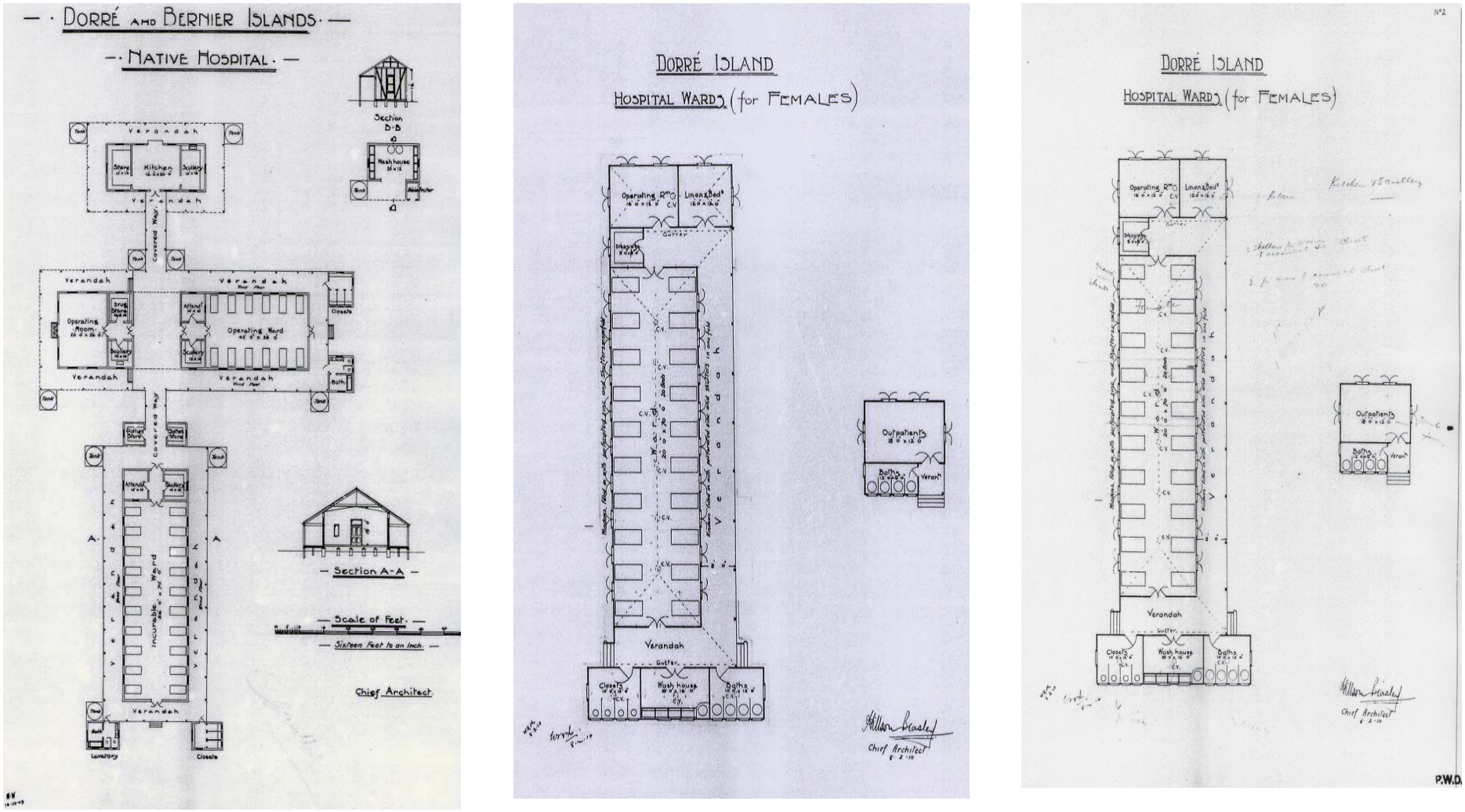


a)



b)

Figure 9.20. Rough sketch (a) and architectural plans (b) of the ward on Dorre Island (States Records Office, Cons 1647 P.W.D WA15024). These plans fit archaeological recordings of the ward. Note: a) on the rough sketch the ward is surrounded by dunes and indication of piping and water tanks appear on both.



a) b) c)

Figure 9.21. Plans for the Ward (States Record Office Cons 1647 P.W.D WA15024). a) 1909 plans is labelled 'cancelled', b) 1910 plan c) later 1910 plan with notes about construction. No evidence was found of these designs having been constructed on either island.

Very little archaeological material was associated with the ward. Some building materials including bolts, nails and window pane glass were found, together with condiment glass, a metal fastener and the base of a glass syringe. No Aboriginal artefacts were found.

ADMINISTRATION BUILDINGS (F1, F2, F3, F5, F6)

The administration building on Dorre Island, identified chiefly from its location (Figure 9.12), was made up of a number of concrete pads with the remnants of a surrounding veranda (Figure 9.22). No photographs of this building appear to exist and the 1911 plans do not exactly fit the dimensions taken during fieldwork (Figure 9.23). However a section (F3) around the fireplace does seem to match the 1911 plans and it is assumed that the structures detected during the survey were modifications and extensions.

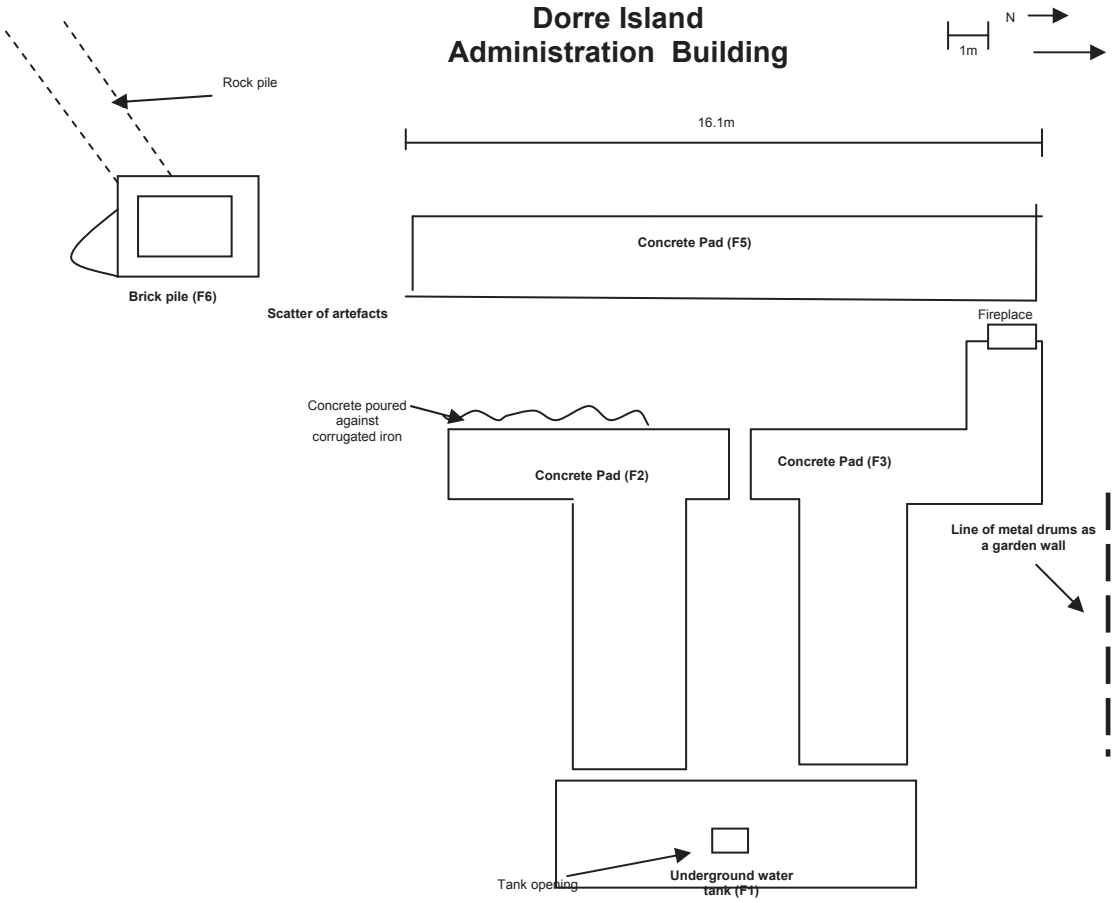


Figure 9.22. Archaeological survey plans of the concrete structures associated with the administration building on Dorre Island.

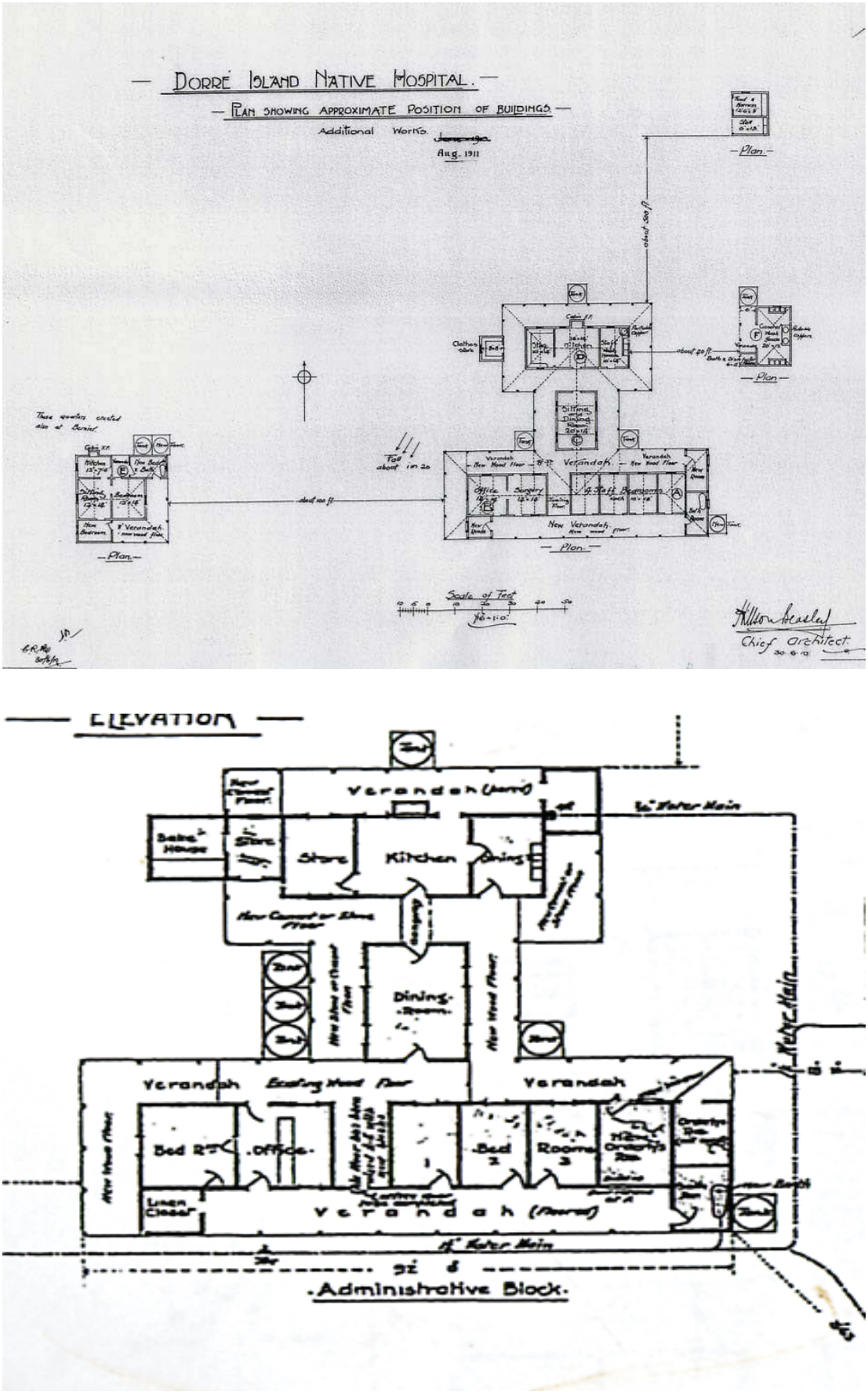


Figure 9.23. Architectural plans of the administration buildings in 1910 (top) and 1911 (bottom). (States Records Office, Cons 1647 P.W.D WA1504).

The administration building was recorded in separate sections F1, F2, F3, F5 and F6. The site F1 was the first structure visible after disembarking at White Beach Landing. A sign telling visitors of the history of the islands has been erected on it (Figure 9.24). The concrete pad of F1 measured three metres by six metres with an opening in the middle of approximately one metre by one metre, consistent with the opening to the underground water tank on Bernier Island (Figure 9.24). A lock was present on the trap door covering the entrance to the water tank. The interior of the tank was a large cavity lined with metal, corrugated iron and cement. One 4" (10.2cm) ceramic pipe entered the tank from each of the north and south ends (Figure 9.25).

a) b)

Figure 9.24. a) Concrete pad of administration building (F1) and associated artefacts and b) plaque that reminds visitors of history of islands. This plaque has the same wording as the one on the administration building on Bernier Island.

a) b)

Figure 9.25. a) Close up of lid to underground water cistern and b) inside view of the cistern (right). No water was present in tank at time of archaeological surveys. Note: the treated pine log present in foreground of photo is recent and was brought to the island by CALM in the 1990s.

Artefacts associated with F1 included building materials (nails, corrugated iron, jarrah wood), earthenware water pipes, enamel plates, metal buckets, broken condiment and spirit bottles and a water tank.

The site F2 was a 'T' shaped concrete pad occupying an area measuring 8.6 metres in length and 5.8 metres wide. The concrete pad itself was 2.3m wide (Figure 9.26). At the west end the concrete pad was poured against a corrugated iron sheet. There was no visible evidence of doorways.

Figure 9.26. 'T' shaped concrete pad of the administration building (F2). Photograph taken looking north.

Artefacts associated with F2 included building materials (nails, corrugated iron, metal straps), earthenware water pipes, enamelware, broken condiment, medical bottle glass and remnants of a Coolgardie safe. Also present were personal items including a shoe and metal and pearl shell buttons.

Site F3, assumed to be the original part of the administration building, was also a 'T' shaped pad but with an extension on the north western side to house a fireplace (Figure 9.27b). Its overall length was 12.2 metres by 7.5 metres wide. No doorways were evident on this pad either.

a) **b)**

Figure 9.27. a) Site F3 - concrete pad of the administration building and b) associated fireplace. F5 is just visible behind F3 in the photograph.

Artefacts associated with F3 included building materials (nails, metal straps, roof guttering, downpipes, roof and chimney flues), broken medical bottles and beer/wine bottles, a medicine mixing bowl, a tobacco tin and Coolgardie safe material. Chopped jarrah wood was associated with the fireplace. Approximately four metres to the north of F3 was a line of metal drums filled with dirt that seemed to act as a garden retaining wall or to contain plants.

Site F5 was the northern-most pad of the administration building complex. As best could be determined F5 measured 15 metres in length and 2.5 metres wide. However, measurements may be inaccurate due to very poor visibility of the pad, which lay well under the top of the soil (visible in Figure 9.27).

To the north of F5 was site AS1, a scatter of artefacts consisting of fragments of decorated ceramics (cups and plates), strap metal and glass from broken perfume, condiment and tablewares.

The last structure associated with the administration building was F6, a 2.8 metre high by 3.3 metre wide pile of red bricks, limestone bricks and rocks with a trail of brick extending to the south west for 6.7 m (Figure 9.28). This pile did not seem to be the remnants of a functioning structure or to correspond to anything marked on the plans, but to have been piled up at the end of the scheme to clear the area before abandoning the islands. Similar piles of material were found on Bernier Island.

a) b)

Figure 9.28 a) Rock and brick pile and b) close up. These have the appearance of having been piled up at the end of the scheme rather than representing a functioning structure during the Lock Hospital period.

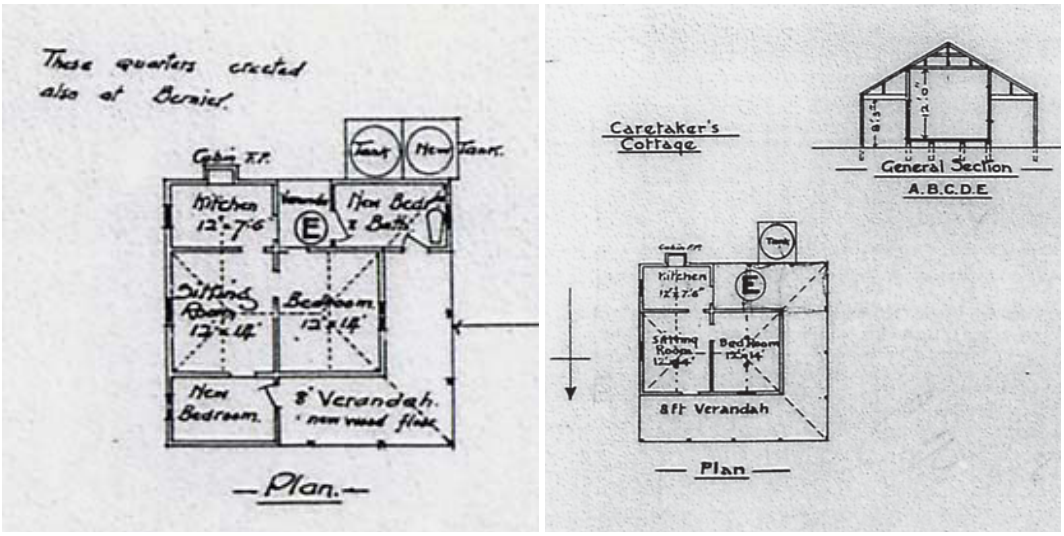
Between F6 and the main administration buildings was a scatter of artefacts which included broken glass from condiment containers, corrugated iron, scatters of sheet metal, tin cans, Coolgardie safe material, a clothing iron, wire barrel rims and ventilation shaft material.

DOCTOR'S HOUSE (W1)

The doctor's house was identified by its position in photographs (Figure 9.29) and architectural drawings (Figures 9.12, 9.30). It was located approximately 15 metres south of the administration building. This site did not have a concrete pad, but was a levelled area which seemed to include two housing pads, each approximately four metres by four metres. Architectural plans for the doctor's quarters match the general dimensions of the housing pads. The site was in good view of the ward and Indigenous camps. From photographs (Figure 9.28a) and architectural plans (Figures 9.12, 9.30) it would appear that the front entrance faced the ward. A large quantity of scattered rocks piled in a wall section approximately 7 metres by 4.7 metres (Figure 9.29b) extended to the south and east. It is assumed that these rocks were piled up at the end of the scheme to tidy up the place when leaving and were probably remains of the demolition of the building. This was concluded because the bricks had evidence of use (attached mortar), was in a neat pile and matched those bricks attached to the concrete pads Numerous pieces of building materials such as guttering, corrugated iron and asbestos were present.

a) **b)**

Figure 9.29. a) Doctor's quarters on Dorre Island pre 1911 (Battye Library, 3185B/12) and b) location in landscape where the quarters would have been located during the scheme. The rocks illustrated in the picture are not seen in the 1911 photograph and are assumed to be the ruins of the doctor's house or a different structure built after the photograph was taken.



a) b)

Figure 9.30. Plan of the original doctor's house (caretakers quarters) that was constructed on Dorre Island (left) and doctors house (caretakers cottage) in an earlier plan that was superseded (right) (States Record Office, Cons 1647 P.W.D WA15024).

Architectural plans suggest that another building was constructed next to the original 1911 buildings, which would account for the presence of the two building pads detected in archaeological surveys (Figure 9.31).

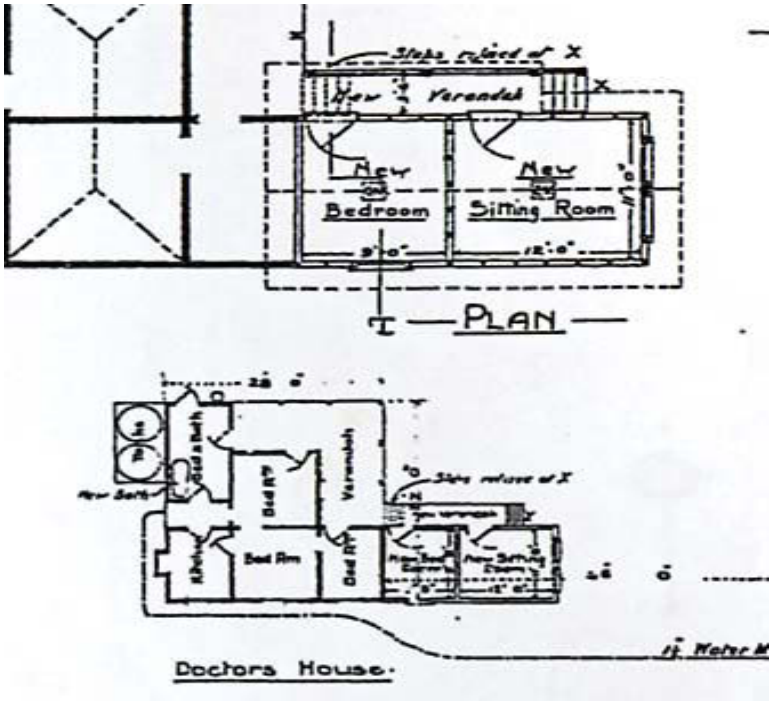
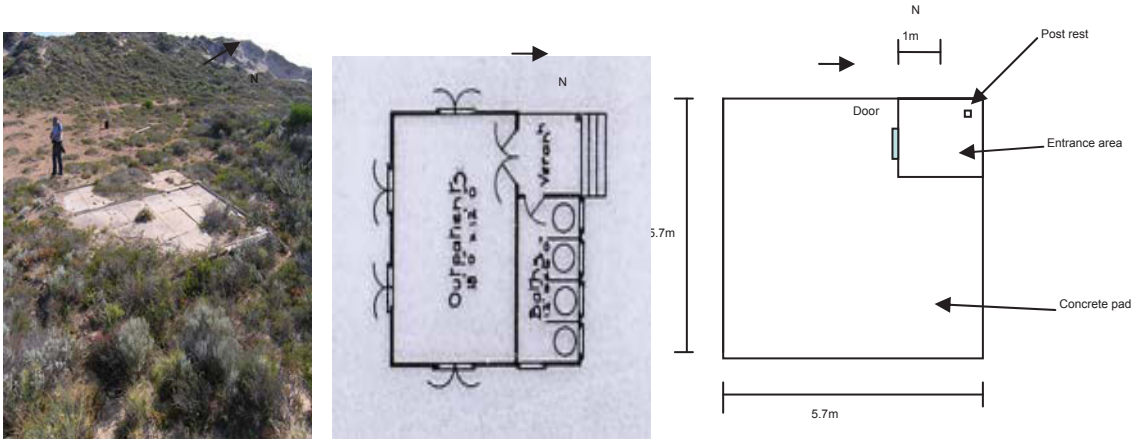


Figure 9.31. Later plan of the original doctor's house constructed on Dorre Island with extension (bottom) and structure (above) that did not appear on the early plan (States Record Office, Cons 1647 P.W.D WA15024).

Artefact scatters (AS2) associated with this building included a cork mat, whole alcohol bottles, window pane glass, glass tableware, buttons, a hair comb, a ceramic basin and medical microscope slides.

OUTPATIENTS BUILDING (S1)

The outpatients building on Dorre Island, which was identified by its location (Figure 9.12) and from architectural plans (Figure 9.32b), had a concrete base 5.7 metres by 5.7 metres. Although slightly smaller, the design and proportions were essentially the same as the outpatients building on Bernier Island.



a) b) c)

Figure 9.32. a) Photograph, b) architectural plans (State Records Office, Cons 1647 P.W.D WA15024) and c) archaeological drawings on the outpatients building on Dorre Island.

The outpatients' building was located apart from the other buildings behind a sand dune and was not visible from other buildings. It was the northern-most building on the island.

An insight into the methods of construction of the building was gained from the imprint of a wooden beam and metal support at one of the corners (Figure 9.33a) and a broken section of the concrete pad (Figure 9.33b). The concrete pad was mainly constructed of rocks and aggregate, with concrete poured on the top layer and to the sides to form a thin shell.

a) b)

Figure 9.33 a) Photograph of the wooden beam imprint and b) cross section of the concrete pad on the outpatients building.

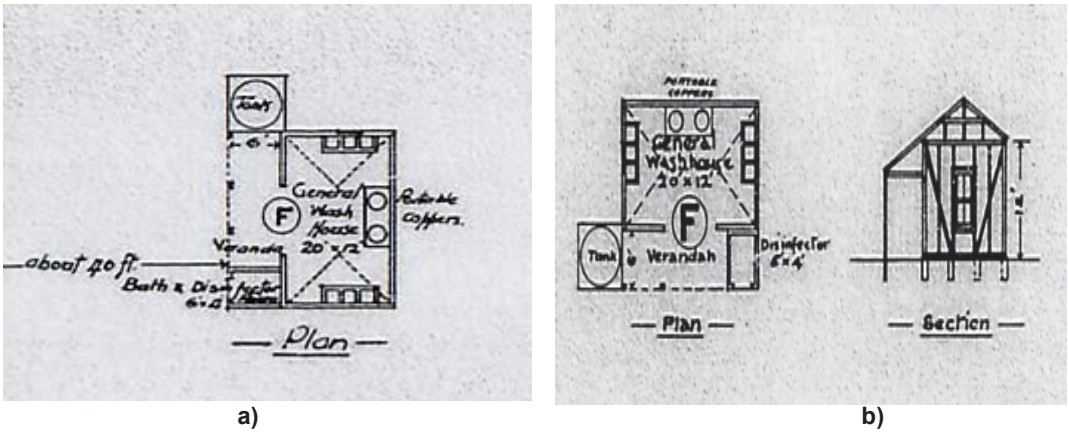
A water tank sat next to the outpatients building. Glass and ceramic fragments as well as a pipe stem were found in association with the site. Flaked Aboriginal vitrics were also present, suggesting some Aboriginal occupation, or at least that Aboriginal visitation occurred. Historically outpatients buildings were used for patients who did not need to be hospitalised overnight so it may have been that this is where simple treatment was administered to patients.

LAUNDRY (F4)

The laundry was identified from its position in architectural plans (Figures 9.11, 9.12, 9.35) and from an associated 2.3 metres by 2.4 metres scatter of coke (Figure 9.34b). The laundry lay approximately 13 metres north of the administration building within sight of the majority of other buildings. It consisted of a concrete pad measuring 3.1 metres by 2.5 metres (Figure 9.34a), slightly smaller than the laundry on Bernier Island. The concrete pad was highly fragmented and provided no obvious evidence of doors or separate rooms. A water tank was associated with the laundry site.

a) b)

Figure 9.34. a) Photograph of the laundry pad and b) coke scatter with remnants of the water tank. Insert is close up of coke.



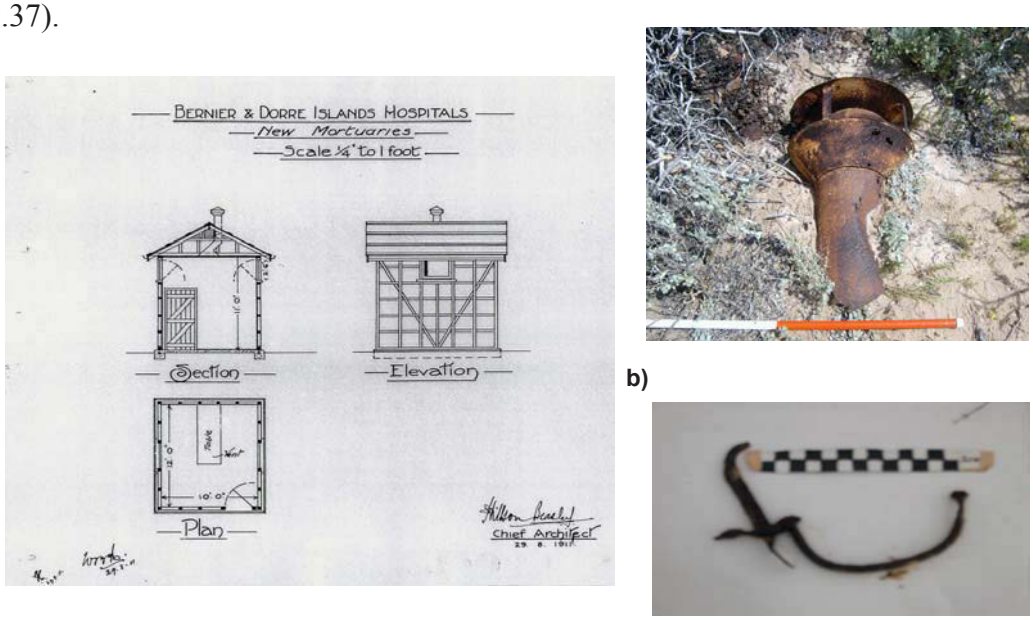
a) b)

Figure 9.35. a) 1911 plan of the laundry that was construed on Dorre Island and b) it in an earlier 1910 plan that was never constructed (State Records Office, Cons 1647 P.W.D WA15024).

Artefacts associated with the laundry included ceramics (including Jackfield ware), broken medical glass, scattered building material, metal drums and wheel axles of uncertain use. Aboriginal flaked vitric material was also present at this site.

MORTUARY (M)

The exact location of the mortuary building was not mentioned on any of the plans of the islands. Its identity was determined by the presence of a chimney vent exactly matching the illustrations on the architectural plans and door handle. No other buildings had chimney vents exactly like this (Figure 9.36). The mortuary was located on the highest point in the dune system within the White Beach Landing Bay area, overlooking all of the sites including the hospital ward and Indigenous camp (Figure 9.37).



a) b) c)

Figure 9.36. a) Architectural plans of the mortuary (State Records Office, Cons 1647 P.W.D WA15024) b) chimney and c) door handle found at the site.

Figure 9.37. The location of the mortuary in relation to other buildings on Dorre Island.

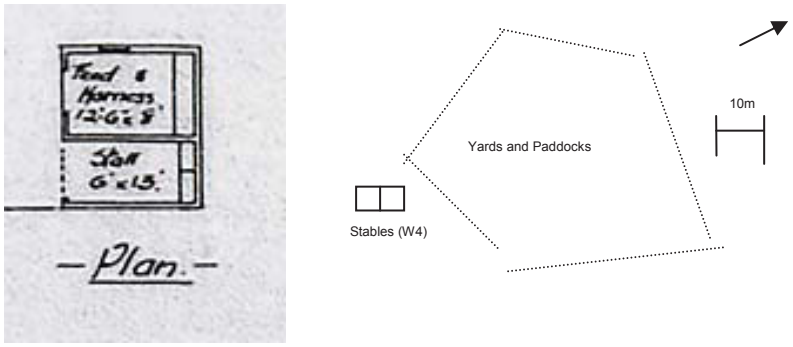
There was no concrete pad associated with this site but there were items of building material such as corrugated iron, down pipes, sheet metal, metal roof corners and guttering. Enamel bowls and bedpans, sponges, an enamel pot, and medical and chemical bottles were found in association with the mortuary site. No evidence of an equivalent building was found on Bernier Island.

OTHER STRUCTURES

The Stable/ Yard (W4)

The stable was identified from its position on the architectural plans (Figures 9.11, 9.12, 9.39a) and its actual presence from photographs of a horse identified as 'Star' (Figure 9.40). The stable was located on a flat area over a dune from the hospital buildings. It measured 8.9 metres by 5.2 metres (Figure 9.38). Two rooms of approximately the same size were identified. This structure was constructed on a timber frame with chicken wire at the base. The corrugated iron walls were held together by early octagonal wire nails of a type not found at any other site on the island. A cleared area next to the stables measuring approximately 50 m by 50 m was also found (9.39b). This did not have a clear fence boundary as was evident at the yards on Bernier Island.

Figure 9.38. Photograph of the remains of the stables on Dorre Island.



a) b)

Figure 9.39. a) Architectural plans of the stables (State Records Office, Cons 1647 P.W.D WA15024) and b) archaeological drawing of the stables and associated yards and paddocks.

Figure 9.40. Historical photograph of the horse that presumably lived in the stables on Dorre Island. The original caption reads 'Nurse on Star'. Star was also photographed being ridden by Dr Pritchard's children. It is assumed that Star returned to the mainland at the end of the scheme (Battye Library, 3185B/31) Insert is of a horse shoe found at the dumpsite G1.

No other artefacts besides these building materials and a metal chain were present at the stable or the yard site, but one horseshoe was found at the nearby dumpsite (G1) (Figure 9.40). This horseshoe would not have fitted a small standard size horse, like that exhibited in the historical photographs.

GARDEN (F7)

It was deduced from the presence of fencing (wooden posts, corrugated iron), tin retaining wall material, water tanks and a ceramic flowerpot (Figure 9.41a) that the garden depicted in the historical photographs (Figure 9.41b,c) lay to the east of the administration building.

a) b) c)

Figure 9.41. a) Archaeological remains of the garden on Dorre Island with flowerpot (insert) b) historic photographs of the garden, c) children with pet boodies in garden (Battye Library 3185B/ 36).

JETTY, DRESSING SHED AND QUARRY

No physical remains of either the jetty or the dressing shed on White Beach Landing mentioned in the historical record were located. Neither was any evidence for the quarry mentioned on architectural plans found.

The 1959 aerial photograph shows remnants of the jetty at the location recorded in the historical records ('at the north end of White Beach Landing') (Figure 9.42). Little remained of this structure when archaeological investigation took place in 2004. No wooden posts or bolts like those found on Bernier Island were located in the vicinity.

Figure 9.42. Remnants of the jetty on Dorre Island as seen in the 1959 satellite photograph (DOLA).

WELLS AND WATER TANKS

One windmill (WM) and associated well were found to the north of the hospital site (Figure 9.43). The well consisted of a cement and limestone-lined hole measuring approximately 1.5 metres by 2 metres. The remnants of the windmill lay next to it (Figure 9.43a). No maker's marks were found on any part of the windmill. This is not in the same position as detailed on the architectural drawings (Figures 9.11, 9.12). No evidence was found for well or windmill remains at the location depicted in historical records (plans or photographs).

a) b)

Figure 9.43. a) The windmill on Dorre Island and b) a photograph of where it is located in relation to the landscape. The hospital sites and artifical coral dune all lay behind the photographer.

The presence of eight water tanks (two associated with the ward, four with the administration building and one each with the doctor's house and garden), guttering and downpipes (Figure 9.44) and the underground water storage tank at the administration building all attest to operation of a water collection and distribution system on the island during the period of the Lock Hospital Scheme.

a) b)

Figure 9.44. a) Remains of water tanks and b) guttering with downpipe found on Dorre Island.

The locations of these water-related features in relation to the hospital sites are shown in Figure 9.45.

Figure 9.45. Map of the location of water tanks, underground water storage and wells on Dorre Island.

TRANSPORT AND TRANSPORT ROUTES

Historical maps indicate the presence of roads to the Aboriginal camps and the quarry (Figure 9.46). The presence of horses on the island also suggests there were transport routes. It was extremely hard to detect any on the island. No obvious routes show up in the aerial photographs or satellite images as they did on Bernier Island. Some information about travel routes on the island could be deduced from an artificial cut, identified from its flat base and disturbed vegetation, through the dune between the hospital buildings and the stables and paddocks (K2) (Figure 9.47), though no specific evidence of a track or road could be detected on either side of the cut.

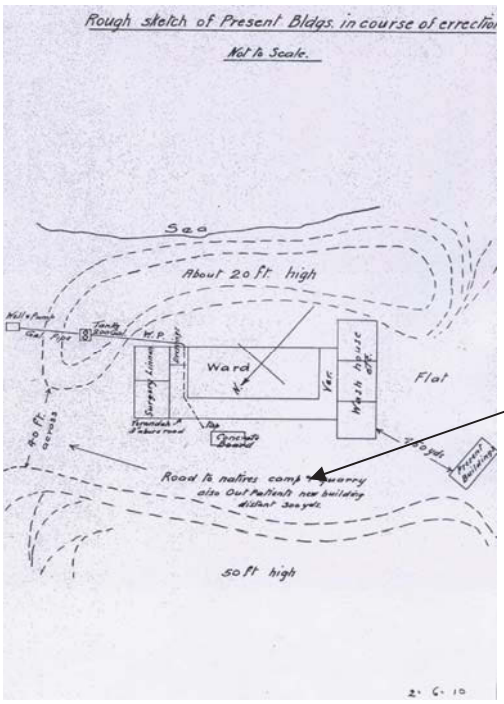


Figure 9.46. Historical map of the ward (State Records Office, Cons 1647 P.W.D WA15024) illustrating the location of the roads.

Figure 9.47. Artificial cut through the dunes (K2) between hospital sites and the stables on Dorre Island. This photo looks directly at the ward, with the stable lying directly behind the photographer.

RUBBISH DISPOSAL AREAS AND ARTEFACT SCATTERS

Historical documents no more discuss the location of rubbish sites and disposal areas on Dorre Island than on Bernier Island. Four sites (G1, K3, K4, MON) (Figure 9.48) were located which bore the characteristic large proportion of artefacts concentrated in one area of rubbish dumps. The largest of all was MON, measuring 14 metres by 13.3 metres which yielded at least a quarter of all the artefacts found on the island.

This dump lay 420 metres south of the hospital sites. It was most probably the dumpsite for the clean-up at the end of the scheme as it was not disturbed and contained whole pieces. The nine smaller artefact scatters (A1, AS1, AS2, AS3, K1, M1, Q, R1, W3) were scatters of artefacts probably also left at the end of the scheme. Only one isolated artefact was found (K5). Site A1 (Figure 9.48) was a large cleared area containing scattered objects, without any obvious intended purpose.

a) **b)** **c)**

Figure 9.48. a) Example of European dumpsite (G1) with scattered ceramics, enamelware and personal objects b) artefacts from the dumpsite (K3) c) the cleared area (A1) with scattered artefacts.

These sites contained European imported manufactured goods, such as building materials, glassware and bottle glass, ceramics, enamelware, metal containers, personal items and domestic animal remains. A significantly greater number of such artefacts associated with Europeans were found on Dorre Island (n=954) than on Bernier Island (n=325). All of the artefacts could be attributed to or slightly before the time frame of the scheme.

ARTEFACTS

BUILDING MATERIALS

Historical records state that structures on Dorre Island like those on Bernier Island were based on concrete pads with jarrah and asbestos walls and corrugated iron roofs (State Records Office, Cons 1647 P.W.D WA15024; Mulvaney 1989:189). It is believed by Jebb (pers coms 2003/4) and Warren (2000) that the frames of the buildings like those on Bernier Island were removed at the end of the scheme and taken to the mainland for re-use. No records are known to exist of their movement once off the island.

Remnants of building materials were found scattered within the dunes where the hospitals lay and behind the dunes at the stable site. In total, 360 pieces of ceramic

water pipe (Figure 9.49a), asbestos (Figure 9.49b), brick (Figure 9.49c), window pane glass (Figure 9.49d), jarrah post (Figure 9.49e), and corrugated iron (Figure 9.49f) were identified in addition to the materials still attached to structures and concrete pads.

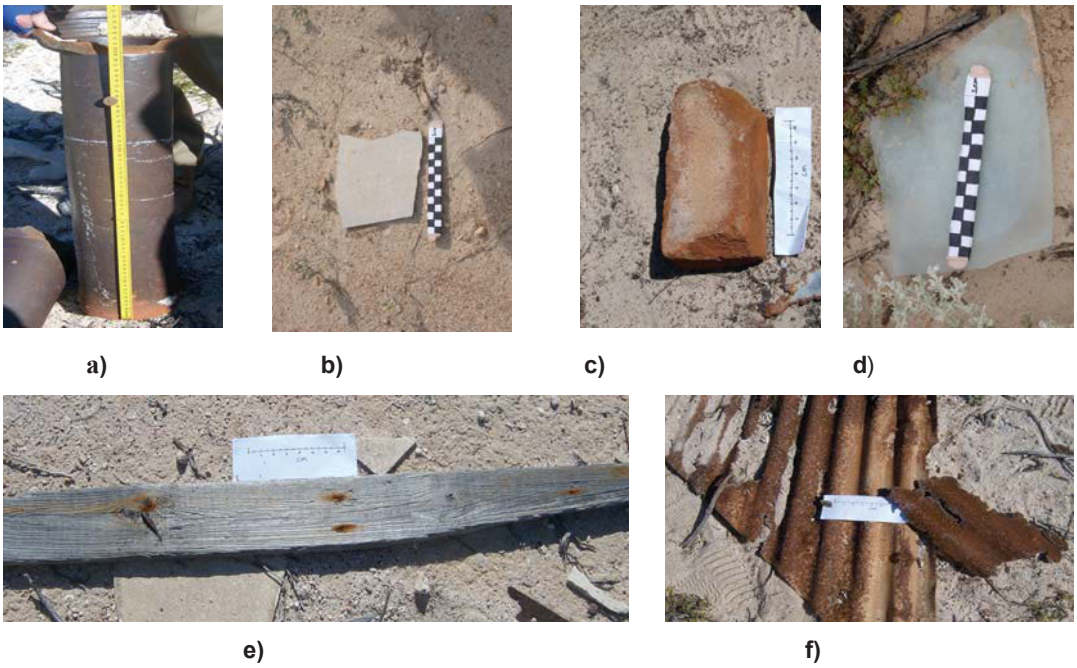


Figure 9.49. Example of building material associated with the hospital buildings (F1) on Dorre Island. a) ceramic water pipes (F1), b) asbestos (W1), c) brick (F6), d) window pane glass (F2), e) jarrah fence post (F1) and f) corrugated iron (W4).

Four ceramic water pipes which measured 67 cm long and 10 cm in diameter were found in association with the underground water cistern at the administration building. Fragments of asbestos sheeting, which presumably made up the walls of the buildings, lay across most (7) of the concrete pads (F1, F2, F3, F5, J4, S1, W1). In total 11 pieces of asbestos were found, most less than 20cm^2. Eleven separate sites (34.4% of total sites) (A1, F1, F2, F3, F5, F6, F7, J4, M, M1, W4) contained corrugated iron. In total 23 separate pieces of corrugated iron were identified, some up to two metres in length. Most were highly corroded. Most were associated with the hospital buildings and stables. Approximately 50 bricks were found in association with the fireplace on F2 and the brick pile F6 at the administration building site. It is likely that the bricks on the brick pile originated from the fireplace. All bricks found were red in colour and machine made (identified from their uniformity and frog mark) and, as on Bernier Island, unmarked. In excess of 200 pieces of a type of stone material only found in the brick and rock pile (F6) were assumed to be locally derived, from the historically recorded but unidentified quarry.

No large jarrah beams or pieces of canvas recorded as forming the walls of the buildings were found on Dorre Island, but five smaller pieces of cut wood consistent with fence posts were found at the administration building site and at the doctor's house. Six pieces of window pane glass like that found on Bernier Island and of similar thickness, size and colour were found near the administration building, outpatients building and ward.

The nails and bolts found on the concrete pads on Dorre Island were in a better state of preservation than those on Bernier Island (Figure 9.50) but the same was not the case for the bolts and nails found within the dune system surrounding the hospital buildings.

a) b) c)

Figure 9.50. Example of nails, washers and bolts found at hospital buildings sites on Dorre Island a) F1 b) J4 and c) F3.

Sixty one nails and bolts were identified from nine sites (F1, F2, F3, F6, G1, J4, S1, W4, WM). A combination of machine made, wire and hand-made nails were found in a variety of sizes ranging from 3.5 cm to 19 cm long. No bolts or nails bore markings. The hand-cut nails were dated by their thickness and size to a much earlier period than those on Bernier Island and, together with the octagonal nails found at the stables, indicate that Dorre Island structures were either set up before those on Bernier Island, or constructed with older materials from storage.

No evidence was found to suggest that buildings were constructed in any other manner other than that described in the historical records. As noted in the historical records (Brodribb 1909, 1911) some natural resources like corals and local rocks were exploited for walls and garden/path edging (Figure 9.51). The reference to a quarry on historical maps of Dorre Island also suggests that natural resources were exploited in building construction.

a) b)

Figure 9.51. a) Historical photograph of the coral path edging leading to the ward on Dorre Island (Battye Library 3185B/22) and b) remnants of artificially placed coral in the same location (right).

GLASSWARE AND BOTTLES

Two hundred and seventy nine individual glass artefacts (not including medically related artefacts) were recorded on Dorre Island in association with European sites. Most (73.4%) were fragmented. Functions and makes could only be identified with respect to complete bottles and larger pieces of glass. The 74 completely intact glass bottles were mainly beer bottles. Most were from sites MON (37 bottles) and R1 (20 bottles). Both of these sites were considered to be bottle dumps (Figure 9.52). A number of half sized bottles were found at MON.

a) b)

Figure 9.52. Alcohol bottles found at European sites on Dorre Island a) MON and b) R1.

Glass artefacts were classified as alcohol bottles (beer/wine glass, spirits bottles), condiment bottles (oils, sauces, stocks), poison bottles, chemical bottles, household toiletry jars (creams), dinnerware, table glasswares and other items such as lamps. Table 9.2. sets out the type and condition of glass artefacts from each site and figure 9.53 summarises the types of glass found across all European sites on the island.

Table 9.2. Glass artefacts found at European sites on Bernier Island.

Site	Number	Beer/ wine	Spirits	Condiment	Storage jar	Poison	Chemical	Perfume	Household (toiletries)	Dinnerware/ tableware	Other	Unidentified	Highly fragment	Whole pieces
S1	14	0	14	0	0	0	0	0	0	0	0	0	yes	no
J4	8	0	0	7	0	0	0	0	0	0	0	1	yes	no
WM	1	1	0	0	0	0	0	0	0	0	0	0	no	yes
Q	6	0	0	6	0	0	0	0	0	0	0	0	no	no
MON	138	129	6	3	0	0	0	0	0	0	0	0	no	yes
A1	6	1	0	2	0	1	2	0	0	0	0	0	no	no
AS3	4	1	0	2	0	0	0	0	0	1	0	0	no	yes
F1	6	0	0	5	0	0	0	0	0	0	0	1	yes	no
F2	21	5	3	13	0	0	0	0	0	0	0	0	yes	no
F3	3	3	0	0	0	0	0	0	0	0	0	0	no	no
F4	1	0	0	0	0	0	0	0	1	0	0	0	no	yes
F5	3	1	0	2	0	0	0	0	0	0	0	0	yes	no
AS1	3	1	0	1	0	0	0	1	0	0	0	0	yes	no
F6	3	3	0	0	0	0	0	0	0	0	0	0	yes	no
AS2	10	8	0	0	0	0	0	0	0	2	0	0	no	yes
R1	23	22	1	0	0	0	0	0	0	0	0	0	no	yes
G1	14	0	0	3	0	0	2	0	1	5	1	2	no	yes
K3	7	0	2	4	0	0	0	0	0	0	1	0	no	yes
K4	1	0	0	1	0	0	0	0	0	0	0	0	yes	no
K1	4	4	0	0	0	0	0	0	0	0	0	0	yes	no
W3	3	3	0	0	0	0	0	0	0	0	0	0	no	yes
Total	**279**	**182**	**26**	**49**	**0**	**1**	**4**	**1**	**2**	**8**	**2**	**4**	-	-

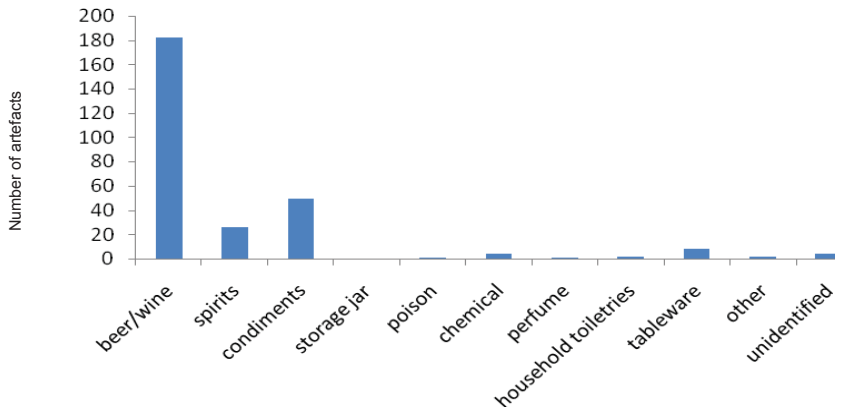


Figure 9.53. Frequency of different types of glass artefacts found at European sites on Dorre Island.

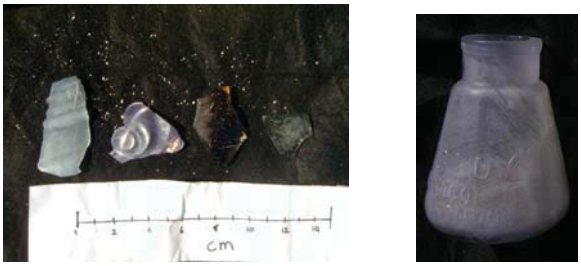
The hospital dumpsites (G1, K2, K3, MON) yielded the largest variety of glass artefacts, including household glassware and glass containers for consumables. In contrast to the situation on Bernier Island very few of the hospital sites yielded glass artefacts.

Condiment bottles for bovril (stock) (Figure 9.54a), honey (GB) (Figure 9.54b), Holbrook and Co tomato sauce and pickles, and Hoadley's tomato sauce were found scattered throughout the European sites. Only one fragment of a perfume glass bottle

was found on the island at AS1, north of the administration area (Figure 9.55a). One 'Gloy. A. W. Collier London 5 Oz' glue bottle with cork stopper was also found at this site (Figure 9.55b). A piece of glass lampshade (Figure 9.55b) was found at the dump site, as were as glass tumblers (Figure 9.56a) and a fruit bowl (G1, AS2, MON). Chemical and poison bottle fragments were found associated with the mortuary and at European scatters. None bore obvious evidence of residue remains (Figure 9.57a,b). Very few spirit bottles were found near European sites. Those that were, were found at the dumpsites rather than on the hospital pads themselves (Walkers No 7 Whiskey and Kilmarnock's Whiskey). A cork from a wine bottle was found at AS2.

a) b)

Figure 9.54. Condiments jars for a) bovril (K2) and b) honey (Q).

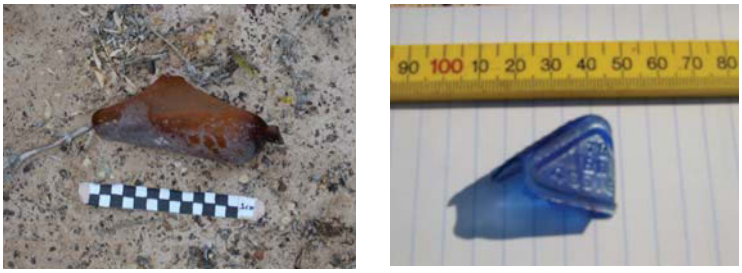


a) b)

Figure 9.55. Other glass objects a) broken glass pieces (perfume glass and lamp glass) (AS2) and b) whole 'gloy' (glue bottle) (K2).

a) b)

Figure 9.56. Glass tableware and objects a) glass tumbler (AS3) b) lamp glass (G1).



a) b)

Figure 9.57. a) Chemical (M) and b) poison bottles (A1).

Most of the glass found was manufactured interstate in Adelaide, Melbourne and Sydney. One bottle seal was labelled P& S Fowler, Adelaide. The chemical and poison bottles were from overseas, including the USA.

One bottle found at MON was marked 'Perth and Fremantle Bottle Company' (Figure 9.58). Such bottles were produced in Western Australia towards the end of the Lock Hospital period 1917-1918. Its position at the large dump site south of the hospitals reinforces the idea that this site was one of the dumping sites formed in the clean-up of the islands when the scheme was abandoned.

Figure 9.58. Bottle exhibiting marks of 'Perth and Fremantle Bottle Company' which was produced in Western Australia found at site MON.

ENAMELWARE

Enamelware was found at five sites (F1, F2, G1, M, MON), all associated with the hospital or rubbish dumps (Figure 9.59). In total 20 blue and white enamelware artefacts were found. Most (15) of these were cups from the MON site. The rest, with the exception of one plate, were found near the mortuary and were scattered across the administration site.

a) b)

Figure 9.59. Examples of enamelware found at European sites on Dorre Island a) cup (MON) and b) plate (G1).

METAL CANS

Metal cans were found at six European sites (A1, F2, F3, F6, G1, MON), namely the hospital sites and their associated artefact scatters. In total 12 tin cans were found. Due to the poor preservation arising from exposure to the rain and salt spray the few tin cans found on the islands were hard to analyse and could only be tentatively classified into two categories, five that probably contained food and one that contained tobacco (Figure 9.60). All food cans that could be observed exhibited double sided seams. No indication of the specific contents of food could be detected.

a) b)

Figure 9.60. Metal tins found on Bernier Island for a) food (F3), and b) tobacco (MON).

CERAMICS

One hundred and thirty eight ceramic items (complete objects and sherds) were found at nine European sites (Table 9.3). The European sites yielding ceramics included the outpatient's building, rubbish scatters associated with the ward, the doctor's house and the administration building (AS1, AS2, AS3, A1) and the major European dump

sites (MON, G1, K3, K4). Five main types of ceramics were found at European sites: creamware, earthenware, stoneware, true porcelain and bone china. Bone china was the commonest type of ceramic found (47.8%) and was present at most of these sites (Figure 9.61). Most of the sites contained ceramics of high to medium cost. The dump sites associated with the living areas of the European workers (AS1, AS3, G1, K3 and MON) yielded the most expensive pieces.

Table 9.3. Ceramics found at European sites on Dorre Island.

Site	Total	Presence whole pieces	Cream ware	Earthen ware	Stone ware	Porcelain	Bone china	Relative Expense Compared to other sites
A1	8	yes	0	0	0	0	8	Medium
AS1	16	no	2	0	0	2	12	High
AS2	1	no	0	0	0	0	1	Medium
AS3	3	no	0	0	0	1	2	High
G1	47	yes	23	1	3	5	17	High
K3	16	yes	8	4	0	2	2	High
K4	5	no	4	1	0	0	0	Medium
Mon	41	yes	20	12	0	5	24	High
S1	1	no	1	0	0	0	0	Medium
Total	138	-	58	18	3	15	66	-

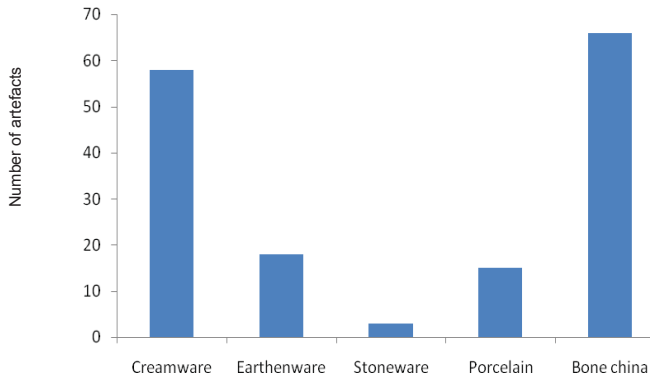


Figure 9.61. Frequencies of different types of ceramics found at European sites on Dorre Island.

Pieces present at these sites included tableware (plates, bowls, tea cups), serving dishes (larger plates, bowls), teapots, and household ceramics such as chamber pots and hospital urinals. Some objects, such as the highly fragile eggshell porcelain bowls and highly decorated 'Geisha girl' design small plates, were clearly intended for limited use or for display (Figure 9.62). Other ceramics had very intricate designs and transfer or printed pictures as well. Many pieces had the same gold rim and the maker's mark 'Tuscan China, England' or 'Royal Albert Crown China, England'. Examples of the ceramics found can be seen in Figures 9.62, 9.63, 9.64.

a) b)

Figure 9.62. a) Translucent eggshell porcelain (G1) and b) highly decorated earthenware (MON).

a) b)

Figure 9.63. Fragments of stoneware and earthenware ceramic teapots, a) glazed (MON) and b) unglazed) (G1).

a) b) c)

d) e) f)

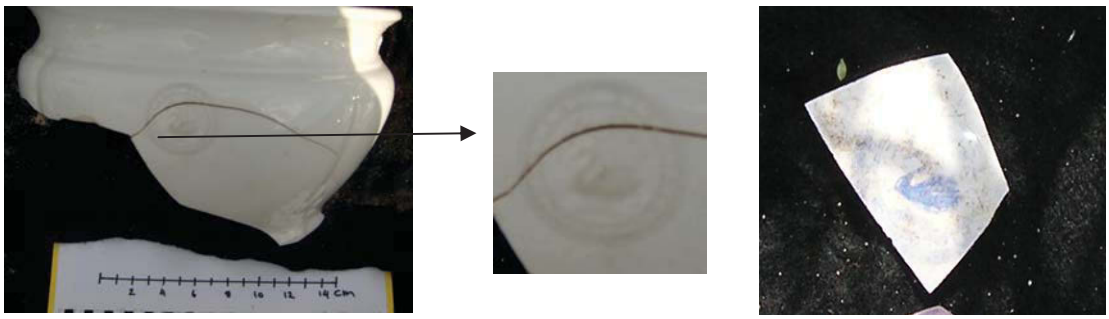
Figure 9.64. Examples of everyday ceramic (China) pieces found at European dump sites, glazed and patterned a) bone china saucer (K3) b) bone china bowl and cup fragments (AS3) c) gold rimmed cup (G1) d) parts of china cups (G1) e) fragments of plates (K2) and f) serving ware (G1).

All ceramics were dated to after 1900, with a few being recorded as produced in 1906 (Figure 9.65). All of the ceramics were imported from overseas companies, mostly from England (Grimwades, Tuscan China and Royal Albert Crown and Grindleys which was made in the UK for export to the USA). Figure 9.65 shows examples of markers' marks found on ceramics.

a) b) c) d)

Figure 9.65. Makers' marks on ceramics, a) Royal Albert Crown China, England b) Grindleys, U.S.A. c) Tuscan China, England d) Grimwade, England. Note date of patent registration b) 'May 9th 06'.

The only pieces which appear to have been produced locally were a chamber pot with no maker's mark but exhibiting the design of a swan and the words 'Medical Department WA, Hospital' and a ceramic sherd with a blue swan design (the emblem of Western Australia) (Figure 9.66). It is possible, however that these were produced elsewhere specifically for the Western Australian market.



a) b) c)

Figure 9.66. Ceramics with black swan design and words that say 'Medical Department' (a, b) and ceramic sherd that exhibits swan design (c).

A large proportion of sites, especially A1, G1, K3, MON, yielded unbroken ceramics pieces. Most were cheap creamwares or bone china. All of the more expensive porcelain was highly fragmented.

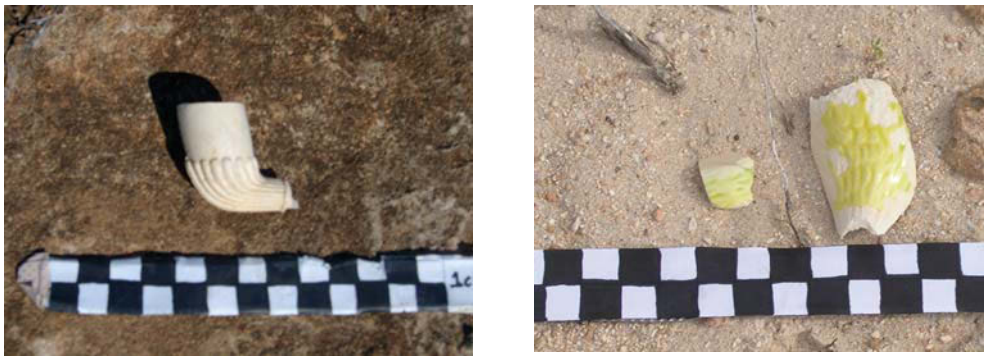
CLAY AND BAKELITE PIPES

Clay pipes for smoking were found at three European sites (A1, Q, S1). There were very few remains of pipes found – in total four pieces, none of which could reasonably be considered to be from the same pipe (Table 9.4). Two of the clay pipes

(from S1 and A1) were white with no design or maker's marks. One pipe, found at site Q had a fluted design (Figure 9.67a). The other, found at A1, had a simple yellow glaze (Figure 9.67b). This was the most elaborate pipe found on either island. No bakelite pipes were found at European sites on Dorre Island. The pipes were of a similar vintage to those found on Bernier Island, all fitting within the period of the Lock Hospitals. There was no evidence to suggest that any of the pipes were reused.

Table 9.4. Clay pipes found at European sites on Dorre Island.

Site	Total	Stems	Bowls	Whole	Bakelite
S1	1	1	0	0	0
Q	1	0	1	0	0
A1	2	1	1	0	0
Total	**4**	**2**	**2**	**0**	**0**

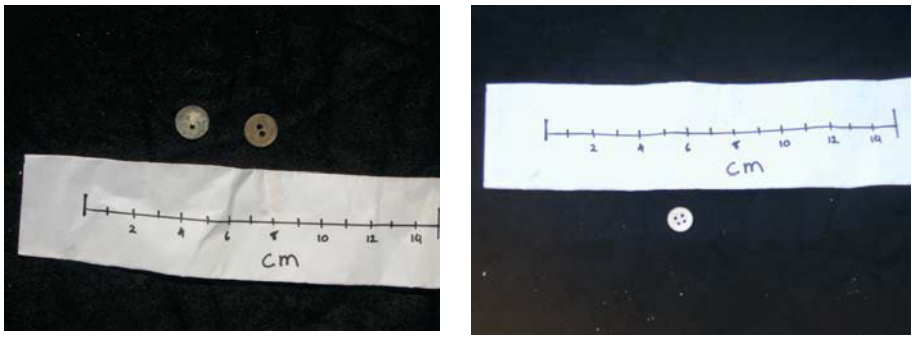


a) b)

Figure 9.67. Examples of smoking pipes found associated with European sites on Dorre Island a) bowl with simple design from Q and b) a yellow glazed pipe from A1.

CLOTHING (BUTTONS, SHOES AND BUCKLES)

Buttons were found at only one European site: part of the administration building (F2). In total three buttons were found. Two were two-hole metal buttons measuring between 16-18 mm with no markings resembling those from outer clothing which are usually cloth covered during use. The other button, made of pearl shell, had four holes and measured 12-15 mm. It was of a type commonly used on underclothes (Figure 9.68).



a) b)

Figure 9.68. Examples of buttons found at administration building a) Metal two-holed buttons (F2) and b) a pearl shell four-holed button (F2).

Historical photos (Battye Library 3185B/12, 3185B/10) illustrate the types of clothing from which these items were probably derived.

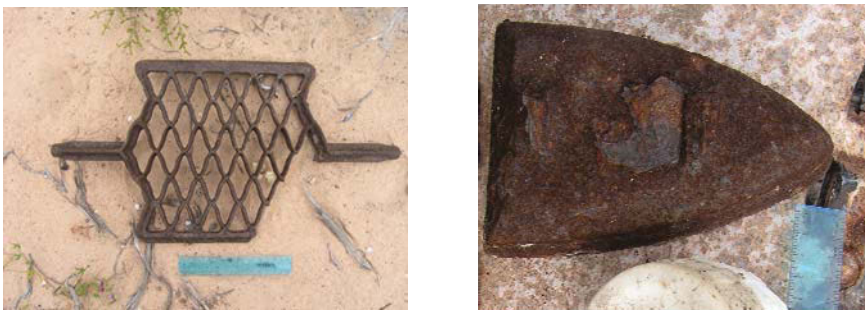
The sole of a shoe (Figure 9.69) was found near the administration building. It was more delicate (both in design and size) and of better quality than the shoes found on Bernier Island. As it was associated with the administration area it was assumed to have belonged either to a nurse or to one of the older children.

Figure 9.69. Example of shoe sole found at administration building (F2) on Dorre Island.

OBJECTS (PERSONAL ITEMS)

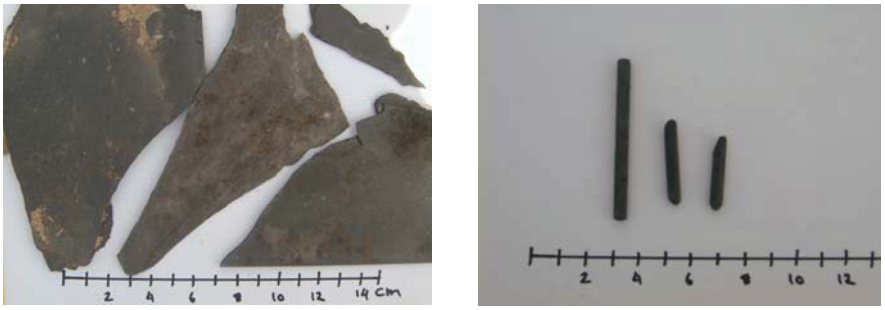
Many more personal objects were found on Dorre Island than on Bernier Island. Three combs were found, one sewing machine pedal, two clothing irons of sizes 5 and 8, and broken pieces of slate board and three slate pencils (Figures 9.70, 9.71, 9.72). These items, traditionally associated with women and children, were found only at the European living areas and rubbish sites (F1-6, A1, AS1 AS2, G1, MON).

Figure 9.70. Example of a personal item - metal comb (AS1).



a) **b)**

Figure 9.71. Personal objects – a) sewing machine pedal and b) iron (both from site MON).



a) **b)**

Figure 9.72. Children's objects –a) writing slate board and b) slate writing implements (both from site G1).

OTHER OBJECTS OF INTEREST

An unmarked ceramic basin was found near the administration building (Figure 9.73a) in an area which was probably once part of the wash house. Also found near this site was a piece of cork matting (Figure 9.73b). Part of a lamp (Figure 9.74) was found at the large European dumpsite MON.

a) b)

Figure 9.73. a) Remnants of a ceramic basin (AS2) found near administration building and b) cork matting probably used on floor of operating rooms (GK1).

Figure 9.74. Part of a lamp found at European rubbish site (MON).

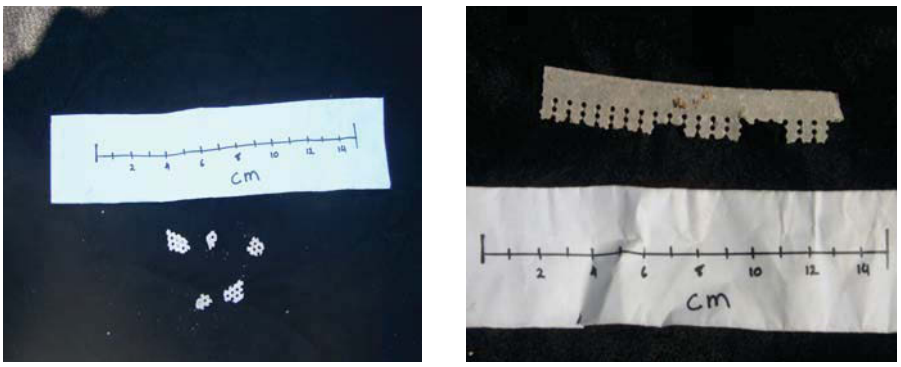
Parts of a boiler measuring 81cm by 81cm with an internal diameter of 14 inches (35.56 cm) were found (Figure 9.75a). Night soil buckets (Figure 9.75b) were found in association with the administration building.

a) b)

Figure 9.75. a) Part of a boiler found at European rubbish site (MON) and b) a night soil bucket found at the administration area (F6).

Two objects reflect attempts to maintain the freshness of stored food, a bread tin that was found at the south west end of the administration building, where historical records place the kitchen (Figure 9.76), and remnants of a Coolgardie safe (an early form of cooler invented to store food in the hot climate of Coolgardie in the 1890s) (Figure 9.77).

Figure 9.76. Part of a bread tin found near administration building (F2).



a) **b)**

Figure 9.77. Pieces of a Coolgardie metal safe found at European sites a) F2, and b) F5.

FOOD (BONES, SHELLS AND PLANT REMAINS)

Only two European sites contained animal remains (A1, AS3). Site A1, a rubbish scatter, yielded 13 sheep/goat bones of which 12 were from adult animals. Seven were long bones and six vertebrae. These bones were relatively intact. The other site, AS3, contained only one sheep/goat long bone. No bones bore cut or burn marks, but there is some indication such as a grey colour and the rounding of bone ends that they may have been cooked or boiled. No native animal remains were found associated with any European sites, though the European children on Bernier Island are shown in photographs with native animals as pets.

Shells were only found at two European sites (AS2 and G1) (Figure 9.78). In total six shells were identified. At site AS2 there was one clam shell and at site G1 a razor, scallop, triton and small cowrie shell. Coral was also found at this site.

Figure 9.78.Shells found at European site (G1) on Dorre Island.

No remains of any plants foods were identified, but a piece of native tree cut at both ends was found on site near the administration building (Figure 9.79).

Figure 9.79. Cut wood found at European site (AS1) on Dorre Island.

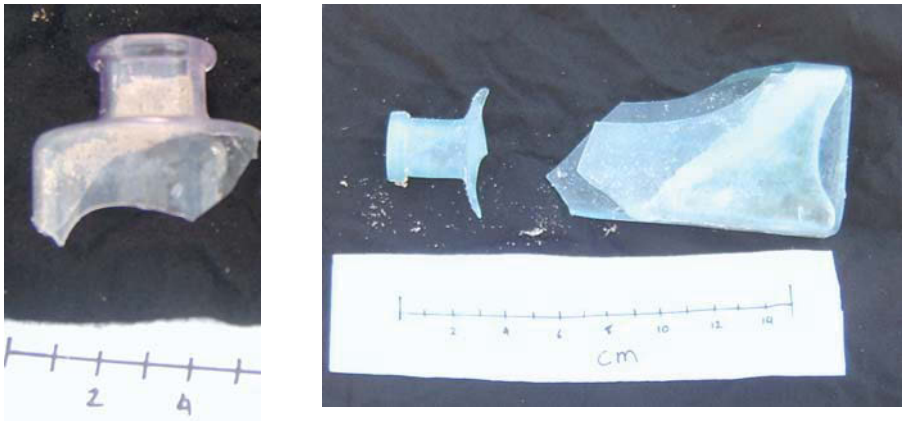
MEDICAL EQUIPMENT AND BOTTLES

Thirty medically related artefacts were found across 11 European sites (Table 9.5). Eight were medicinal bottles, one a tonic bottle and 21 pieces of medical equipment. All of these objects were produced overseas. Very little medical related material was found at the hospital sites. Most was found at the major dumpsites (G1, MON, K4), primarily at G1.

Table 9.5. Medical objects found on Dorre Island at European sites.

Site	Total artefacts	Medicinal bottles	Tonic bottles	Medical equipment
AS1	1	0	1	-
AS3	1	1	0	-
F2	1	1	0	-
F3	3	2	0	1 medicine mixing bowl
G1	9	0	0	2 test tubes, 2 pipettes, 1 measurement bottle, 3 glass flasks, 1 urinal pot
J4	1	0	0	1 syringe plunger
K3	2	1	0	1 shaker lid
K4	3	1	0	2 test tubes
MON	5	0	0	2 test tubes, 2 microscope slides, 1 glass flask
R1	2	2	0	-
W1	2	0	0	2 microscope slides
Total	**30**	**8**	**1**	**21**

Figure 9.80 shows examples of medicinal bottles found. No remnants of contents could be identified.



a) **b)**

Figure 9.80. Examples of medicinal bottles found at European sites on Dorre Island a) G1 and b) AS3.

One sun affected bottle, found at K3, had increments marked in ounces and tablespoons along one side (Figure 9.81). No other bottles like this were identified on either island.

Figure 9.81. Unique medicinal bottle with increments on side found at European site K3 on Dorre Island.

The most significant medically related items found on Dorre Island were pieces of medical equipment. Six test tubes, four microscope slides, four glass flasks, two pipettes, one shaker lid, one syringe plunger, one medicine mixing bowl, one urinal pot and one measuring bottle were identified.

The test tubes (Figure 9.82) found at the three large dumpsites (G1, K4, MON) were all broken and of different sizes, but most were 1 inch in diameter. Some were labelled 'best crystal' another was labelled 'Registered Trademark Fireproof Made in Germany Crystal'.

a) **b)** **c)**

Figure 9.82. Examples of test tubes found at European sites on Dorre Island (G1 and K4). a) The one on the bottom in the left picture is labelled 'best crystal', b) the test tube in the middle is labelled 'Registered Trademark Fireproof Made in Germany Crystal', c) this test tube has no identifiable label.

Another object considered to be a type of test tube but open at both ends (Figure 9.83) was found at site MON. It has etched on it 'Burroughs Welcomes Co, London, Sydney, Berlin, Made in Berlin, No 36' and was marked in relief in 5 ml increments. The exact purpose of this object is unknown.

Figure 9.83. An unknown type of test tube found at site MON on Dorre Island.

Microscope slides were found at the doctor's house and the large dumpsite (MON) (Figure 9.84). Glass flasks (Figure 9.85a) and pipettes (Figure 9.85b) were also found at MON and G1. No markings were found on any of these objects.

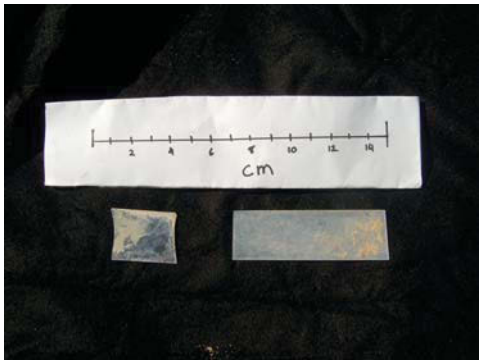
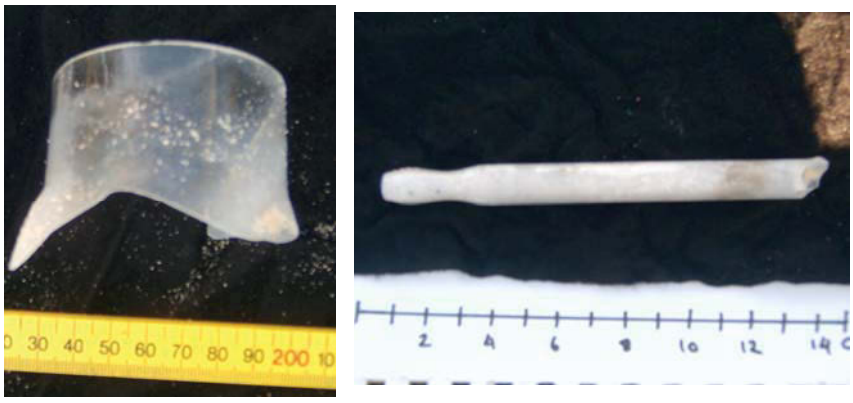


Figure 9.84. Examples of microscope slides found at doctors house (W1) on Dorre Island.



a) **b)**

Figure 9.85. Examples of a) glass flask and b) pipette found at site G1 on Dorre Island.

Surprisingly the ward site contained only one medical object, a glass syringe plunger (Figure 9.86).

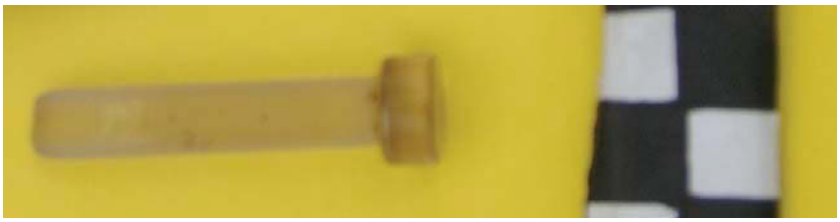


Figure 9.86. A glass syringe plunger found at the ward site (J4) on Dorre Island.

EUROPEANS – SUMMARY OF RESULTS

A summary of the artefacts found on Dorre Island associated with Europeans, their origins and dates is set out in Table 9.6.

Table 9.6. Summary of artefact types, number and origin of artefacts associated with European occupation found on Dorre Island.

Artefact Type	European	Date of Artefacts	Origin of artefacts
European building materials	425	1870s -1918	local and interstate
Glass	279	1900-1918	interstate and local
Enamelware	20	Post 1900s	International
Tin Cans	13	Post 1850s	interstate and international
Ceramics	138	1906 – 1915	interstate international
Clay pipes	4	Post 1870	International
Personal objects	10	Unknown	International
Clothing items	4	Unknown	local and international
Bone	14	1908-1918?	Local
Shell	6	1908-1918?	Local
Lithics/Vitrics	-	-	-
Medical equipment and bottles	30	Post 1900	Interstate and international
Other	11	-	International
Total	**954**	-	-

The European artefacts found suggest that:

Buildings/ Accommodation

- European accommodation had good views of the hospital and surrounding areas
- Buildings were made of material imported from mainland Western Australian, as described in historical records
- There was a degree of permanency to the buildings
- Natural resources from the island like stone and corals were incorporated into built structures

Subsistence – food and water

- Collection and distribution systems for water were associated with the hospital sites
- Very few tin cans were found and they were in a poor state of preservation
- Very few food materials were identified, but some artefacts for preparing and storing food were found

Manufactured goods

- Most objects were found at the dumpsites, out of view of European buildings. Few artefacts were found on the hospital building pads
- The majority of glass objects were beer/wine bottles and condiment jars. A large percentage was discarded whole
- Enamelware was mostly found at dumpsites
- Better quality and more intricately designed ceramics were found at the dumpsites near the European accommodation
- Some evidence was found of treasured personal and luxury items
- Personal items reflected the presence of women and children
- Very few smoking pipes were found
- Very little in the way of clothing remains were found, but what was, was associated with women
- Most artefacts were imported either from interstate or overseas and all had reached the island within a few years of being produced

Medical

- Many medical related objects which had been imported from overseas were identified
- Sanitizing objects like boiler parts were identified.

ABORIGINAL SITES

Fifty eight sites showed signs of Aboriginal use. These type II sites were spread out across the research area but were mainly located along the coast away from the hospital sites. Three types of sites were identified, general artefact scatters with no definitive occupational area, single use campsites, which appear to be used for one-off or seasonal meals of shell meat with some scatters of Aboriginal tools and metal, and repeat use campsites which had large quantities of artefacts, including personal items, cooking material, accommodation remains, tin cans, shell and bone and broken bottle glass. The biggest difference between the two campsite types was the quantity of artefacts. Sites were deemed repeat use if they had a significantly large concentration of artefacts and contained a variety of different artefact types, including personal items, cooking material, accommodation remains, tin cans, shell and bone and broken bottle glass. Most were situated close to, but out of the direct line of sight of, the hospitals. There were four artefact scatters (J1a, J2, J3b, T3), 33 single use campsites (C1, C2, C3, C4, C5, C6, C7, C8, C9, C10, C11, C12, C13, C14, C15, C17, C18, M2, M3, M4, M5, M6, M8, M9, M10, M11, M12, O1, O2, SM, T1, X1, X2) and 21 repeat use campsites (A1a, A2, BH1, BH2, BH3, BH4, BH5, C16, C20, C21, C22, C23,

C25, C26, GK1, J1, J3a, Q1, Q2, Q3, S2) (Figure 9.87). Figure 9.88 shows some examples of these sites. Figure 9.89 shows the distribution of the sites and table 9.7 the distance of Aboriginal sites from the ward.

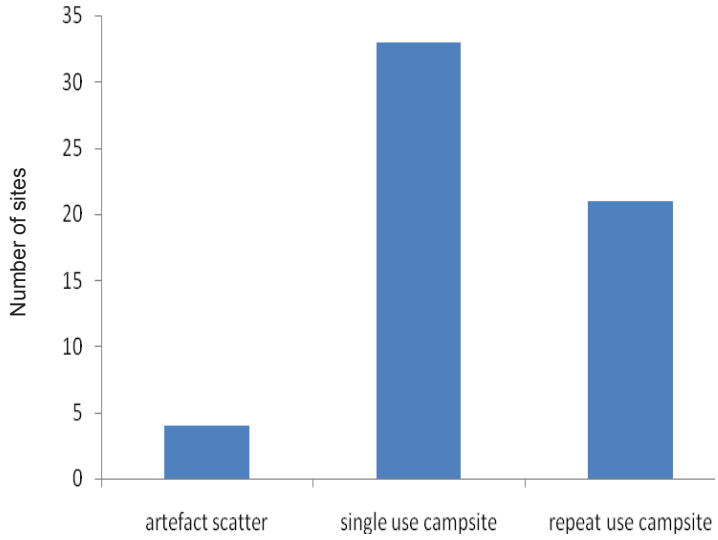
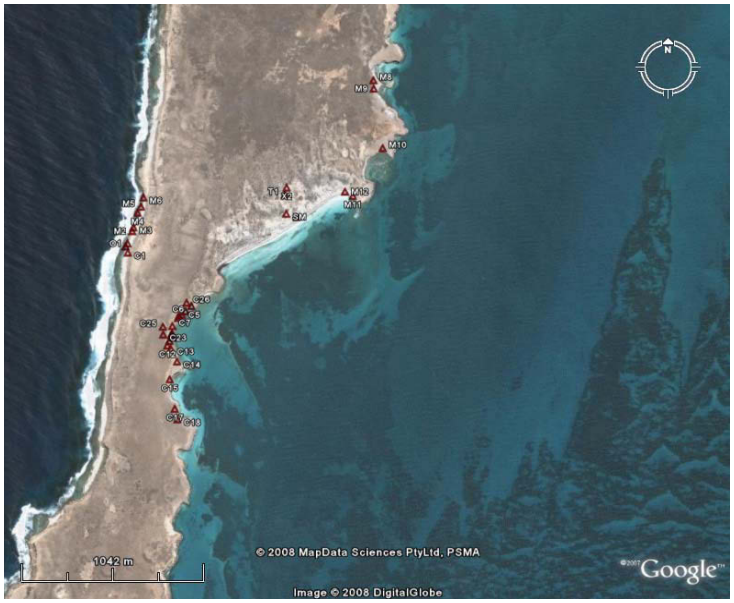


Figure 9.87. Frequency of the different types of Indigenous sites across Dorre Island.

a) **b)** **c)**

Figure 9.88. Example of Aboriginal site types on Dorre Island a) an artefact scatter J3a, b) a single use campsites X2 and c) a repeat use campsite Q3 from Dorre Island.

a) artefact scatters



b) single use campsites

c) repeat use campsites

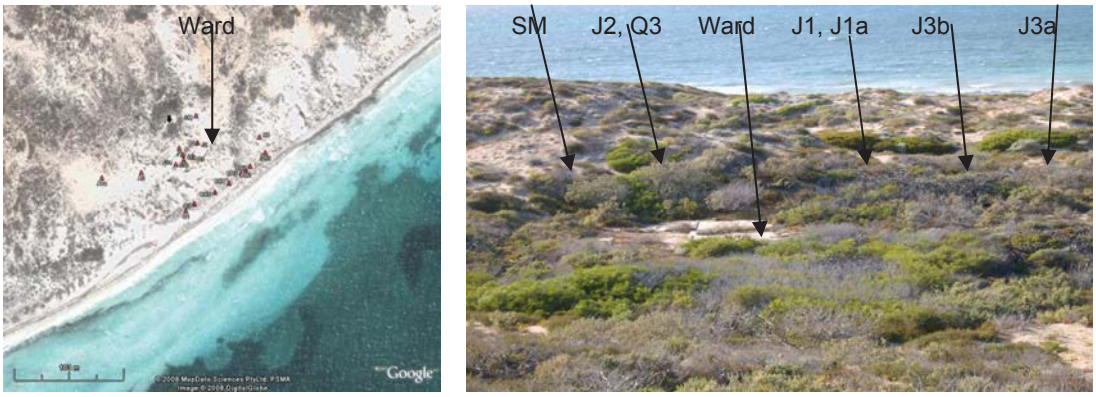
Figure 9.89. Distribution of Indigenous sites across Dorre Island. Sites are numbered in accordance with Table 9.1.

Table 9.7. Distance Aboriginal Sites on Dorre Island are located from the ward.

Distance from ward	Artefact Scatters	Single Use Campsites	Repeat Use Campsites
Less 50m	J1a, J2, J3b,	SM	J1, J3a, Q3,
51-150m	-	T1, X1	A1a, A2, BH1, BH2, BH3, BH4, BH5, GK1, Q1, Q2, S2
151-300m	T3	X2	-
301-450m	-	M11, M12	-
451-600m	-	-	-
601-800m	-	C2, C3, C4, C5, C6, M10	C26
801-1000m	-	C1, C7,C8, C9, C10, C11, C12, C13, M2, M3, M4, M5, M6, M8, M9, O1, O2	C23, C25
1001 – 1200m	-	C14, C15, C17, C18	C16
1500+	-	-	C20, C21, C22

The average distance of Aboriginal sites from the ward was 557m. Two distinct groupings were observed, one less than 150m from the hospital ward (most being repeat use camps) and the other over 600m (most being single use camps).

The Aboriginal sites on Dorre Island occurred in three distinct clusters. One major cluster lay east of the ward along the coast facing the mainland (and home) (A1a, A2, BH1, BH2, BH3, BH4, BH5, GK1, J1, J1a, J2, J3a, J3b, Q1, Q2, Q3, S2, SM, T1, X1). These Aboriginal sites consisted mostly of repeat use camp sites containing oyster shells, animal bones, marine foods such as fish and turtle bones, tin cans, corrugated iron, asbestos and broken glass. The majority of artefacts were associated with this type of cluster. Figure 9.90 shows the location of some of these sites behind the ward area. The rest of the sites in the cluster sit along the beach on the other side the dune (not visible in this photograph).



a) b)

Figure 9.90. Example of Aboriginal sites found along beach behind the ward on Dorre Island a) sites on map (modified from GoogleEarth 2008) and b) photograph taken of sites during archaeological investigations.

Preserved hearths, or areas where cooking occurred, were defined by concentrations of archaeological material including charcoal or burnt layers. European artefacts, Aboriginal modified European artefacts, food remains and other personal objects were observed in association with some of these sites (Figure 9.91). Hearths were only found in association with this first cluster of sites.

a) b)

Figure 9.91. Examples of discrete hearths (cooking area) found at Aboriginal sites on Dorre Island a) Q2, and b) GK1.

The second cluster comprised both single and repeat use camps and was situated south of the hospital sites along the east coast of the island (C1, C2, C3, C4, C5, C6, C7, C8, C9, C10, C11, C12, C13, C14, C15, C16, C17, C18, C20, C21, C22, C23, C25, C26) (Figure 10.92). Most of these sites were no more than 15 metres from the cliff edges and contained oyster shells and flaked glass fragments. Associated with these sites were cup-shaped depressions or soaks in the natural limestone which would have given easy access to rainwater, with large amounts of driftwood nearby. It seems that the main purpose of these sites was to exploit the oyster beds that lie directly on the cliffs below the sites.

Figure 9.92. Distribution of Aboriginal sites clustered south of the hospital sites. Sites are numbered in accordance with Table 9.1.

The third cluster of sites lay along the coast on the west side of the island (M2, M3, M4, M5, M6, O1, O2) (Figure 9.93a). Seasonal fresh water gullies and cup-shaped depressions in the limestone which could collect water were associated with these areas, suggesting that they were in seasonal use when the water was flowing. South of O1 and north of M6 the landscape changes to continually washed beaches backed by high cliffs, allowing for little preservation of middens. Sites at the bottom of the rocky cliffs with great potential for catching fish, crabs, and shellfish from rock pools also appear to have been seasonally occupied (Figure 9.93b).

a) **b)**

Figure 9.93. a) Distribution of Aboriginal sites (M6, M5, M4, M3, M2, 02, 01 from N-S) are clustered on the west side of the island (modified from GoogleEarth 2008) and b) photograph of rocky area for catching marine food on the west side of the island. Sites are numbered in accordance with Table 9.1.

OTHER ABORIGINAL SITES

Historical records (Bates 1938) make mention of a graveyard on Dorre Island for female patients and a photograph exists of some graves (Figure 9.94). Daisy Bates also described the graves on the island: '…. there were seventy-seven women on Dorre Island, many of them bedridden. I dare not count the graves there' (Bates 1938: 98-9). None of the architectural plans or maps of the island indicates the location of the graveyard, and a previous expedition undertaken to the islands in the 1990s to locate remains for reburial in traditional homelands proved unfruitful. No human material was found on Dorre Island during this archaeological survey.

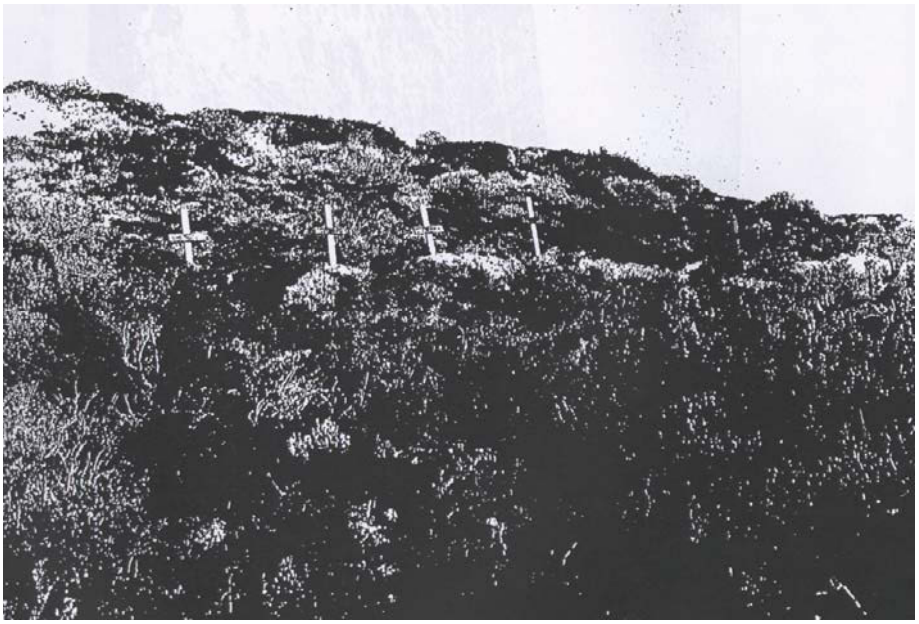


Figure 9.94. Historical photograph of cemetery on Dorre Island (Battye Library).

Photographs of the graves and the presence of a mortuary on Dorre Island indicate that people did die on the island and, given the long and infrequent journeys to the mainland it stands to reason that they must have been buried on the island.

There was only one area on the island that at all resembled the landscape seen in the photographs of the graveyard (Figure 9.95). No crosses like those in Figure 9.94 were located in this area. This location is not consistent with Daisy Bates' 1938 description of the graveyard overlooking the Aboriginal camp. It is approximately 360 m from the ward and over 300 m from the Indigenous camps located to the east of the hospital buildings on the beach. It is in relative close proximity to the mortuary, however.

Figure 9.95. Location on Dorre Island that could be consistent with the grave markers seen in historic photographs.

BUILDING MATERIALS

Historical records indicate that the Aboriginal people were provided with corrugated iron and canvas structures in which to live ('West Australian' 1910) (Figure 9.96, 9.97). Aboriginal patients otherwise made their own living shelters from locally obtained material and any other European materials they could find or were given (Figure 9.96). In total 47 building material artefacts were found associated with Aboriginal sites on Dorre Island. The photographs below provide examples of repeat use campsites employing the sorts of materials found.

a) **b)**

Figure 9.96. Historical photograph of Aboriginal female accommodation on Dorre Island provided by government a) made of corrugated iron and canvas (Battye Library 21086P) and b) using locally obtained timber to hold up the shelters (Battye Library 21085P).

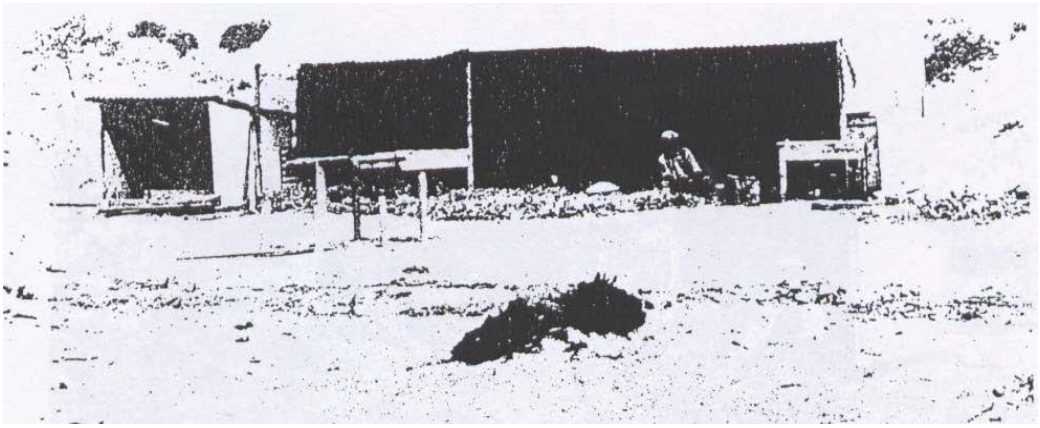


Figure 9.97. Corrugated iron structures provided by Government for the Aboriginal people to live (Battye Library 20177P). This photograph is probably associated with the archaeological sites J1, J1a, J2, J3a, J3b.

Of the 58 Aboriginal sites found on Dorre Island only 14 (A1a, BH4, BH5, GK1, J1, J1a, J2, J3a, M11, Q2, Q3, S2, SM, X1) contained evidence of European building materials such as corrugated iron, nails, bricks, asbestos or imported timber.

Corrugated iron was found in fragmented pieces at eight sites (BH4, BH5, GK1, J1, J3a, Q2, S2, X1). Two sites, J1 and S2, contained the most corrugated iron remains (Figure 9.98). In total there were probably only twelve sheets of corrugated iron but due to the poor preservation of the metal they took the form of thousands of tiny pieces.

a) **b)**

Figure 9.98. Examples of corrugated iron found at Aboriginal sites on Dorre Island a) S2 and b) J1.

Eighteen nails in a poor state of preservation were found at four sites (GK1, J1, J2, Q2) (Figure 9.99). It does not seem that any of these nails were actually used as building materials. Most were found in hearths, suggesting that they may have come from pieces of waste building material used as firewood.

Figure 9.99. Examples of nails found at Aboriginal site (GK1).

Three bricks were found at two sites (J1, Q3), associated with campsites and hearths in a way that suggested they were used for cooking purposes although they had no burn marks. No makers' marks were present on any bricks. Eight small fragments of asbestos were found at five sites (A1a, J3a, S2, SM, X1). Six small pieces of timber were found at three sites (J1, J1a, M11).

GLASS

In total 90 glass artefacts were found associated with Aboriginal sites on Dorre Island (Figure 9.100, Table 9.8). The majority (97.8%) were fragmented with only two whole bottles found at Q1 and SM. As at the European sites, the majority were beer and wine bottles followed by condiment containers. Only a few spirit bottle fragments were recorded. Unlike the European sites no personal types of glass objects like perfume bottles or containers for toiletries were recorded. However, it is noted that few were found with the European sites also. Very few poison or chemical bottle glass artefacts were found. Site J3a, a repeat use campsite, yielded the largest number and variety of types of glass.

a) **b)** **c)**

Figure 9.100. Examples of glass found at Aboriginal sites on Dorre Island, a) condiment glass (J3b), b) bottle glass (J3b) and c) bottle glass (GK1).

Table 9.8. Number of glass objects found at Aboriginal sites on Dorre Island.

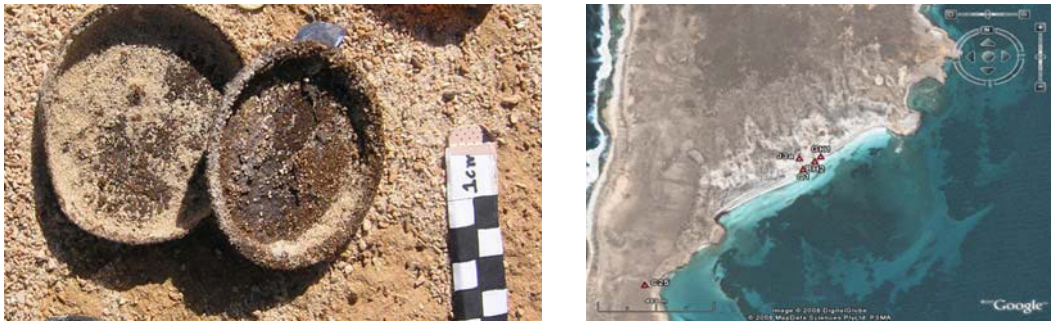
Site	Number	Beer/wine	Spirits	Condiment	Storage jar	Poison	Chemical	Perfume	Toiletries	Dinner ware	Other	Unidentified	Highly fragmented	Whole pieces
O2	4	4	0	0	0	0	0	0	0	0	0	0	yes	No
J1	1	0	0	1	0	0	0	0	0	0	0	0	no	No
J1a	14	4	1	0	0	9	0	0	0	0	0	0	yes	No
J2	3	2	0	0	0	1	0	0	0	0	0	0	yes	No
J3a	32	23	4	5	0	0	0	0	0	0	0	0	yes	No
J3b	7	1	1	5	0	0	0	0	0	0	0	0	yes	No
X1	5	4	0	0	0	1	0	0	0	0	0	0	yes	No
Q1	1	0	0	1	0	0	0	0	0	0	0	0	no	Yes
Q2	1	0	0	0	0	0	0	0	0	0	0	1	yes	No
BH2	8	4	1	1	0	0	0	0	0	0	0	2	yes	No
GK1	2	0	1	0	0	0	1	0	0	0	0	0	no	Yes
SM	2	2	0	0	0	0	0	0	0	0	0	0	yes	No
M10	3	3	0	0	0	0	0	0	0	0	0	0	yes	No
C22	5	5	0	0	0	0	0	0	0	0	0	0	yes	No
C23	2	2	0	0	0	0	0	0	0	0	0	0	yes	No
Total	**90**	**54**	**8**	**13**	**0**	**11**	**1**	**0**	**0**	**0**	**0**	**3**	-	-

ENAMELWARE

One white weathered enamelware 'billy' was found at one Aboriginal site (C22). It had oyster shells contained within it and it is assumed that it was used to carry shellfish from the oyster beds back to camp.

METAL CANS

In total 12 food cans were found across five sites (BH2, C25, GK1, J3a, Q1) mainly in the first cluster of sites over the sand dune from the ward. No tobacco tins were identified. All tins were badly preserved. Figure 9.101 shows some examples of tin cans and their location at which they were found.



a) **b)**

Figure 9.101. Examples of a) metal cans found at Aboriginal site (GK1) and b) distribution of metal cans at Aboriginal sites on Dorre Island. Sites are numbered in accordance with Table 9.1.

CERAMICS

Only one piece of ceramic was found at any Aboriginal site (Figure 9.102), a sherd of black glazed earthenware found at J1. This type of ceramic was not found at any other site on either island.

Figure 9.102. The only ceramic found at any Aboriginal sites (J1) on Dorre Island.

CLAY AND BAKELITE PIPES

Smoking pipes were found at three Aboriginal sites, (GK1, J1, Q1) (Table 9.9). In total there were five different pipes found (none could convincingly be put back together), three were plain white clay pipes and two were bakelite pipes. All of these pipes were of simple design with no observable markings and of types commonly available in Australia during the Lock Hospital period (Figure 9.103). There was evidence that at least one of the bakelite pipes was heavily worn.

Table 9.9. Smoking pipes found at Aboriginal sites on Dorre Island.

Site	Total clay pipes	Stems	Bowls	Whole	Bakelite
J1	3	1	1	1	0
Q1	1	0	0	0	1
Gk1	1	0	0	0	1
Total	**5**	**1**	**1**	**1**	**2**

a) **b)**

Figure 9.103. Examples of a) bakelite pipe mouthpiece and b) clay pipes and bakelite pipe found at Aboriginal site (J1) on Dorre Island.

CLOTHING (BUTTONS)

Three Aboriginal sites contained buttons (J1, J3b and BH2). J3b had more buttons (over 30) than any other site on either island (Figure 9.104) including some made of metal, pearl and shell, with two and four holes. One shoe was found at site J1. Since there is no evidence that the Indigenous people (women or children) wore buttons on their clothes or shoes in either non-traditional or traditional dress (Figures 9.105, 9.106) it is likely that they may have been worn on undergarments or were collected as non-functional objects.

Figure 9.104. Buttons associated with Aboriginal site (J3b) on Dorre Island.

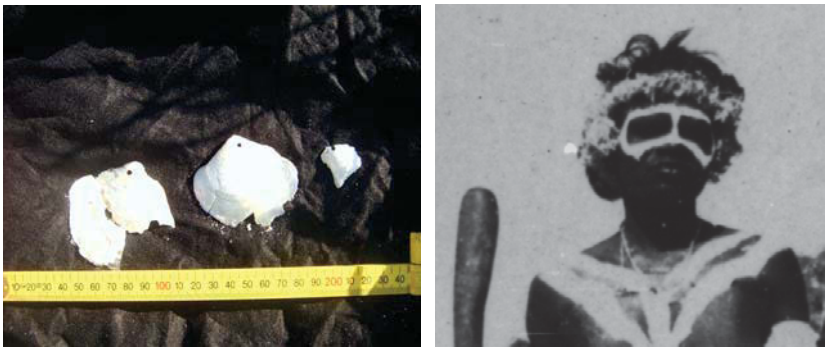
a) **b)**

Figure 9.105. Photograph of Aboriginal females' dress, a) European clothes and b) traditional wear (Battye Library and 3185B/14 and 3185B/5).

Figure 9.106. Photograph of children on Dorre Island in dresses similar to the adult females (Battye Library).

OTHER ITEMS (BODY ORNAMENTATION AND COMBS)

Very few Aboriginal female personal items were recorded. No evidence of any objects like the digging sticks or body paint depicted in historical photographs was found during archaeological surveys, probably because they were removed from the islands or decayed over the last 100 years. However, three pierced shells and two combs were found. The shells were found at site Q1 and were assumed to be for body ornamentation purposes such as wearing them suspended about the neck as a necklace (Figure 9.107a). They bore perforated holes with black and burnt edges, probably made with hot wire. Historical photographs depict women wearing some sort of shell necklace (Figure 9.107b).



a) b)

Figure 9.107. a) Shells that were probably used as body ornamentation from site Q1 and b) historic photograph of a woman wearing shells about the neck (Battye Library 3185B/5).

Two combs, one made of bakelite, and the other of metal were found associated with Aboriginal sites (Figure 9.108). These were most probably acquired from Europeans or taken from European rubbish sites, as historical records indicate that all personal objects belonging to Aboriginal patients were removed from them prior being sent to the islands.

a) b)

Figure 9.108. Combs found associated with Aboriginal sites on Dorre Island a) a bakelite comb from Q3 and b) a metal comb from J2.

OTHER OBJECTS OF INTEREST

A metal file 15 cm in length was found at GK1 (Figure 9.109). The exact use of the object by the Aboriginal people is unknown.

Figure 9.109. Examples of metal file found at Aboriginal sites (GK1) on Dorre Island.

FOOD REMAINS (BONE, SHELL AND PLANT REMAINS)

One hundred and sixty animal remains were found associated with 17 Aboriginal occupation sites on Dorre Island (Table 9.10). Most bones were found at sites J3a and Q3. The species of all bones could be easily identified. One hundred were of domestic sheep/goats, one bovine, two turtle, one bird, nine fish and 47 native marsupials (bettong, rufous hare wallaby and banded hare wallaby) (Figure 9.110). Figures 9.111, 9.112 and 9.113 show examples of different bones found. Bones of domestic animals were found closer to the hospital sites and those of marine animals only at sites in the dunes facing the mainland.

Table 9.10. Animal remains found at Indigenous sites on Dorre Island.

Site	Total Number	Sheep/ goat	Bovine	Turtle	Bird	Fish	Bettong/ Wallaby	Cut	Burnt
A1a	14	2	0	0	0	0	12	0	0
A2	7	7	0	0	0	0	0	2	2
BH2	1	0	0	0	0	1	0	0	0
BH3	3	2	0	0	1	0	0	0	0
BH4	3	3	0	0	0	0	0	0	0
J1	5	1	0	0	0	0	4	1	0
J2	5	5	0	0	0	0	0	0	0
J3a	44	17	0	0	0	0	27	0	11
J3b	1	1	0	0	0	0	0	0	0
Q1	6	3	0	0	0	3	0	0	0
Q2	3	3	0	0	0	0	0	0	0
Q3	65	54	0	2	0	5	4	43	0
T1	2	1	1	0	0	0	0	1	0
X1	1	1	0	0	0	0	0	0	0
Total	**160**	**100**	**1**	**2**	**1**	**9**	**47**	**47**	**13**

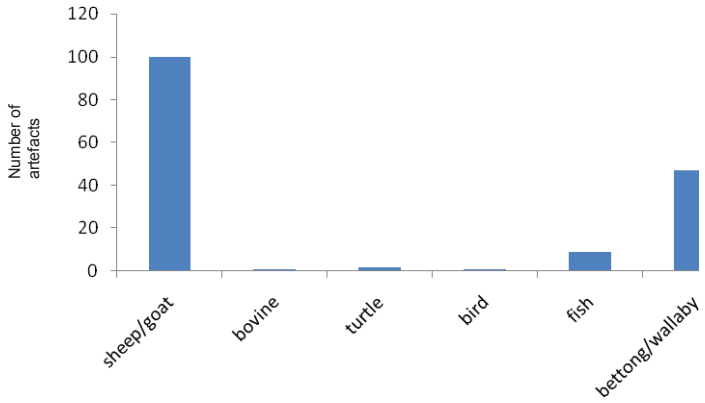


Figure 9.110. Frequencies of different types of animal bones found at Aboriginal sites on Dorre Island.

a) **b)**

Figure 9.111. Examples of domestic animal bones (sheep/goat) found at Aboriginal sites on Dorre Island a) fragments of long bones found at J2 and b) whole long bones found at Q3.

a) **b) top** **c) bottom** **d)**

Figure 9.112. Examples of native land animals found at Aboriginal sites on Dorre Island a) mandible and maxilla of banded hare wallaby (J3a), b) mandible of rufous hare wallaby (Q3), c) skull of bettong (Q3) and d) photograph of bettong observed.

a) **b)** **c)**

Figure 9.113. Examples of marine animal bones found at Aboriginal sites on Dorre Island. a) fish vertebrae (BH2) b) various fish and domestic animal bones (Q3) and c) turtle bones (Q3).

Forty seven (29.3 %) bones were cut in a way consistent with European butchery and 8.1% (13) had burn marks. All but one of the bones identified were from adult animals. Seven were too fragmented to determine relative age. Sixty eight (42.59 %) were long bones, mostly from sheep/goat (Figure 9.114). Fifty six (35%) came from axial skeletons, (vertebrae, scapula, ribs, pelvis), mainly of sheep/goats. Skulls and pelvic bones were predominately from native marsupials.

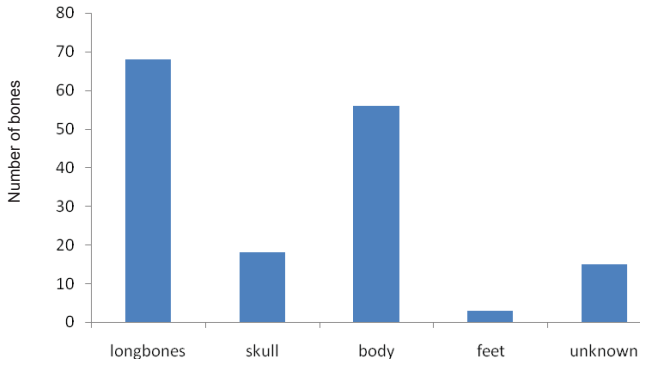


Figure 9.114. Frequency of body parts of animals found at Aboriginal sites on Dorre Island.

Crab shells and turtle eggs were also present at areas near the Aboriginal campsites along the beach. Given their fragility, these were very unlikely to date from the Lock Hospital period but similar foods may have been consumed by Indigenous peoples.

Forty nine of the 58 Aboriginal sites (84.5%) contained shell remains. In excess of 1900 shell remains of gastropods and bivalves including oyster, scallop, pearl shell, top shell, periwinkles, cowrie, limpets and chitons were observed (Figure 9.115, Table 9.11).

a) **b)** **c)**

Figure 9.115. Examples of shell scatters a) oyster shells found at SM, b) oyster, periwinkles shells and bones at A2 c) photograph of oyster beds observed on coast at White Beach Landing.

Table 9.11. Shells found at Indigenous sites on Dorre Island.

site	total	location	area (m)	oyster	scallop	pearl oyster	top shell	peri winkles	cowrie shell	limpet	chiton
A1a	76	dunes	2x2	yes	no	no	no	no	no	no	no
A2	134	dunes	3x4	yes	no	no	yes	yes	no	yes	yes
BH2	17	dunes	0.5x0.5	yes	no	no	no	no	no	no	no
BH3	18	dunes	0.5x0.5	yes	no	no	no	no	no	no	no
C10	16	cliffs	0.5x0.5	yes	no	no	no	yes	no	no	no
C11	24	cliffs	0.5x0.5	yes	no	no	no	no	no	no	no
C12	22	cliffs	0.5x0.5	yes	no	no	no	no	no	no	no
C13	22	cliffs	0.5x0.5	yes	no	no	no	no	no	no	no
C15	24	cliffs	0.5x0.5	yes	no	no	no	no	no	no	no
C16	23	cliffs	2x2	yes	no	no	no	no	no	no	no
C17	16	cliffs	0.5x0.5	yes	no	no	no	no	no	no	no
C18	17	cliffs	0.5x0.5	yes	no	no	no	no	no	no	no
C2	24	cliffs	0.5x0.5	no	no	no	no	yes	no	no	no
C20	113	cliffs	15x6	yes	no	no	no	no	no	no	no
C21	112	cliffs	10x3	yes	no	no	no	yes	no	no	no
C22	23	inland	0.5x0.5	no	no	no	no	yes	no	no	no
C23	22	inland	0.5x0.5	yes	no	no	no	yes	no	no	no
C25	21	cliffs	1x0.7	yes	no	no	no	no	no	yes	no
C26	21	cliffs	1x0.8	yes	no	no	no	yes	no	no	no
C3	23	cliffs	0.5x0.5	no	no	no	no	yes	no	no	no
C4	17	cliffs	0.5x0.5	no	no	no	no	yes	no	no	no
C5	16	cliffs	0.5x0.5	no	no	no	no	yes	no	no	no
C6	24	cliffs	0.5x0.5	no	no	no	no	yes	no	no	no
C7	22	cliffs	0.5x0.5	no	no	no	yes	no	no	no	no
C8	22	cliffs	0.5x0.5	yes	no	no	no	no	no	no	no
C9	23	cliffs	0.5x0.5	yes	no	no	no	no	no	no	no
GK1	24	dunes	NA	yes	yes	no	no	no	no	no	no
J1	18	dunes	1x2.0	yes	no	no	yes	no	no	no	no
J2	17	dunes	1x2.5	yes	no	no	no	no	no	no	no
J3A	12	dunes	2x0.5	yes	no	no	no	no	no	no	no
J3B	12	dunes	2x2	yes	no	no	no	no	no	no	no
M10	24	cliffs	0.6x0.3	yes	no	no	no	no	no	no	no
M12	40	cliffs	2x2.5	yes	no	no	no	no	no	no	no
M2	100	beach	2.5x4.5	yes	no	no	no	no	no	no	no
M3	37	beach	1x2.5	no	no	no	no	yes	no	no	no
M4	67	beach	3x4	yes	no	no	no	yes	no	no	no
M5	64	beach	3x5	yes	no	no	yes	yes	no	no	no
M6	150	beach	10x10	no	no	no	yes	yes	no	no	no
M8	45	cliffs	2x2	yes	no	no	no	yes	no	no	no
M9	30	cliffs	1x1	yes	no	no	no	no	no	no	no
O1	107	beach	5x7	yes	no	no	no	no	no	no	no
O2	59	beach	3x4	yes	no	no	no	no	no	no	no
Q1	3	dunes	NA	no	no	yes	no	no	no	no	no
Q2	24	dunes	0.5x0.5	yes	no	no	no	no	yes	no	no
Q3	12	dunes	0.5x0.5	yes	no	no	yes	no	no	no	no
SM	27	inland	0.5x0.5	yes	no	no	no	no	no	no	no
T1	26	inland	0.5x0.5	no	no	no	no	yes	no	no	no
X1	109	dunes	0.5x0.5	no	no	no	no	yes	no	no	no
X2	34	inland	0.5x0.5	yes	no	no	no	yes	yes	no	no

Thirty seven (75.6%) sites contained oyster (*Ostreidae*) shells (over 25 shells) and 18 (36.7%) sites periwinkles (*Littorinidae*). Most (especially C2, C3, C4, C5, C6) had the appearance of single meal middens. Many gastropod shells had the tops broken off, indicating the means of access to the shell meat.

At all sites except Q1, the shells were taken to be food rather than ornamental items. The shell found at Q1 was a modified shell probably used as body ornamentation (already mentioned above). Only one site had burnt shell (A2) and coral was found at one site also (J2). All sites except C22, C23, SM, T1, X2 were either on the beach or located directly above the cliffs where the shell beds were located.

Cooking pots in excess of 20cm in diameter (Figure 9.116) were associated with the two main campsites (GK1, Q1) and one in isolation at T3. No remnants of what was cooked in them remained.

Figure 9.116. Example of an iron cooking pot found associated with Aboriginal site (Q1) on Dorre Island.

No plant remains were found associated with Indigenous sites nor were any sites located near specific food-bearing tree species.

ABORIGINAL TOOLS (FLAKED LITHICS AND VITRICS)

In total 18 Aboriginal tools were found on Dorre Island (Table 9.12). A site was considered Indigenous or used by Indigenous people if flaked lithics or vitrics were present. Most sites (69%) did not contain Aboriginal tools and no sites had more than two such artefacts. Aboriginal tools were found at 13 different sites (repeat use campsites (5), single use campsites (4), artefact scatter (2) and hospital buildings – laundry and outpatients (2)).

One point, six scrapers, seven flakes, two cores and two hammer stones (for opening oysters, not for flaking lithics or vitrics) were found (Figure 9.117). Both hammer stones were made from limestone, which could be found scattered in bands across the island. Many pebbles and rocks suitable as sources for flaking were found along the cliff edges of the coast and glass could be sourced from any number of European dumpsites. Figures 9.118 and 9.119 show examples of these tools.

Table 9.12. Aboriginal tools found on Dorre Island.

Site	Number	Points	Scrapers	Flakes	Core	Hammer stone	Material
BH1	2	0	0	2	0	0	limestone
BH2	2	0	1	1	0	0	glass
BH3	1	0	0	0	0	1	limestone
C2	1	1	0	0	0	0	glass
C7	1	0	1	0	0	0	glass
C15	1	0	0	0	0	1	limestone
C16	1	0	0	1	0	0	glass
C26	2	0	0	2	0	0	glass
F4	1	0	1	0	0	0	glass
J2	2	0	1	0	1	0	glass
J3b	1	0	0	1	0	0	glass
Q2	1	0	1	0	0	0	glass
S1	2	0	1	0	1	0	glass
Total	**18**	**1**	**6**	**7**	**2**	**2**	-

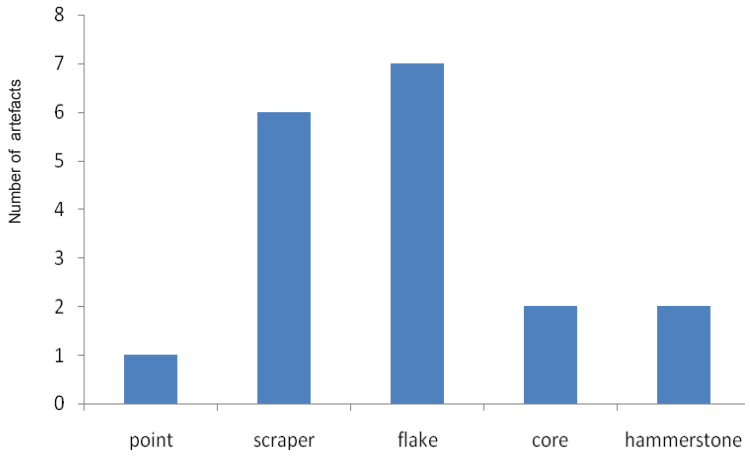
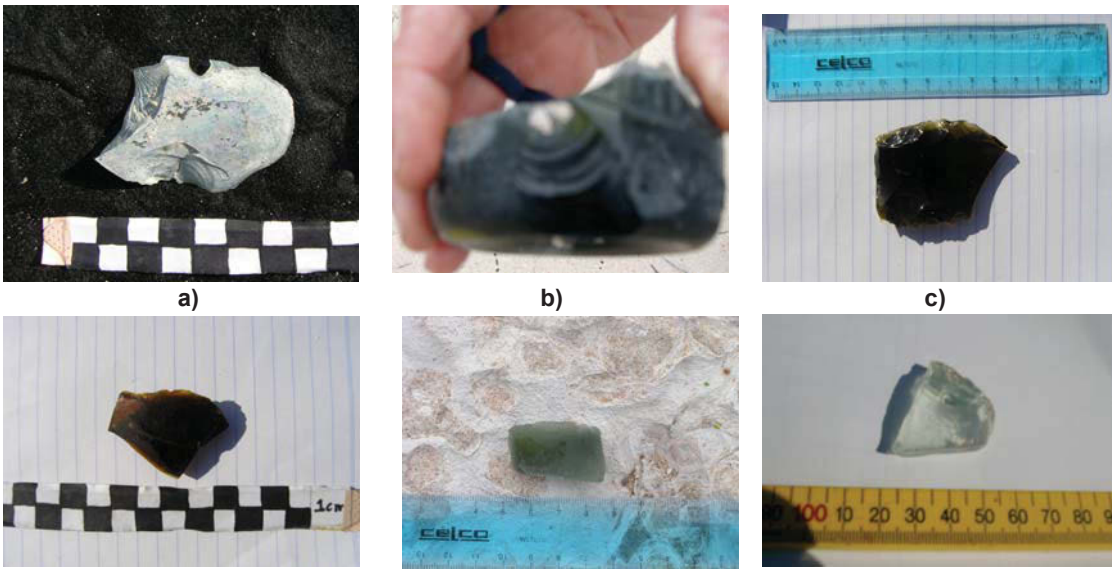


Figure 9.117. Frequencies of different types of Aboriginal tools found on Dorre Island.



a) **b)** **c)**

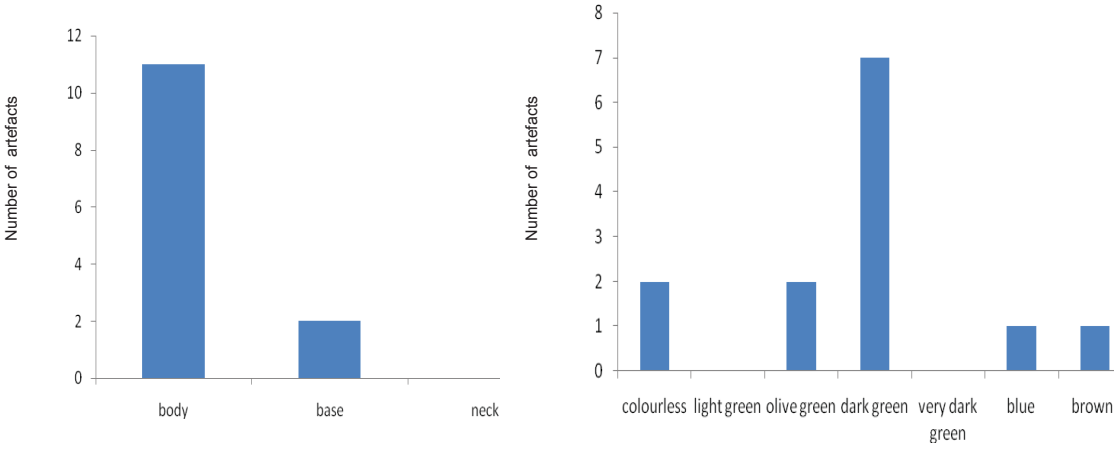
d) **e)** **f)**

Figure 9.118. Examples of flaked vitrics found on Dorre Island a) glass core from S1, b) glass core from J2, c) broken point from C2 , d) scraper from S1 e) scraper from C7 f) scraper from Q2.

a) b)

Figure 9.119. Examples of lithic material found on Dorre Island a) flakes from BH1 and b) small hammer stone from BH3.

The majority of vitrics were taken from the body of a bottle (Figure 9.120a) and cores from the base of glass bottles (as seen in Figure 9.118b). Flakes were mostly made from dark green bottle glass (Figure 9.120b). Retouching of glass was evident in seven tools, six on flakes and one on a point.



a) b)

Figure 9.120. a) Frequencies of the parts of bottle glass and b) the colour of glass bottles of the flaked vitrics on Dorre Island.

MEDICAL OBJECTS AND BOTTLES

Eighteen medical bottles were observed (Figure 9.13) most at site J3a (7). One medicine bottle from site J1 was marked 'Melbourne'. None of the medicine bottles had any contents. No medical objects or tonic bottles were found associated with Aboriginal sites.

Table 9.13. Medical bottles found at Aboriginal sites on Dorre Island.

Site	Medical bottles
J1	3
Q3	1
J1a	1
J2	4
J3a	7
GK1	2
Total	**18**

ABORIGINES – SUMMARY OF EVIDENCE

Table 9.14 shows the summary of artefacts found at Aboriginal sites on Dorre Island.

Table 9.14. Summary of artefact types, number and origin of artefacts found on Bernier Island associated with Aboriginal occupation.

Artefact Type	Number	Date of artefacts	Origin of artefacts
European building materials	47	1908-1918?	Local
Glass	90	1908-1918	Interstate
Enamelware	1	Post 1900s	International
Tin Cans	12	Post 1850s	interstate and international
Ceramics	1	post 1900	International
Clay pipes	5	1900 to 1910	International
Personal objects	2	Post 1910	International
Clothing items	31	1908- 1918?	international
Bone	160	1908-1918?	Local
Shell	1900	1908-1918?	Local
Medical	18	1908-1915	International
Vitrics	18	1908-1918	Local
Other	4	-	-
Total	**2289**	-	-

The collection of Aboriginal artefacts suggest that

Buildings/ Accommodation

- Sites lay in three distinct areas (behind the sand dunes near ward, on the western side of the island and south of the hospitals along the coast)
- Sites were all out of visual range of the hospitals and mortuary
- Very little evidence remained of accommodation (humpy) construction
- Local resources were exploited for accommodation

Subsistence – food and water

- Both domesticated animal and native land and sea fauna were exploited as food resources
- Traditional hearths and European cooking pots were used for the cooking of foods

Manufactured goods

- Remains of building materials were used for purposes other than those originally intended (eg bricks for hearths)
- The majority of glass objects were from beer and wine bottles and were highly fragmented
- Enamelware was rare
- Very few tin cans were observed
- Ceramics were rare
- Clay pipes were rare. If present they were inexpensive and of simple design
- Buttons and shoes were identified but probably not used as everyday wear
- Personal items like hair combs were found
- Modified materials (native shell) was found
- Flaked vitrics mostly took the form of scrapers
- Local stone (limestone) was used as a source to make traditional tools

Medical/ Mortality

- No medical equipment was found but some medical bottles were recorded
- A possible burial site was identified, but no human remains were observed.

Chapter Ten

COMPARISON OF BERNIER AND DORRE ISLANDS

Chapter Ten

COMPARISON OF BERNIER AND DORRE ISLANDS

INTRODUCTION

This chapter discusses the similarities and differences in archaeological evidence found associated with Aboriginal patients and European medical workers and their families on Bernier and Dorre Islands. In total, 3340 individual small portable objects and another 518 attached to the landscape like concrete pads, water tanks, brick fireplaces, windmills or fences were located on the islands. Table 10.1 shows the distribution of each artefact type between island and group of people, while Figure 10.1 represents them graphically and proportionally.

Table 10.1. Total numbers of artefacts for each group of people and for each island.

	EUROPEAN		ABORIGINAL		
Artefact type	BERNIER	DORRE	BERNIER	DORRE	**TOTALS**
European building materials	40	425	6	47	**518**
Glass	121	279	56	90	**546**
Enamelware	12	20	4	1	**37**
Tin Cans	10	13	12	12	**47**
Ceramics	65	138	14	1	**218**
Clay pipes	16	4	8	3	**31**
Clothing items	16	4	0	31	**51**
Personal	0	10	1	2	**13**
Bone	3	14	100	160	**277**
Shell	8	6	500	1933	**2447**
Medical	19	30	4	18	**71**
Vitrics	0	0	30	18	**48**
Other	15	11	4	4	**34**
Total	**325**	**954**	**739**	**2322**	**4340**

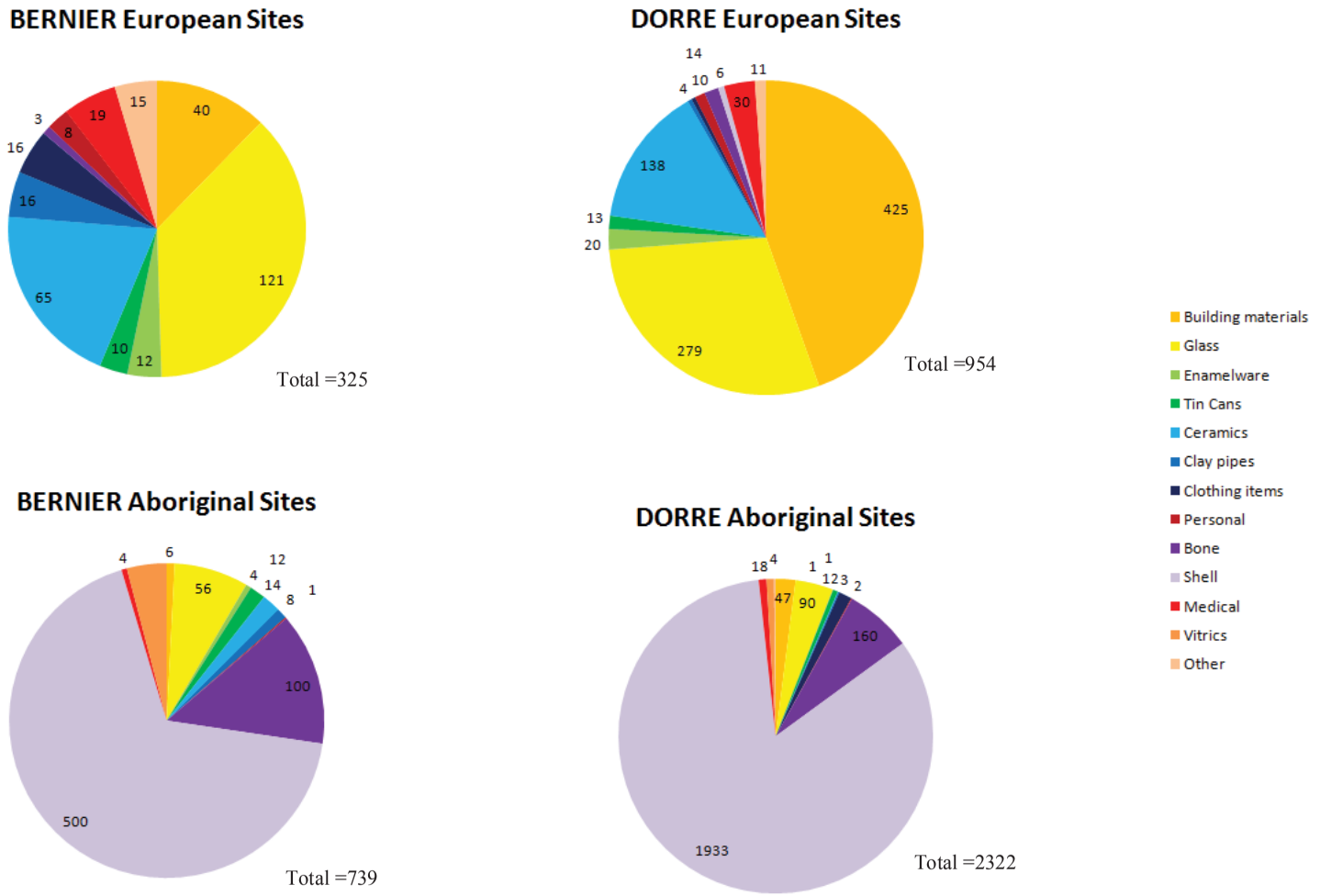


Figure 10.1. Pie graphs of total artefact numbers for each group of people and for each island.

The first thing to be noticed is that significantly (χ^2 =1182.13, p<0.001) more material was found on Dorre than on Bernier Island at both Aboriginal and European sites. More artefacts in total were found with Aboriginal sites (739 on Bernier Island and 2322 on Dorre Island) than with European artefacts (325 on Bernier Island and 954 on Dorre Island) (Bernier Island totals χ^2 =165.42 p<0.001 and Dorre Island totals χ^2 =587.74 p<0.001 and total χ^2=825.81 p<0.001). This difference is probably explained largely in part by the numbers of people recorded on the islands. More Aboriginal people were recorded as residing on the islands than Europeans and more women than men.

Bones, shells and vitrics account for most of the difference in the numbers of artefacts seen across the groups. Although, most types of artefacts were numerous at European sites. While shell artefacts make up a large proportion of the archaeological deposits on both islands for Aboriginal sites, this pattern is even more pronounced on Dorre Islands (2322, 85% of all Aboriginal artefacts) than Bernier Island (73, 68% of all Aboriginal artefacts) (χ^2=11.33 p<0.001). Again, this result is not unexpected as shells are usually collected in numbers and mostly associated with the food gathering of Aboriginal women (the largest group of people of the islands).

Building materials and glass were the commonest artefact types at European sites (12% on Bernier Island and 45% on Dorre Island and 36% at all European sites). It was not unexpected that building materials made up the bulk of the material culture. The fragmentary nature of glass may explain why it is found in such large quantities.

BUILDING MATERIALS

Building materials were observed on both islands though more on Dorre Island (425 pieces associated with Europeans and 47 pieces with Aborigines) than on Bernier Island (40 pieces with Europeans and six with Aborigines) (European totals χ^2 =371.92 p<0.001 and Dorre Island totals χ^2 =36.04 p<0.001 and total χ^2=407.55 p<0.001) (Figure 10.2).

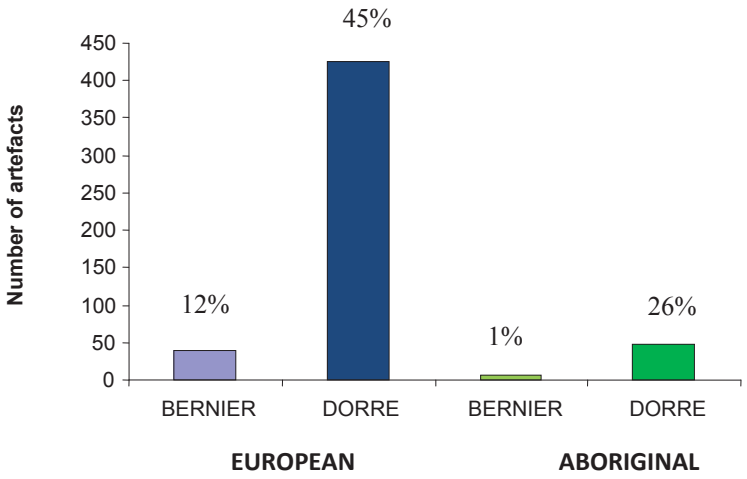


Figure 10.2. Building materials associated with sites for each group of people and for each island. % = all artefacts associated with that group of people on that island.

More building material in general and more permanent building material was also associated with European sites on both islands than with Aboriginal sites (Bernier Island totals χ^2=28.15 p<0.001 and Dorre Island totals χ^2=348.33 p<0.001 and total χ^2=376.48 p<0.001). However it is noted that more building material was found associated with Aboriginal sites on Dorre Island (47 artefacts) than with Bernier Island (6 artefacts) (χ^2 =36.04 p<0.001). This pattern is expected as more people (both European and Aboriginal) were recorded in the historical documents as residing on Dorre Island than on Bernier Island and considerable more sites and hence building materials were found during survey. Another reason for this difference may be that Dorre Island was occupied for a longer period and hence we would expect to see more material as a result. The permanency of the building material found on Dorre Island probably reflects the intended durations of stay on that island.

The European building materials found on both islands were similar in terms of age, dimensions and type, suggesting that they were probably sourced at the same time and in bulk for both islands, an exception being that some limited materials, like nails on Dorre Island, were of earlier manufacture.

GLASS

A number of differences between the islands and the groups were seen in relation to glass objects (Table 10.2). Firstly, all glass found at Aboriginal sites was highly fragmented whereas at European sites there were some that contained whole objects. This may be explained as a result of Aboriginal patients flaking glass for use as tools,

whereas the European would likely discard the object after use. Secondly more glass objects were associated with European sites (73% of total glass objects) than with Aboriginal sites (Bernier Island totals χ^2=24.44 p<0.001, Dorre Island totals χ^2=101.56 p<0.001). But the difference in both European and Aboriginal glass objects does not differ significantly between Bernier and Dorre Island (χ^2=3.21 p=0.073). It is not surprising that more glass was found associated with Europeans as they were the ones likely acquiring the objects.

Table 10.2. Numbers of glass artefacts associated with Europeans and Aborigines on Bernier and Dorre Islands.

	EUROPEAN		ABORIGINAL	
Glass type	BERNIER	DORRE	BERNIER	DORRE
Beer/Wine	58	182	36	54
Spirits	15	26	3	8
Condiments	28	49	11	13
Storage Jars	1	0	0	0
Poisons	2	1	3	11
Chemical	3	4	0	1
Perfume	0	1	0	0
Household toiletries	1	2	0	0
Dinnerware	1	8	2	0
Other	2	2	0	0
Unidentified	10	4	0	3
Highly fragmented	No	No	Yes	Yes
Whole pieces	Yes	Yes	No	No
Total	**121**	**279**	**56**	**90**

The majority of glass was from beer and wine bottles for all types of sites (48% of Bernier Island Aboriginal sites, 65% of Dorre Island European sites, 65% of Bernier Island Aboriginal sites and 60% of Dorre Aboriginal sites). The number of glass objects discarded probably reflects the consumption of the consumable in the glass container. Items like wine and beer are likely consumed immediately after opening and hence the container is disposed of immediately and more regularly, whereas liquids like perfume are consumed slowly and the container may not be discarded for years or even never discarded and kept for ornamentation.

More poison bottle fragments were found associated with Aboriginal sites (14) than with European sites (3) (χ^2=7.72 p=0.005) and the largest percentage was found associated with Aboriginal females sites on Dorre Island (12% of glass objects). This

can not easily be explained as it was expected that the poison bottles would be found associated with Europeans as they were recorded as providing the poisons. However, the original purpose of the bottle may not have been used by the Aboriginal people and it may be the secondary use of the object, for such things as cutting and scraping, that we are seeing.

ENAMELWARE

Very little can be said about the differences in the use and presence of enamelware in the light of relatively few pieces found (Figure 10.3), but more was found associated with European sites near the wards and hospital buildings, suggesting that it was the dinnerware for patients (Total χ^2=21.99 p<0.001, Bernier Island totals χ^2 =4.19 p=0.041 Dorre Island totals χ^2 =21.07 p<0.001). Few enamelware objects were found at Aboriginal sites. Dorre Island (21) had more enamelware than Bernier Island (16), perhaps reflecting the population size on each island but there was no statistical difference (χ^2=0.681 p=0.41).

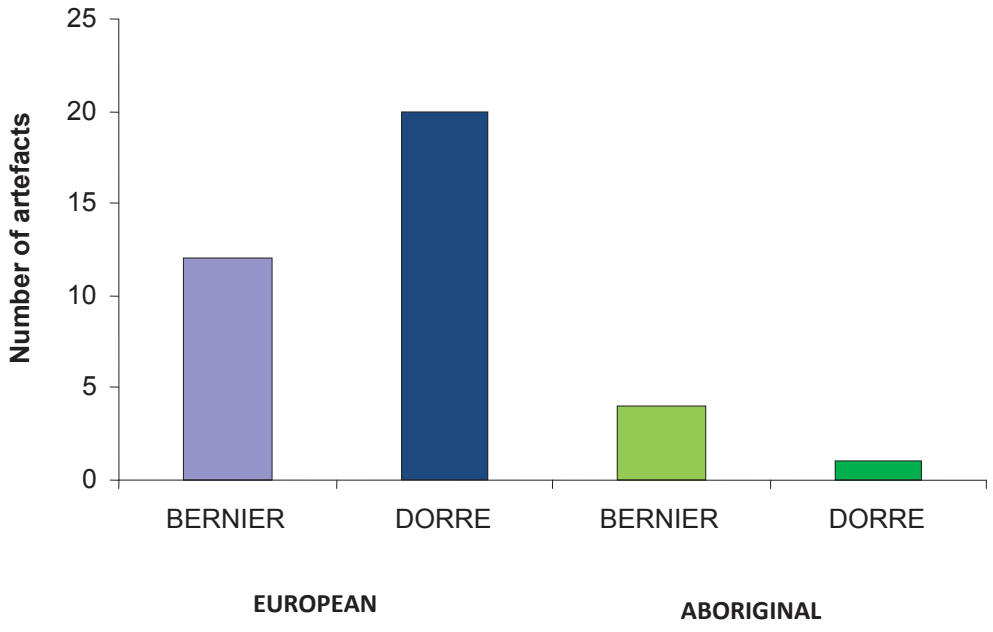


Figure 10.3. Frequency of enamelware for each group of people and for each island.

METAL FOOD CANS

Again, very little can be said about the distribution of metal food cans between groups and islands due to the small sample size (Figure 10.4). Approximately a dozen pieces were found at each of the European and Aboriginal sites on each island. It was

assumed that more tinned foods would be associated with Aboriginal people as they were in significant larger numbers on the islands, however the same amount was found associated with European sites and this may reflect that tinned food was rationed by the Europeans.

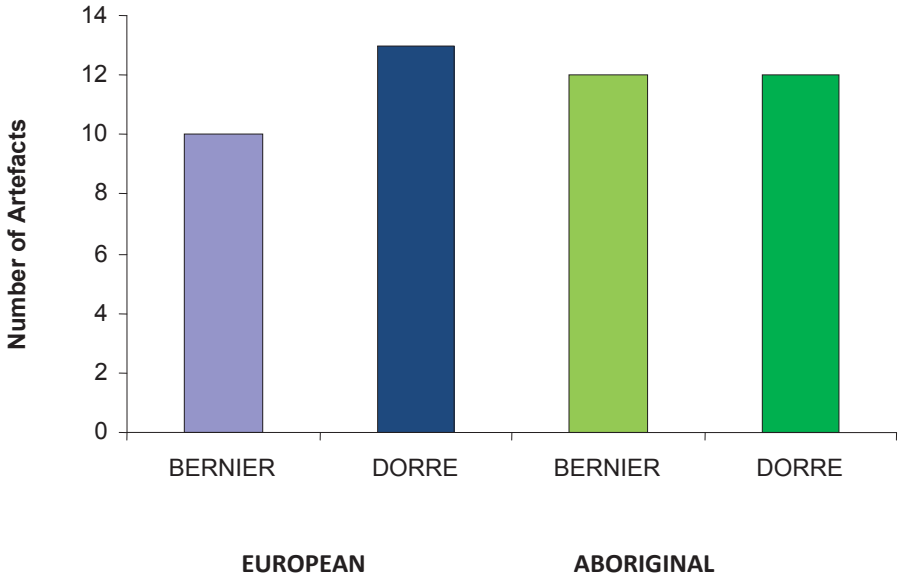


Figure 10.4. Frequency of metal food cans for each group of people and for each island.

CERAMICS

Two hundred and eighteen ceramic artefacts were found over the two islands, two thirds in association with European sites on Dorre Island (Table 10.3 and Figure 10.5). Most of the ceramics from European sites were of high quality and more included whole objects. All ceramics found with Aboriginal sites were fragmented.

The most common type of ceramic ware was creamware, followed by bone china. Porcelain objects were limited to European sites associated with the living areas of the doctors and medical staff. Creamware was likely the ceramic provided by the government and hence the large numbers.

The greatest contrast was seen on Dorre Island where more expensive objects were associated with European sites. While creamware dominated the ceramics found on Bernier Island (63% of ceramics at European sites and 79% of that at Aboriginal sites) assemblages were more evenly distributed between creamware (36%) and bone china (41%) at European sites on Dorre Island. This difference would largely be reflected in who could get access to such objects.

Figure 10.3. Total numbers of ceramic artefacts associated with Europeans and Aboriginal sites on Bernier and Dorre Islands.

	EUROPEAN		ABORIGINAL	
Ceramic Type	BERNIER	DORRE	BERNIER	DORRE
Creamware	39	58	11	0
Earthenware	4	18	0	1
Stoneware	1	3	1	0
Porcelain	11	15	0	0
Bone China	7	66	2	0
Highly Fragmented	No	No	Yes	Yes
Whole Objects	Yes	Yes	No	No
Relative Expense	Low to high	Medium to high	Low to medium	Low
Totals	**65**	**138**	**14**	**1**

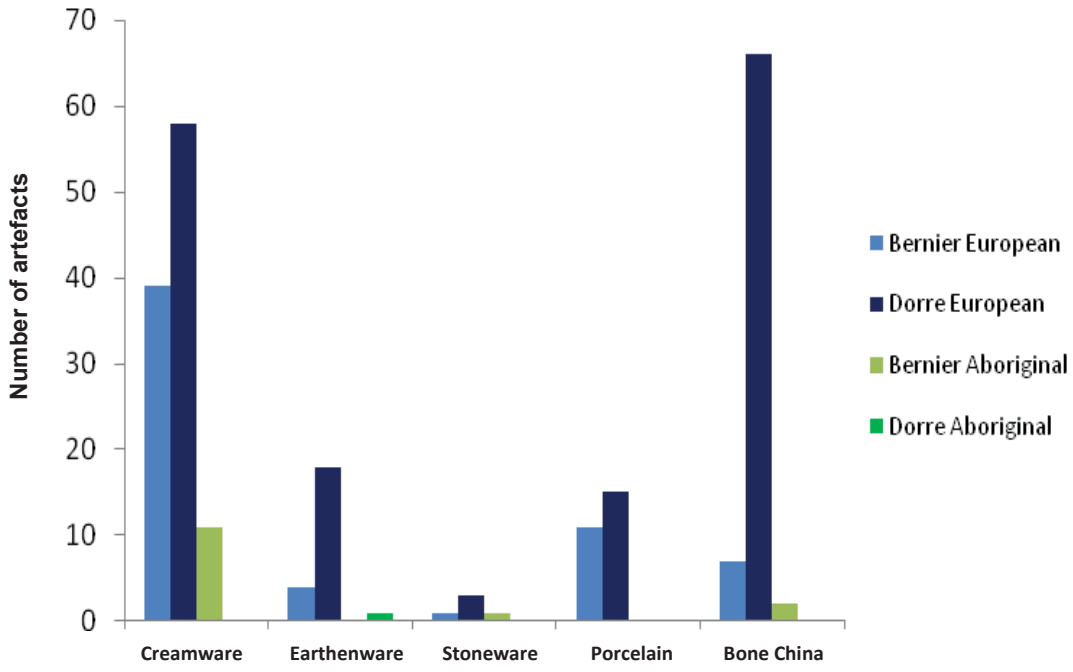


Figure 10.5. Frequency of ceramic artefacts types for each group of people and for each island.

SMOKING PIPES (CLAY AND BAKELITE)

In total 31 clay pipe fragments were found on the islands (Figure 10.6) most on Bernier Island. Almost two thirds (65%) were associated with European sites. Bakelite pipes were only found in association with Aboriginal sites. The majority of

smoking implements found associated with male sites may suggest that smoking was gender specific.

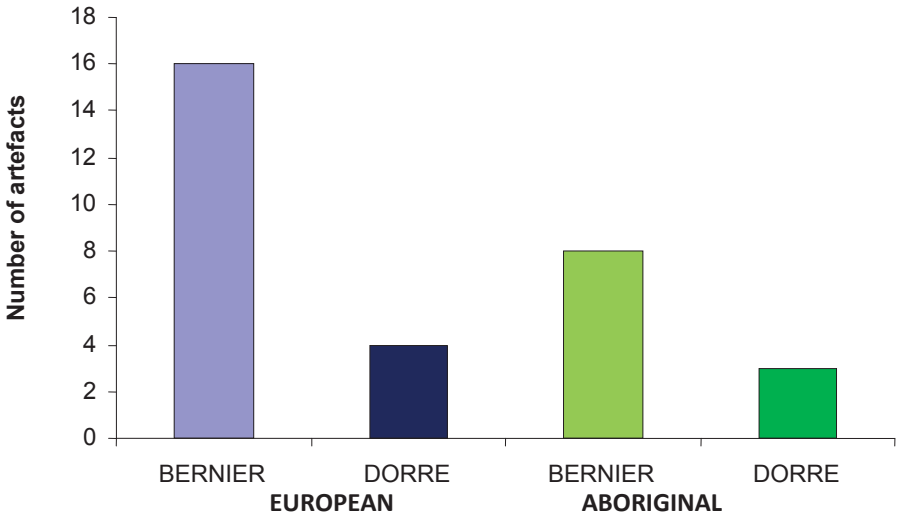


Figure 10.6. Frequency of smoking pipes for each group of people and for each island.

CLOTHING ITEMS

In total 51 clothing items such as buttons, shoes and belt buckles were found on the islands, most (61%) in the form of a collection of buttons from Dorre Island Aboriginal sites (Figure 10.7) despite the fact that historical photographs depict female clothing largely devoid of buttons, buckles and shoes. Most European clothing remains were found on Bernier Island. No clothing remains at all were found associated with Aboriginal men. The presence of buttons was largely associated with females sites (Aboriginal patients on Dorre Island and European accommodation on Bernier Island). Maybe this suggests that the sewing and mending of clothing was a female dominated activity.

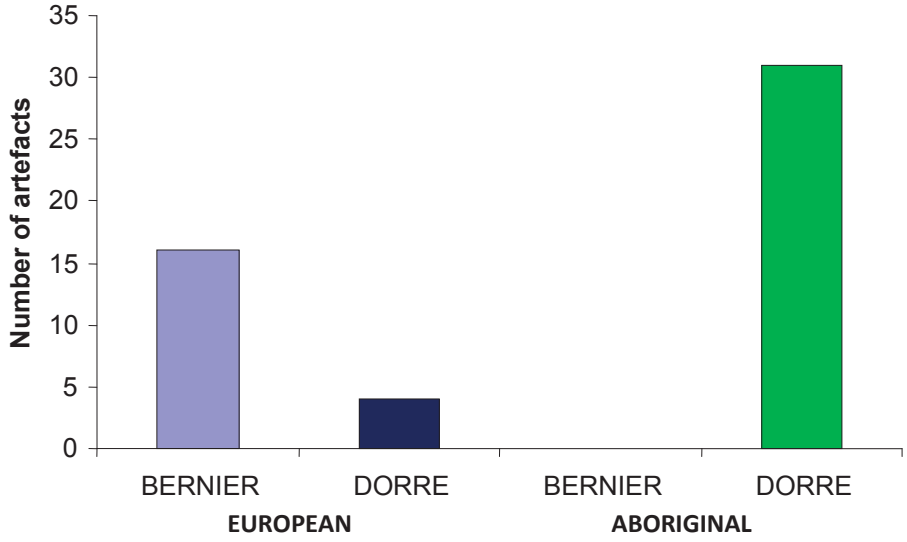


Figure 10.7. Frequency of clothing items for each group of people and for each island.

PERSONAL ITEMS

Very few (13 in total) personal items were found during archaeological surveys on either island (Figure 10.8). The majority (71%) of those found were associated with the Europeans on Dorre Island and consisted mainly of female use objects like sewing machine remains, and clothing irons and children's objects like slate boards. The only personal objects attributable to the Aboriginal people consisted of perforated shells sourced from the local environment which appear to have been used for adornment. It is not surprising that few personal objects were found with Aboriginal patients as it is likely that they were prohibited.

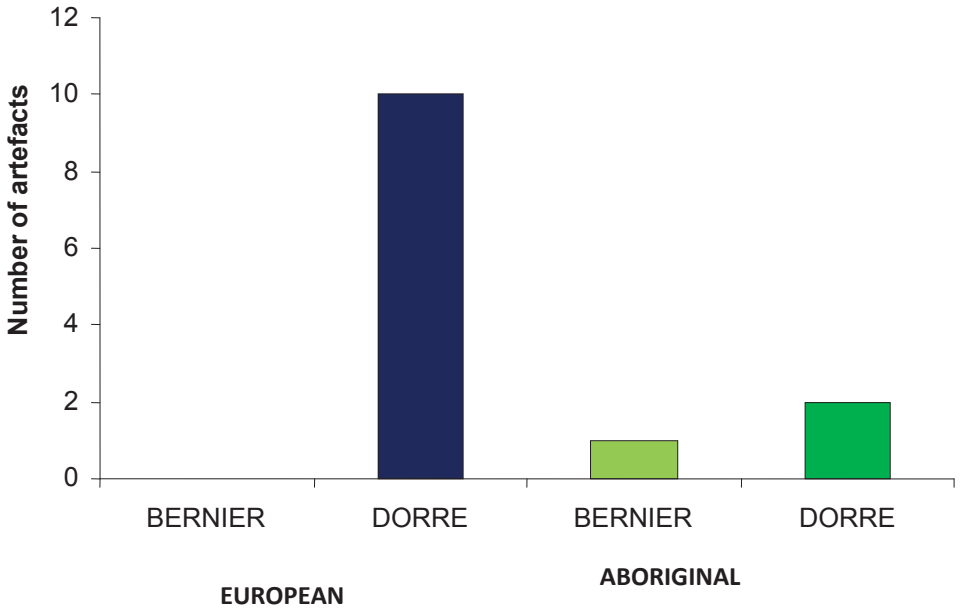


Figure 10.8. Frequency of personal objects for each group of people and for each island.

FOOD (BONE AND SHELL)

Large samples of food remains such as bone and shell were found on both islands. In total, 277 bones were found (Table 10.4 and Figure 10.9). The greater number and density of bone remains were found on Dorre Island (χ^2=11.6 $p<0.001$). Very few bones were found associated with European sites (6% of all those found) and all were derived from sheep/goat. This may have resulted from the fact that Europeans may have eaten the better parts of the animals that contained no bones. The most frequent source of bones associated with Aboriginal sites was from domestic animals such as sheep/goat (65% of all bones and 72% of bones that could be identified), but there was evidence that Aboriginal people did exploit native food sources like sea animals and native marsupials, particularly on Dorre Island (31% of identified and 9% on

Bernier Island, χ^2=19.18 p<0.001). It is interesting to note that while the greatest diversity of food items was seen on Dorre Island, more burnt bones were found on Bernier Island.

Table 10.4. Bones found during archaeological surveys associated with each group of people and for each island.

	EUROPEAN		ABORIGINAL	
BONES	BERNIER	DORRE	BERNIER	DORRE
Sheep/goat	3	14	68	100
Bovine	0	0	O	1
Turtle	0	0	1	2
Bird	0	0	0	1
Fish	0	0	0	9
Native Marsupials	0	0	6	47
Unknown	0	0	25	0
Total with European style cut marks	0	0	28	47
Total with Burn Marks	0	0	64	13

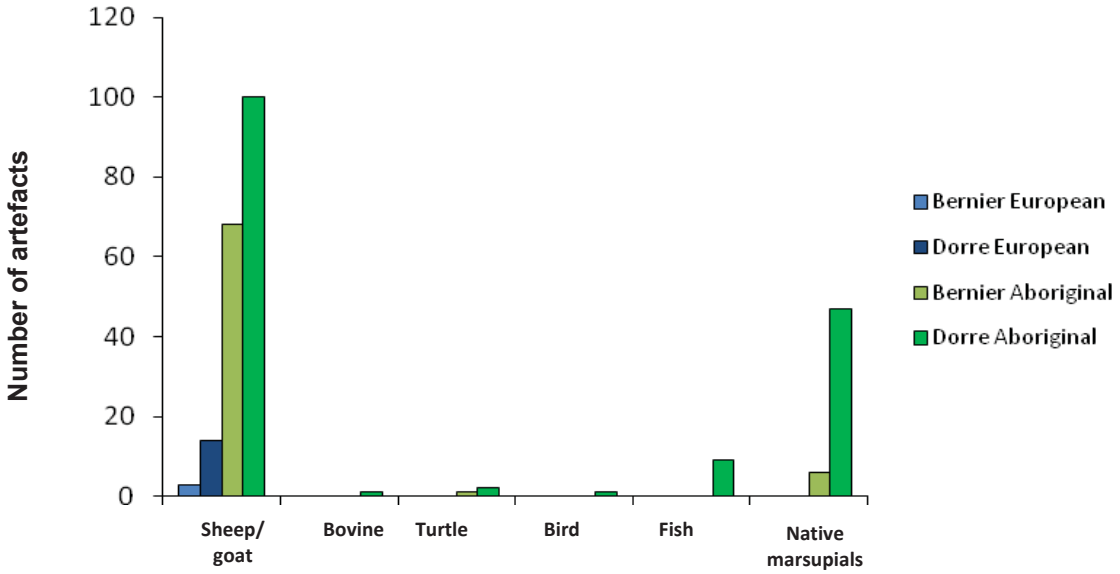


Figure 10.9. Frequency of the bones associated with each group of people and for each island.

In total, 2447 shells were identified (Table 10.5), the majority being oyster shells. The shells associated with Aboriginal sites were those commonly eaten as foods (oysters and periwinkles), while shell types associated with European sites appeared to have been chosen for their aesthetic values (triton, baler, cowrie). For Aboriginal females on Dorre Island shellfish seemed to form a larger proportion of their diet than any

other group (92% on Dorre Island and 83% on Bernier Island (χ^2=43.52 p<0.001)). Again, this result is not unexpected as shells are usually collected in numbers and mostly associated with the food gathering of Aboriginal women (the largest group of people of the islands).

Table 10.5. Shells found during archaeological surveys associated with each group of people and for each island.

	EUROPEAN		ABORIGINAL	
Shell type	BERNIER	DORRE	BERNIER	DORRE
Oyster	2	0	429	1106
Scallop	0	1	2	4
Pearl	0	0	1	1
Top	0	0	11	61
Triton	0	1	5	0
Periwinkle	0	0	40	671
Cockle	2	0	0	0
Clam	1	1	0	0
Baler	1	0	0	0
Conch	0	0	2	0
Razor	0	1	0	0
Cowrie (small)	2	2	4	4
Cerith	0	0	2	0
Limpet	0	0	4	3
Abalone	0	0	1	0
Chitin	0	0	0	2
Totals	**8**	**6**	**500**	**1933**

LITHIC/VITRIC FLAKED TOOLS

In total 48 lithic and vitric flaked tools were found on the islands, 30 being associated with men on Bernier Island and 18 with women on Dorre Island (χ^2=3.03 p=0.082, no statistical difference noted) (Table 10.6 and Figure10.10). No significant difference in tool types was seen between the two sets except that women used hammer stones. There were however, differences in raw materials used to make the tools, the women alone employing natural rock while the men made greatest use of olive green, very dark green, blue and brown glass (Table 10.7 and Figure 10.11). There is no logical reason that glass colour was selected for tool making other than that for aesthetics.

Table 10.6. Lithic and vitric flaked tools found during archaeological surveys associated with each island.

	ABORIGINAL	
Tool type	BERNIER	DORRE
Points	3	1
Scrapers	9	6
Flakes	18	7
Cores	1	2
Hammer stone	0	2
Totals	30	18

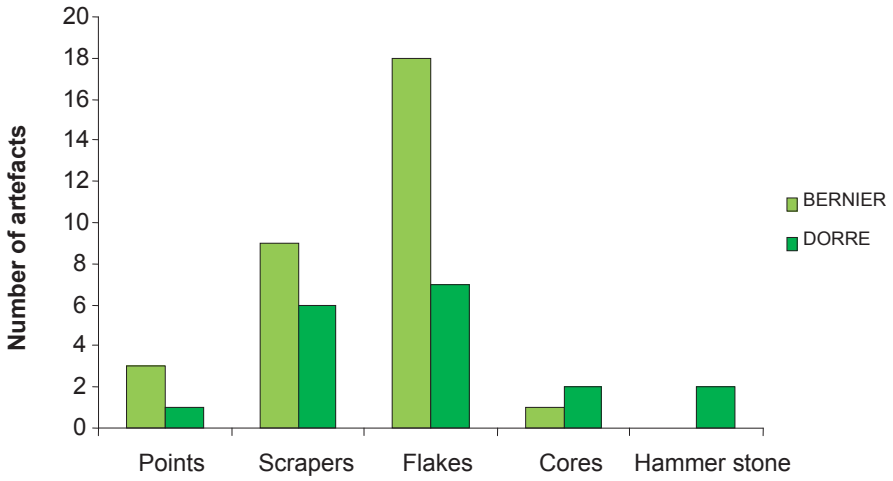


Figure 10.10. Frequency of lithic and vitric flaked tools found associated with Aboriginal sites on Bernier and Dorre Islands.

Table 10.7. Raw materials used to make flaked tools.

	ABORIGINAL	
Type	BERNIER	DORRE
Colourless glass	3	2
Light green glass	1	0
Olive green glass	7	2
Dark green glass	1	8
Very dark green glass	11	0
Blue glass	5	1
Brown glass	2	1
Limestone	0	4
Totals	30	18

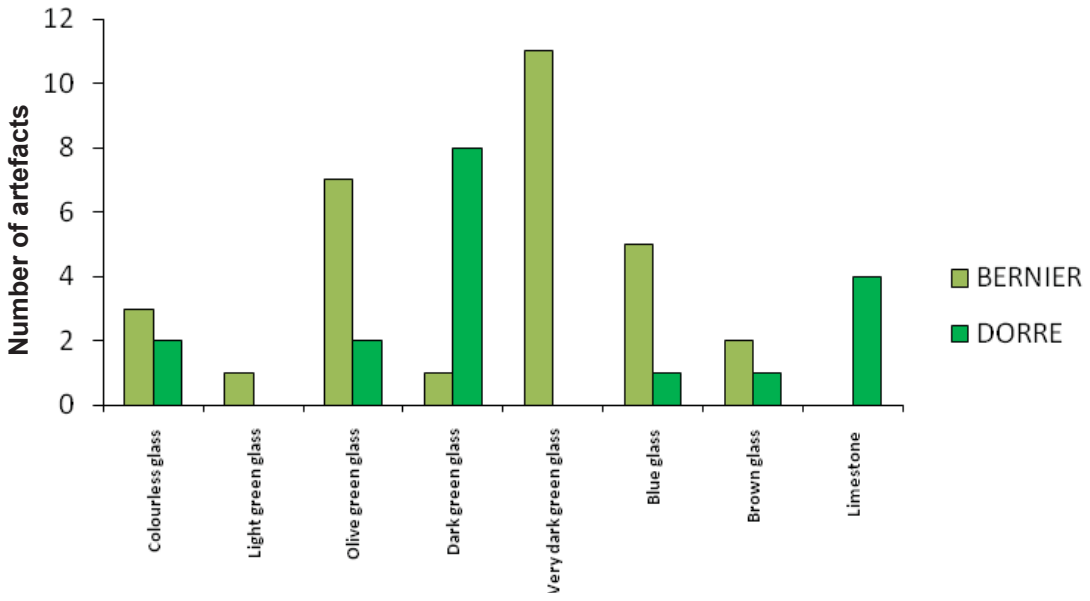


Figure 10.11. Frequency of raw materials used to make tools.

MEDICAL EQUIPMENT

Seventy one medically related objects (bottles, tonics and equipment) were found on the islands (Table 10.8 and Figure 10.13), most (69% (χ^2=10.53 p=0.001)) associated with European sites and most on Dorre Island (68% (χ^2=8.99 p=0.003)). All medical equipment was found in association with European sites. There were a few medicine bottles and an isolated tonic bottle at Aboriginal sites, but these were fragmented pieces rather than whole objects which may just as likely been gathered for the source of raw material than for its contents.

Figure 10.8. Medical bottles, tonic bottles and medical equipment found associated with each groups for both islands.

	EUROPEAN		ABORIGINAL	
	BERNIER	DORRE	BERNIER	DORRE
Medical bottles	11	8	3	18
Tonic bottles	4	1	1	0
Medical equipment	4	21	0	0
Totals	**19**	**30**	**4**	**18**

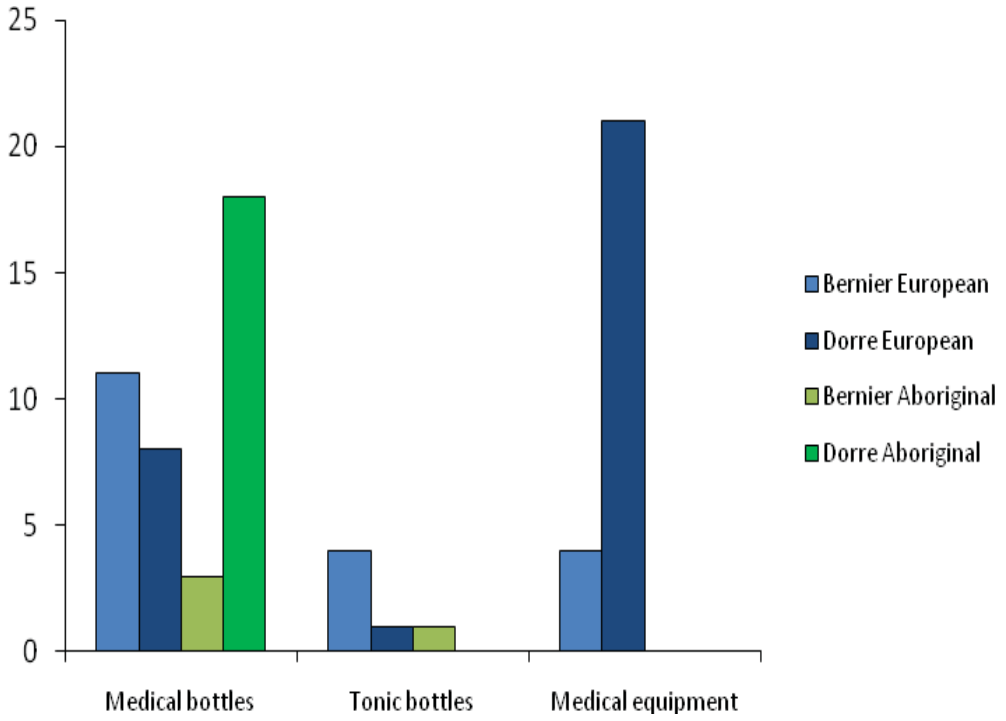


Figure 10.13. Frequency of medical bottles, tonic bottles and medical equipment found associated with each groups for both islands.

SUMMARY

There were marked differences in many aspects of the archaeology according to culture (Europeans compared with Aborigines) and between the two islands, which also represented differentiation of the sexes.

The next chapter discusses the possible reasons for differences and interprets the results of both Bernier and Dorre Islands together.

Chapter Eleven

DISCUSSION

BERNIER AND DORRE ISLANDS

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BERNIER AND DORRE ISLANDS

INTRODUCTION

This chapter discusses the results of the archaeological surveys and artefact analyses of the Bernier and Dorre Islands Lock Hospitals sites. It discusses the differences in the archaeological record between European and Aboriginal sites, between the two islands and explores reasons for these differences in terms of the theoretical approaches within the wider research on other medical and institutional environments, such as places of forced confinement, total institutions and the reasons for confinement based on power, race, gender and class.

Thus this chapter considers the historical data which deal with the relationship between people and things, particularly those in which these relationships can be seen directly in some form by the eye (in other words visual representations such as paintings, drawings, photographs), with the archaeologically assemblages of artefacts and archaeologically surveyed data to find out about the way material culture is utilised and given meaning (Allen 1996:4, cited in Sutton 2003) within the context of the theoretical approaches above.

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Historical and archaeological sources were used to complement each other rather than to test or verify the credibility of each source individually. At times, a gap in one of the data sets made it necessary to take the other source at face value. While researching the historical documentation first may have led to self-fulfilling interpretations of what was found in the archaeological record, the fact that this was the first time archaeological research on Bernier and Dorre Islands was undertaken meant that background knowledge or historical research was imperative and the potential for bias could not be avoided.

The archaeological data, while displaying information which may not be available through historical records, is only information about abandoned, discarded or lost

objects. Absence of objects from the archaeological record does not necessarily indicate the absence from the site of objects which, when in use, may have been cherished and taken back to the mainland or those which failed to be preserved in the archaeological record. For example, many personal objects like the children's teddy bears and heirloom china would have been taken back with the children and many plant remains, possibly those grown in the gardens, would have been eaten by animals or decomposed leaving no trace in the archaeological record. Without the historical documents, no information could be obtained on such objects.

The discussion is formulated in terms of the aims of the research (sites, manufactured goods, subsistence – water, food, fuel, medical treatment and mortality) with European and Indigenous views considered separately. Questions are raised about how the two groups of people lived on the islands, to what extent they used island resources, what proportion of the objects they needed were imported, and to what extent normal ways of life were pursued. It also compares the Lock Hospitals of Bernier and Dorre Islands with other institutions of the time throughout the rest of Australia and the world and in relation to the concept of 'total' institutionalisation.

OCCUPATION OF BERNIER AND DORRE ISLANDS

While there is no doubt that the Bernier and Dorre Islands Lock Hospital Scheme extended from 1908 to 1918, it is unlikely that both islands were occupied across the full period. Historical records and scholarly opinions (Briscoe 1996c; Jebb 1984; 1987; Mulvaney 1989) are divided on the issue but the archaeological data shed some light on this matter. Specific archival evidence for the initial occupation of Dorre Island suggests that 'the first patient arrived on the 6th October 1908' (Mulvaney 1989: 185,189) and the last in 1918.

Dated artefacts, historical documents detailing the times of collection and release of patients as well as other general reports (Appendix A) indicate that Bernier Island was occupied after Dorre Island, probably in 1909, and that the period of peak occupation on both islands was between 1909 and 1912. Use of Bernier Island gradually declined after 1912, with no evidence of men being collected for the scheme after 1912. No artefacts which could be dated to after 1915 were found on Bernier Island, with most appearing to date before 1910. No major dumpsites (suggestive of a clean–up at the end of the scheme) were found on the island. Many objects may have been taken to

Dorre Island for use when Bernier Island was abandoned, but there is no direct archaeological evidence for this.

In contrast, artefacts found on Dorre Island, such as the glass bottles produced by the Perth and Fremantle Bottle Companies which were only manufactured from 1917, suggest that goods were being acquired for the islands as late as 1917. The presence of large dumpsites containing whole objects and no evidence of disturbance in areas out of sight of where, presumably, most government inspections took place, is suggestive of a clean–up, probably at the end of the scheme in 1918. If deposited during the scheme, whole objects such as ceramic ware and bottles could have been expected to have been exploited by the Indigenous people in the same way as the many Europeans objects found at their scattered campsites.

After his visit to the islands in 1915 Triado (1917), the Principal Medical Officer for Carnarvon region, recommended that due to the problems of transport between the islands, patients be moved to one island to provide them with better care. As most of the patients in the scheme during that time resided on Dorre Island, despite its poorer resources, this was where the medical staff were sent. Bernier Island seems to have been abandoned sometime around 1916/1917 and the remaining male patients sent home as cured or, if deemed incurable, sent to Dorre Island from which they were forwarded to the Port Hedland Lock Hospital (Mulvaney 1989) when Dorre Island was cleared in 1918.

There are no clear dates in the archives for the demolition of structures on the islands, though it can be assumed to have been at or sometime after the time the patients and staff left the island. It is known that occupation ceased on Bernier Island earlier than it did on Dorre Island (Mulvaney 1989), but it is uncertain whether the buildings on both islands were taken down as their use ceased, or at the same time. No historical documents can help answer these questions and the archaeological evidence provides no further insight into this matter.

EUROPEANS ON BERNIER AND DORRE ISLANDS

Remains found in association with European sites yielded detailed information on housing, the use of space, food ways, household equipment, personal possessions, status and the acquisition of goods in early twentieth century Western Australia.

SITES

Archaeological surveys confirmed European occupation of Bernier and Dorre Islands in locating a ward, administration buildings, outpatient buildings, laundry, stables, garden, jetty, roads and rubbish sites on both islands and a mortuary on Dorre Island. The locations and dimensions of almost all of these features closely matched historic descriptions and photographs and aided in confirming which of several possible architectural plans were used. The materials for buildings, such as jarrah for the frames and weatherboard for the walls, corrugated iron for roofs and walls were made on the Western Australian mainland but probably constructed on the islands. The robust nature and high degree of permanency of the building materials and the detailed layout of buildings on the site suggested that the Europeans planned to stay a while. There is no mention in the historical records of the intended duration of the scheme.

The spatial distribution of structures on the islands is important to the understanding of the logistics of the scheme and to the power relationships manifest within it. The behavioural assumptions which underlie elements of the spatial organisation, such as the placement of buildings for logistical reasons, the choice of buildings to be placed on the highest point of the island, the best position for stock and the stables and control of access to the islands, are clearly evident on both islands.

On the islands the government buildings were well built, functionally set out and provided with good infrastructure in the way of roads, for the use of horses and carts. Most of the buildings on the islands (wards, outpatients, stables, laundries, kitchens) were placed on flat land within easy walking distance of one another and located in the areas that could be expected to work best functionally. For example nurses' quarters were located next to the ward, allowing easy access to patients, the laundry and kitchen were next to the ward, and the jetty was at the most protected area in the bay.

Other features of the location of buildings are not as easily explained on the basis of practicality or where they fit into available space. Inconsistencies between plans and the actual layout of some of the structures on the islands can be explained by adaptation to the three dimensional reality of the sites, but the placement of European structures on the islands appears to have been dictated by interaction between state policy, hospital design and issues of hierarchy.

Europeans' accommodation buildings (administration building, nurses' quarters and doctor's house) were situated atop dunes overlooking the ocean, the ward and the Aboriginal accommodation. The doctor's house on Bernier Island had the best geographical position, with views over the hospital sites in an aesthetic area of the island within reach of cooling afternoon breezes. On Dorre Island, while not on as high ground as that on Bernier Island, the doctor's house still commanded good views of the hospital building and surrounding areas.

According to Foucault (1979) space can be arranged in such a way that surveillance is constant and takes place in full visibility. Using Foucault's (1979) analysis the placement of the doctor's house could have served as a central point in surveillance in much the same way a guard tower does. Without leaving the house and veranda, the doctor could monitor the Aboriginal people.

As access to space can be hierarchically structured according to social function (patient, staff, visitor) and gender categories (Prior 1988:106) this may explain what is observed though the archaeology on the islands. The majority of prime space is allocated to supervisors, less to keepers, even less to patients and may explain the differences seen between the islands, where less controlling features were seen on the male patient's islands.

The position of European accommodation overlooking the ward and the access to mainland as well as the direction of the front entrances of all the European living areas towards the hospital buildings or ocean emphasises the maintenance of effective control and supervision of patients. Locations for buildings were chosen by the Europeans, who through experience, if not awareness, were guided by principles which aided the control of the movements of the Indigenous people. The location of medical residences near transport routes, exits, entrances and roads and positioned to overlook patient activities have previously been shown to be the means of control of subject peoples (Sutton 2003:85). Their positions on Bernier and Dorre Islands indicated that the doctors had control over the islands.

The relationship of particular structures to one another and the spatial distribution of the sites in the natural landscape were more conducive to an understanding of the logistics of the scheme and the power relations between groups on Dorre Island than on Bernier Island. The mortuary on Dorre Island was positioned on the highest hill

overlooking the living areas of sick patients. The design of the mortuary is drawn on a different architectural plan from that of the complete design of the other hospital buildings and omitted from photographs and maps of the islands. The cemetery does not appear in any of the contemporary plans of the island. The lack of these on the larger island plans may suggest that control was covert in the face of the public.

The presence of some of the hospital buildings (particularly those in which the patients resided such as the administration building, ward and Aboriginal camps) in a valley enclosed by four dunes on Dorre Island suggests the use of natural landforms for barriers. Architectural plans and photographs of the administration buildings and the ward on Dorre Island do not show the extent of the dune system that encloses the area nor does it convey the 'feel' that they impose on the buildings. The original interpretation was for the protection from the ocean winds or cyclones, however this interpretation does not account for other buildings like the mortuary and doctor's houses being located on the tops of the dune system., unprotected from the winds and cyclones. With no practical reason for the hospital buildings to be within a dune system, along with no practical reason for the mortuary to be positioned on the exact dune that directly overlooks the living areas of sick patients, this may suggest that this layout was set up either with great insensitivity to native beliefs and feelings, or as a deliberate attempt to control the inmates through intimidation.

It is clear from the archaeology that the government designed the hospitals so that buildings and spaces were placed in positions to maximise control over populations. The positioning of the mortuaries and cemeteries next to living accommodations and locks on doors to oppress those institutionalised which were conveniently left out of documents and photographs give credibility to the power relations and the underlying agenda of the scheme. However, whether or not this type of control, in itself, was effective is unknown and what impacts it had on the Aboriginal people sent to the islands is undetermined. For it may well have been possible that the Aboriginal people did not feel the impact of the position of the mortuary or the locks, or were already desensitised to this control as they came from farms with worse conditions or other similar establishments.

The ward site, which was positioned closest to the ocean on Dorre Island, also tells an interesting story. It has been described in the historical records as 'inhospitable and airy', a common element of design for wards of the period, aimed to create air flow

for ventilation and the elimination of disease (Prior 1988:94). The use of windows between beds and verandas surrounding the building which can be seen in photographs of the Dorre Island ward (Battye Library 725B/67) (Figure 6.3) is in this respect typical of nineteenth and twentieth century hospital wards (Prior 1988:96). Early twentieth century clinical treatments were imbued with a folklorish belief in the value of fresh clean air. Enforced bed rest accompanied by fresh air was part of the treatment for those in whom disease was substantially developed, even if this meant lying on verandas in the sunshine or cold, summer and winter, regardless of the temperature. Some British state sanatoria were built without window panes or heating in order that the patients might constantly benefit from the value of exposure to the elements. In some English cases this meant patients' beds had to have snow removed from them by the nursing staff (Bryder 1988; Smith 1988). This makes doubly puzzling the location of the ward on Dorre Island, cut-off from the prevailing breezes in the cauldron of the dune-enclosed site. Watson (1968:62) also described the hospital buildings in this light as being dwarfed by high sandhills.

The walls of the wards on both islands were recorded as consisting chiefly of tarred canvas (Mulvaney 1989:189) which would have provided little protection from the elements, either the heat of summer or the rain and cold of winter. During the cyclone season the wards would have been unbearable at times – not a place for the sick to recover. Mulvaney (1989:189-190) also points out that patient morale would hardly have been raised by the official naming of them as 'incurable wards'.

The artificial hill of coral and shell to the north east of the ward site on Dorre Island is a remarkable structure. It performed one obvious function, supporting the two water tanks which supplied water to the ward by gravity feed. The same function could have been achieved by locating the tanks on any one of the naturally surrounding sand hills, however. The dune could not have served the additional function of protecting the building from the ocean winds, as a row of natural dunes lay between the artificial hill and the ocean. Instead, it seemed to serve the functions of enclosure and creation of a division between the ward and the Aboriginal campsites. The artificial dune is high and would have required a lot of labour to produce. It is not known who (Aboriginal or European) built it, or the source of the material from which it was constructed. It is likely that the Aboriginal people were used as cheap and convenient labour. The material may have come from the yet unidentified 'quarry' mentioned in historical documents (States Records Office, Cons 1647 P.W.D WA15024) (Figure

9.20). It is also possible that the shells and coral themselves were interpreted as having been quarried, the coast itself constituting the quarry.

The positions of the outpatients' buildings on the two islands tell different stories. On Dorre Island the outpatients' building was located furthest away from the hospital site and hidden from view of all other buildings by a large dune. The fact that it was out of sight may also reflect the economic value, or lack thereof, placed on Aboriginal women (out of sight, out of mind) and the fact that Europeans did not want the women back on the mainland. The long duration of incarceration of women compared to the men, the presence of a mortuary and large cemetery (Bates 1938) only on Dorre Island also go some way to supporting this interpretation. In contrast, while the outpatients' building on Bernier Island was located furthest away from the hospital buildings it was still within view. It might have been expected to be closer to the jetty (going to/coming from) or near the other buildings. There seems to be neither geographic advantage to its location nor any logical reasons for its placement. It was perhaps positioned at such a point as to enable patients to see others patients returning to the mainland. This may reflect the economic value of Aboriginal men on the islands, in that the Europeans wanted them going home, but also wanted them to know that they had to work and behave for it.

The position of the wells at Windmill Flats on Bernier Island was not as expected. They were some distance from where water was needed at the hospital sites, and it seems that other closer locations could have been chosen. A similar situation pertained to the location of the windmill on Dorre Island. The only logical explanation for their placement is that they were positioned at the best geographical location for maximum water to be obtained, although this was not evident from archaeological surveys. Geological studies could shed some light on this issue. The horse cart found in the area on Windmill Flats reinforces the idea that it was worth going to some lengths to collect water from that point – that it provided a worthwhile return.

The development of distinctive styles of building in new or isolated environments is expected from the combined effects of isolation and the need for a closer fit with the new environment (Deetz 1996:146). There was some evidence of the exploitation of natural resources for building on Dorre Island, in the coral and compacted shell boulders, blocks and mortar used in the construction of buildings, concrete pads, garden walls, paths and in the construction or stabilisation of the artificial mound

which formed part of the engineering work on Dorre Island. On Bernier Island many structures, including the administration fireplace, were constructed of a native shell aggregate. The source of the shell used for mortar is hard to establish. In the early days of the Australian colony there was not enough lime to make mortar, so people collected shells and ground these down and burnt them for this purpose (Proudfoot *et al*. 1991). Whether the same situation applied in Western Australia or on the islands prompting the use of shells for this purpose is unknown, but understandable given the isolation from resources, the effort of transporting goods from mainland Australia and the use of shell for other purposes (garden walls, pads of buildings).

The presence of fireplaces in living and sleeping areas and heating found near European accommodation seems to be inappropriate in the semi-arid environment. On the other hand, the use of vents on European accommodation as well as guttering and drain pipes to collect infrequent rainwater does suggests some design consideration for the dry, arid environment.

Rubbish dumps associated with the hospitals also appeared to extend close to the remaining structures of the buildings and in places (like behind dune system and south of the bay) that were not visible from the hospitals. Those dumps found close to the hospitals were likely left over from the clean-up at the end of the scheme (mainly building material and isolated artefact types), while those found out of sight of the hospitals were probably deposited during the scheme (as is typical of European rubbish sites being out of site and away from living areas). At the Peel Island Lazaret separate dump sites were found for hospital rubbish and for patients and staff (Prangnell 2002:36). No evidence of these different dump types was found on the islands for Europeans and this may reflect the limited nature of the Europeans' residence on the islands. However, differences were seen between European workers and Aboriginal staff (discussed in more detail below).

MANUFACTURED/MATERIAL GOODS

Many manufactured goods including glass, ceramics, personal items, clothing and utilitarian objects were found associated with European sites on the islands. These types of objects are similar to what have been found at other institutions. For example, at the Peel Island Lazaret items related to food such as bottles or tin cans, clothing such as buttons or shoes, accommodation such as building fittings or window furniture, hospital functions such as vials or bedpans, personal effects such as combs

or watches, clock, kerosene lamps, and other activities such as fishing (sinkers) (Prangnell 2002:32, 36) were found. Like other medical hospitals most of these objects were imported locally (from Perth), from other states and from overseas, reflecting the vigour of trade systems in nineteenth century Australia.

Europeans on the islands appeared to have acquired the most up to date material available in Western Australia at that time. The fact that many artefacts were discarded whole (bottles, ceramics, medical equipment) suggests that such objects were relatively easy to come by. The dates of manufacture of the artefacts found hint at the speed with which the scheme was set up, at the delays in trade between the islands, mainland Western Australia, east coast Australia and places like Britain and Asia and at how advanced and up-to-date the lifestyle of Europeans living on the island was. The scheme was equipped with the most up to date materials available in Western Australia at the time.

The dates and origins (Germany, England, USA) of much of the imported ceramics, medical equipment and bottle glass give evidence of Western Australia's inclusion in a lively international trade system. Other manufactured goods came from interstate (Adelaide, Melbourne and Sydney), and some locally from Perth/Fremantle. The diverse origins of goods suggest that items were sourced from all over the place. The regular appearance of the date 1906 as the date of manufacture of many of the products suggested these objects may have been acquired before the scheme (which was only promulgated in 1908), or have reflected the lag in acquiring goods from overseas.

Items specifically produced for Western Australian hospitals were evident in the chamber pot with a swan insignia (West Australian crest), a ceramic basin, cork flooring for operation rooms, and boiler parts for sanitising ward equipment and bedding. At the Peel Island Lazaret, ceramics such as vitreous stoneware bore also bore evidence of the state's crest (Queensland Government) (Prangnell 2002:36) and suggests that items were specifically made in each state for an institutional market. Thus, archaeological survey was able to provide an early snapshot of the range and quality of materials supplied to this institution as well as the activities that occurred there (Prangnell 2002:37).

Very little manufactured material was produced in Western Australian up to the time of the Lock Hospital Scheme. There is evidence for the production of some items

such as ceramics (Craig 2004) and building materials (Carroll 2001:49), although it is uncertain how widely they were distributed or whether these were used at the Lock Hospitals. It may have been the case that imported material was in fact cheaper than that produced by local industries that were just setting up. The large quantity of imported medical objects and ceramics may attest to this.

The pottery works owned by Piercy and Pitman at Garratt Road Bridge, Belmont, Western Australia from 1903 produced many domestic items such as ginger beer bottles, ink bottles, lidded jars and from 1907 added items such as building pipes (sewage and water), bricks, flower pots and architectural terracotta to their production (Craig 2004). Some domestic pottery was produced throughout this period but ceased in 1908 (Craig 2004). It is entirely possible that the water pipes, bricks and flower pot found on the islands came from this source.

James Hardie Industries was another Australian-owned business that commenced operation in 1903, producing a new type of roofing and lining slate called fibro cement (asbestos) as well as fibro cement sheets that were sold throughout Australia (Carroll 2001:49). This material was not very popular until after 1909 (Carroll 2001:49). Since it seemed that no other company made or imported fibro-cement roofing at the time, it is likely that the Lock Hospitals were one of James Hardie's first government contracts. It is also likely that although economic stimulus packages (in the form it is understood today) were not policies of Australian government at the time, these industries may have formed or expanded in part to cover the economic slump of the time and to expand the general economy of Australia after Federation. Alternatively, these industries, themselves may have sought out these kinds of large government jobs for financial gain.

In general, a wide variety of high quality and the most up to date international and locally available tablewares, ceramics (particularly porcelain), personal items and other miscellaneous objects (vases, cosmetic creams) were found scattered across the landscape and in middens discretely out of sight of European living areas. Simpler and less expensive items were found around the ward where the hospitals were located. All kitchenware found near the ward, such as the mass produced enamelware, was utilitarian and probably intended for patient use.

The presence of whole discarded objects on Dorre Island suggests an ease of acquisition of objects on the mainland and of their importation to the islands. Most of the items were associated with consumption: glass beer, wine and spirit bottles, tin cans, condiment containers and kitchenware, including ceramics and enamelware. Better quality and more intricately designed ceramics, including the highly fragile eggshell porcelain bowls and the 'Geisha'-design small plates which were found around the European accommodation sites were clearly intended for limited use or for display.

Inventories and photographs show that the Europeans arrived on the islands with personal objects which were important to them. They took most home again, leaving only rubbish (broken artefacts) behind. No evidence remained of the piano, the children's bears and dolls or the Europeans' guns seen in photographs (Battye Library 3185B/16, 3185B/22, 3185B/39). It is difficult to see why some of these objects were taken to the island other than for the comfort of the Europeans. This reinforces the idea that the Europeans could import any items they wanted. The fact that many of the items were new and up to date suggests that the government was willing to offer substantial incentives for Europeans to take part in the scheme. There was evidence at the European sites of treasured personal and luxury items, such as perfume, heirloom china and combs. Personal items like a writing slate, teddy bears, dolls, sewing machines and clothing irons reflect the prolonged presence of women and children on the islands. The presence of women's and children's objects on the islands also suggests that the government was willing to support the families of the doctors and European workers needed. The employment of family men and their supporting families was probably designed to increase the length of stay for each doctor. Single men were more likely to want to return to their families.

The presence of some objects is logical. For example, sewing machines would have been needed to make and mend clothing.

> Clothing was not provided until 1909 when the nurse taught two Aboriginal women to sew and she received enough cloth for them to make dresses and draw string trousers (Lovegrove 1909; Brodribb 1909a).

The presence of perfume bottles, ornamental lampshades, ornamental glass tumblers and a fruit bowl on the island are harder to explain on the basis of function, however. Fruit clearly did not grow on the islands and it would be fermented by the time it

arrived if it was imported from the mainland. The only explanations must include status, aesthetic value, reminders of home or just to make things and themselves nice in what could be an unpleasant environment. Not surprisingly, the very ornate glass objects like perfume bottles and household toiletries were few, as these are the objects that were probably taken back to the mainland.

Artefacts associated with education, such as slate boards and pencils were found on both islands. Slate was used as a writing medium well into the twentieth century even though paper had become more widely available (Davies 2005:63). Slates were popular because they could be manufactured on a large scale, were sold cheaply and there was a paucity of paper as an alternative writing medium (Davies 2005:63, 64, 65). Slate has the advantage of being erasable and reusable (Davies 2005:67). The standard writing set was made up of a slate board, commonly ruled with lines or squares on one side, and slate pencils which came in different lengths and may have originally been wrapped in paper or encased in wood (Davies 2005:63). These items are commonly found in the archaeological record, as the pencils were discarded when they reached an unusable length, were easily lost but last a long time exposed to the elements. It is rarer to find writing slates, but they too were discarded when broken. Slate boards were used not only for children's education but for temporary recordings such as shopping lists, pharmaceutical calculations or surgeon's notes (Davies 2005:63, 65). In most cases, however, slate was used for the education of younger children (Davies 2005:65). The thickness of the slate pencils found on Bernier Island suggests they were for children to practice writing. We know that the doctor's children, particularly the Pritchard children, were on the islands and this artefact suggests that they were home schooled while there.

The presence of clothing remains was limited on the islands, but the remnants of shoes tell us some stories. The few shoes found were simple and inexpensive. No examples of manufacture's or shop brand stamps were found on any of them. The buttons and buckles found were also simple. Together with the photographs of people in dress on the islands they suggest that clothing was simple and practical, suited to the time and occasion. The lack of clothing remains may well be because they were either worn off the islands, their preservation is poor or even, as is documented in other hospital settings (Prangnell 2002), were incinerated. The remnants of unidentified metal pieces and parts may well have been remains of an incinerator.

The clay pipes that were found on the islands suggest that the Europeans were smoking, but as the pipes were inexpensive and of simple design and also found associated with Aboriginal sites, it seems that no real status was associated with the activity. The pipes were probably discarded due to their fragility and disposable nature.

The presence of clocks, locks and door bells on Bernier Island is interesting, particularly in relation to their association with the administration building and ward. The doorbell was presumably used so that staff could be informed of patient arrivals and its presence reinforces the idea of separate private and public spaces for Europeans and Aborigines. The clock parts found near the ward suggest that time was monitored. Similar clock parts were found at the Peel Island Lazaret (Prangnell 2002). It has been suggested that bells and clocks were often used in institutions to control the activities permitted during each temporal segment of the day (Goffman 1961; Spencer-Wood and Baugher 2001:9). Work was considered a morally reforming task. Written records indicate that male patients on Bernier Island were set certain tasks. They were used as manual labour to help build the structures on the islands, and to look after the domestic animals (Shirreff 1910), praised for their skills (Pritchard 1913) and rewarded (Lovegrove 1910). Mulvaney (1989:189) suggests that on Bernier Island patients who were well enough assisted the manager to maintain the sheep, goats, tracks, cart and horse. Chief Orderly Shirreff (1910) described some of the tasks done by male patients as follows.

> They have helped to cart and carry all the timber from the shores to the building and gathered load by load about 400 or 500 loads of coral (all this coral had to be collected and picked out of the sand at the beach), sand and limestone; they have napped all the stones for concreting, and mixed all the mortar, concrete etc. They have also got about 50 cement casks of clean water-worn broken shell, and this had to be gathered on the West Coast beach and carried up on their heads to the top of the cliffs and then carted over to the hospital. They have been a saving of hundreds of pounds to the department and have done their work faithfully.

They also built fences and looked after the animals that provided the meat for the medical staff (PMO 1910). Pritchard stated in 1913 that the Aboriginal men saved the department hundreds of pounds (PMO 1910) and praised Aboriginal men for their skills in maintaining the hospital facilities, adding that without them the islands would be in a state of disrepair (Pritchard 1913).

Local island resources were not used for the manufacture of goods apart from those associated with building. The presence of a few aesthetically pleasing shells associated with the Europeans accommodation most likely reflects collection as ornaments, collections for the sake of collection, and says very little about the use of island resources for practical purposes.

SUBSISTENCE

Europeans were well equipped for survival on the islands during the period of the Lock Hospital Scheme in terms of water, food and fuel. Supplies were both imported and taken from the local environment.

WATER

Given the dryness of the islands, the absence of known records of water being imported, and the records of infrequent supply runs to the islands from the mainland, water supply must have been an issue. The archaeological surveys revealed a number of different forms of water collection on the islands, from underground water sources to the collection of rainwater which was distributed by way of guttering, down pipes, and taps. Rainwater was collected from the hospital roof and drained into numerous metal water tanks located near each building and, eventually, into concrete storage cisterns (Briscoe 1996c:3).

Historical images show a windmill on Dorre Island directly behind the ward, implying an underground source of water, but there was no archaeological trace of such a source at that location. It is possible that the windmill seen in the historical photographs drove a pump to move water uphill from rainwater tanks on lower-lying areas. A windmill and associated well found near the outpatients buildings on Dorre Island does suggest the availability of underground water sources, however.

Two wells were also found to the north of the hospital sites on Bernier Island, and a cart was positioned to transport water to the hospital buildings from Windmill Flats. The location of the main water storage cisterns associated with European sites in very open spots visible from the European buildings on both islands, and the presence of a lock on the lid of the cistern on Dorre Island suggests that water was a controlled and rationed resource under the watchful eye of the Europeans.

FOOD

The archaeological survey shed very little information on the question of what Europeans ate on the islands. The few domestic animal bones and tinned foods found reveal little. No plant remains were identified. There was no archaeological evidence that local food sources were exploited. It is on record that domestic animals were imported to provide meat for the medical staff (Briscoe 1996c:3) and it is entirely possible that they were also kept for by-products such as milk. Watson (1968:54,58) also reported that flour, vegetables, baskets of fruit, casks of water and beer and tinned food were bought from the mainland. Archaeological evidence of tin cans found on both Bernier and Dorre Island supports this statement but were in too small a numbered and too degraded to determine the nature of the foods consumed.

The lack of tinned foods and the highly degraded nature of the cans that were found may also suggest that either not much tinned food was consumed or there was poor survival of tinned food cans in the archaeological record. Archaeological evidence found whole tins so maybe preservation was not an issue. However, in other Australian Institutions like the Peel Island Lazaret, food-related items such as gin and beer bottles and heavily corroded tin cans occur regularly across the island and Prangnell (2002:37) suggests that these artefacts gave some indication of the provisioning of the Lazaret by the Department of Health and Home Affairs, who operated the hospital for the entire period. The lack of items found on Bernier and Dorre Islands may suggest that there was a lack of provisioning from the Western Australian Government.

There is photographic evidence (Battye Library 3185B/cons) that fences were made to enclose imported sheep and goats. Photographs show people posed on horseback, with captions referring to ‘mustering’ (Battye Library 3185B/31). Animals must, therefore, have been present in large enough quantities to be consumed regularly.

The islands were seen to be capable of providing a variety of food sources for stock, including *Eulalia* which is often grazed by goats (Ride *et al.* 1962:61). Historically, stock has also been known to eat sandalwood (Bailey 1991:5) and maybe the Europeans thought this could be used as stockfood on the islands. Unpalatable leaves, which are avoided by domestic stock are, however, an unusual characteristic of the Shark Bay region sandalwood (Bailey 1991:5). It is possible that the stock did not last very long on the islands, as other attempts to stock the islands in the 1890s failed. On

the other hand, feral goat culling became necessary in the 1990s (DEC 2007). The animals culled were presumably the descendants of those left at the conclusion of the Lock Hospital Scheme, as there is no record of goats being taken to the islands after the scheme ended.

Watson (1968:51, 52, 61) described fish as being their chief food and that they would catch crayfish or large prawns on the Western side of the islands and fish with sharpened ten-inch nails hafted onto shafts off boats or in the shallows on the eastern side of the islands. He (1968:51) also suggested that

> Much of our food came from the sea. Snapper were the best and commonest eating-fish… filleted flesh could be cut off; the rest was head and bone.

However, no archaeological evidence of fish at any European site was found. Maybe the fact that the filleted fish could be cut off at sea and the bones disposed of in the ocean meant no archaeological traces remain. It is also possible that Aboriginal people went with the Europeans on fishing expeditions and it is possible that the presence of the wrasse (fish) bone found in the Aboriginal campsite may be attributed to these outings.

Watson (1968:61) also describes killing a turtle on the beach as they were short of fresh meat. Watson (1968:61) also describes giving the natives gifts of meat, eggs and fat. It is not surprising that very little evidence remains of the turtle, but the one turtle bone found at the Aboriginal campsite on Bernier Island may be evidence of this or an event like this.

Historical descriptions by Watson (1968) also describe the collection and consumption of oyster shells. It is entirely possible that hospital staff may have also collected shellfish and consumed them closed to the place of collection. Therefore, those few single use campsites determined to be of Aboriginal in origin that contained only oyster or other edible shells could in fact be European in origin.

Although no archaeological evidence for the consumption of plants could be found, historic photographs which show gardens and small fences and the presence of a watering can suggest cultivation. What people were growing is unknown, however.

While no edible plant material was recovered from European sites, a specimen of *Schinus molle* (pepper tree) which was planted by Europeans during the Lock Hospitals period (Ride *et al.* 1962) persisted. The red berries of this tree can be ground to make an effective pepper (Low 1992:185). *Schinus molle* was commonly planted throughout Australia as a shade tree (Low 1992:185). This specimen was probably used by Europeans rather than Aboriginal patients, as it was found next to the administration building.

The presence of beer and wine bottle sherds suggests that alcohol was important. The restriction of cognac and port bottles to the vicinity of the European accommodation on Bernier Island may reflect their rarity, and the status of the owners of these objects.

The presence of condiment bottles, including those for honey, sauce, pickles and chutney, identified by their readily distinctive shapes and inscriptions, indicate a preference or need for flavouring bland or poor quality foods. While such could be expected from tinned foods or boiled bones there were few food cans or bones to confirm that this is what the Europeans were eating. The presence of numerous teapots and teacups also tells us that tea must have been imported to the islands.

Some artefacts, like bread tins and the remains of a 'Coolgardie safe' (an early food cooling device), associated with the preparation and storage of food were identified. It is assumed from the presence of these other objects that the people on the islands must have had flour, fresh meat to keep cool and probably locally grown root vegetables.

The fact that many artefacts were discarded whole (bottles, ceramics, medical equipment) suggests that they were relatively easy to come by and easily re-acquired upon return to the mainland. It also indicates that the objects (at least those left discarded on the islands) had no emotional meaning to the Europeans, they were not personal, but public domain objects. It is also useful to note that none of the European objects were identified as modified or re-used in any way to suit other functions, suggesting easy access to objects as they were needed or wanted.

FUEL

Kitchen stoves, the laundry copper and the boiler in the structures built for Europeans meant that there must have been the regular use of some sort of fuel. Large scatters of

coke/coal were found near the administration building and laundry and there was evidence of the use of local resources for fuel in the presence of cut pieces of native wood. Shrubs and leaves would have also provided fuel for the stoves. They may also have used any wood left over from construction.

ABORIGINIES ON BERNIER AND DORRE ISLANDS

Remains found in association with Indigenous campsites yielded detailed information on housing, the use of space, food ways, household equipment, personal possessions and information on health and health care.

SITES

The archaeological evidence suggested that the Aboriginal accommodation was impermanent and made out of corrugated iron and canvas or that locally available resources such as the shrubbery were used for 'humpies'. Initially, historical reports by Bates (1938) suggested that shelters were constructed largely of tarpaulins, but avoided by patients who built their own brush shelters. Historical photographs also depict sick Aboriginal people residing in the wards and it is equally likely that during bad weather Aboriginal people lived inside the hospital buildings and European built structures, though little evidence except for a few flaked artefacts remains of their occupation.

Aboriginal sites on Dorre Island were discretely located out of view of the hospitals and given the position of the mortuary overlooking them from the west, probably meant that they were purposefully hidden in the sand dunes and directed east looking home over the ocean, rather than at the hospitals or mortuary buildings. Equally, it is likely that the sites could have been located in these positions for protection from the weather or to be near the coast, allowing easy access to marine resources and to the cooling ocean breezes. The sites themselves probably extended all along the coast, but blow-outs in the sand dunes may have covered over many sites.

Aboriginal sites on Bernier Island were located inland, sometimes near quandong trees or next to the ward. It was not expected that archaeological material would occur on the ridge in the middle of the island which was dry and covered in spinifex, unless there was some specific advantage to be obtained from this area at times.

The question which remains is the extent to which the differences between islands in this respect reflect differences in diversity of the Aboriginal groups assembled on each island, differences in men's and women's traditional hunting and gathering practices or differences in the extent to which Europeans were willing to trust the different groups out of their sight.

Most sites on both islands were located within easy walking distance (one kilometre) of the ward, allowing access to rations and medical treatment. Birmingham (2000) has suggested that at institutions such as the Killalpaninna Mission, South Australia there seems to be a steep drop off of sites beyond about one kilometre from the main buildings. No sites were located within the study area further than one and a half kilometres from the hospital locations - probably about the distance sick patients could be expected to travel. While the sickest patients were confined to the wards, Aboriginal people preferred to sleep outside (Lock Hospital Staff 1911).

Birmingham (2000) has also suggested that Indigenous peoples lived close enough to the missions to receive rations, blankets and medical care. This may explain the small distances from campsites to the hospitals at Bernier and Dorre Islands. Birmingham (2000:395) also noted that many of the Aboriginal sites at Killalpaninna were out of view of the hospital. The campsites on Bernier and Dorre were also out of view of the hospitals, separated by sand dunes. The location of the campsites close to, but out of direct sight of the mission was held by Birmingham (2000:400) to provide strong evidence for continuity of traditional lifestyles. The same reason may apply to the choice of locations of the Aboriginal campsites on Bernier and Dorre Island campsites.

The shelters on Bernier and Dorre Islands were very small. There was evidence in the remnants of the shelters that European building materials and locally available wood were blended in their construction (Battye Library 21074BP and 21075P) (Figures 6.19, 6.20, 6.21), modifying both local and European elements to suit the Aboriginal lifestyle. Similar Aboriginal institutions, such as those in Queensland from 1900, used corrugated galvanised iron and assorted reused material for building Indigenous structures (Sutton 2003:85). This type of housing provided inadequate protection from the elements and contributed to poor living conditions. The poor accommodation provided to the Aboriginal patients on Bernier and Dorre Island probably also contributed to the living conditions and death rates.

The inequality in accommodation between the Europeans and the Aboriginal patients is evident in the inequality of materials, construction, furnishing, and the size and position of housing. Indigenous housing was constructed of shoddy, perishable materials and was smaller in size than the houses for Europeans. Sutton (2003:85-86) has suggested that marked differences in accommodation between the institution and the instituted is a common theme. However, it is entirely possible that Aboriginal people preferred this type of accommodation, which was similar to traditional construction. That is, differences seen in the archaeological record may be an artefact of cultural choice rather than of deliberate inequality of resource allocation. The question remains, of course, as to the meaning of these differences to the people at the time.

Singleton (1995:123) feels that archaeology contributes information important to the understanding of the housing issues of 'enslaved or interned people'. General details on size, dimensions, materials and method of construction indicate how people lived in their homes and how they modified their spaces to suit their own needs. Although Singleton's (1995:124) study is of slave quarters in the Americas, it can equally be applied to circumstances where people were 'incarcerated' by other ethnic groups and forced to live under their rules, such as at the Lock Hospitals. The fact that Aboriginal patients sent to the Lock Hospitals were forcibly removed from their homelands, lived in small temporary, poorly constructed, three sided corrugated iron and shrub made shanty accommodation on the islands, with male accommodation slightly more sophisticated then females, made to do manual tasks and were not encouraged to practice cultural beliefs (burials practices) also exemplifies this.

Singleton (1995:124) also says that while slave quarters reflect imposed European architectural designs, they also provide evidence that their occupants created their own sense of space. On Bernier Island we can see this in the modification of European supplied corrugated iron and canvas structures, as well as in the use of Indigenous materials to make up housing. In historical photographs we see evidence for the use of space outside these structures for living areas, daily activities and camps.

MANUFACTURED/MATERIAL GOODS

The manufactured goods at sites associated with Aboriginal occupation reflect those of European life, including both unmodified and modified European objects, and material from the local landscape. The manufactured goods found at Aboriginal sites appear to have been limited to those given to them by Europeans and were usually of poor quality and plain design. However, there was evidence that the Aboriginal people made use of the natural resources to create personal items, such as perforated shells for adornment and flaked bottle glass and limestone for traditional tools.

Fifty three pieces of building materials, 146 glass fragments (non flaked), 24 pieces of tin cans, five pieces of enamelware, 13 clay pipe fragments and 15 pieces of ceramic were found at Aboriginal camp sites. The ceramic sherds were all enamelware (another cheap form of tableware) or from poorer quality creamwares. Similarly, as is the case at slave sites, less expensive undecorated or minimally decorated wares occur in higher quantities than the more expensive, decorated wares (Singleton 2001:109). The use of government supply utensils clearly predominated on the islands. The presence of a few clay and bakelite pipes at Aboriginal sites suggest that they enjoyed smoking at times, and must have had access to tobacco. This was most likely acquired from Europeans, possibly in exchange for work. As at other institution sites (Singleton 2001), the recovered artefacts suggest that the Aboriginal people acquired these objects through purchase or trade, and therefore represent, to some extent, their personal tastes in self presentation; that is these household objects were acquired through purchase rather than issued as provisions from the government. However, it is noted that although people could exercise some choice in the objects they acquired, the selection made available to them was limited. The large amount of buttons found associated with the Aboriginal sites may be a result of this.

Very few of the glass fragments at Aboriginal sites were obviously related to the use or consumption of liquids. While the presence of whole bottles suggests that the contents were important, broken glass suggests that it was the glass itself that was more important. Few Indigenous sites contained flaked lithics or flaked vitrics, probably because broken glass as such, wooden tools or European kitchenware could be used for the same purpose.

No flaked stone artefacts were found on Bernier Island. The absence of lithics may have been due to the poor quality of natural sources on the island. The rock on

Bernier Island is made up of very coarse grained quartz and shelly calcarenite (Ride *et al.* 1962), which is a difficult source for the production of useable flakes. The fact that better European material was present in abundance would be a further reason why the Aboriginal people did not attempt to exploit lithic material resources for tools. Evidence of modification of European material, particularly glass, was common. The presence of Aboriginal flaked tools provides direct evidence that Aboriginal people were on the island and exploited objects discarded by Europeans. This evidence also confirms Watson's (1968:64) observation that their instruments for dismembering a turtle were pieces of broken glass from a bottle.

Very few traditional tools were found on Dorre Island, probably because they are usually associated with men. Few of the tools showed evidence of retouching, but over 90 unmodified glass objects testify to the presence of sufficient qualities of raw materials for the task of manufacture. A number of dumpsites with good quality materials could have been sourced for tools. Evidence also suggested that the women retrieved marine resources and caught small animals, which probably did not require such tools. Other perishable objects or single use objects may have been employed as needed. Some stone tools were found on Dorre Island as well as a hammer stone probably used for smashing open oyster shells.

While some glass tools, particularly those that looked like scrapers, had plant fibres on them and small flakes were found associated with shellfish, the other types of tools found do not necessarily indicate that the Aboriginal men hunted animals. For example, a number of the glass points on Bernier Island are aesthetically pleasing but not very practical for hafting. In making them the Aboriginal people were either practising their skills or producing them for the Europeans. What on the island they would have hunted with glass tipped spears is a mystery. Most animals would have been small enough to catch using simple nets or traps.

The presence of so few personal items suggests that either the Aboriginal patients did not bring items with them to the islands or make many items on the islands, probably because of their rapid round-up and transfer and the lack of knowledge of island resources or alternatively, they may have been buried with these items or took them back to the mainland once discharged. Besides stone tools, the only other items found were perforated pearl shells. That these shells had holes drilled through them indicated their use as personal adornment (Colley 2005:76). The main pearl shell recorded as having been worn by Aboriginal people was the large pearl shell *Pinctada*

maxima (Akerman 1993:1), but this species is not known to occur around the Shark Bay area. Other smaller species of pearl shell, like the one found in the waters around the islands, were used instead. Australian Aboriginal use of pearl shell for secular and other purposes has been noted from an extremely early period of contact (Akerman 1993:xi). Pearl shell ornaments have been dated to as old as 30,000 years at sites like Mandu Mandu, Devils Lair and Riwi Cave (Balme and Morse 2006). Shells have meaning other than as food sources in Indigenous cultures, however. Some shells are worn as public decorations while others possess a secret meaning (Akerman 1993:xi). Shells can be an emblem of power as well as aesthetics. Akerman (1993:1) indicated that shells are not only associated with males, but that women and children may possess or wear shell as personal ornaments or in ritual contexts. Akerman (1993:27) believes that pearl shell played an important role in ritualised socio-economic exchanges, but the shells found on Bernier and Dorre Islands seemingly discarded unfinished perhaps indicate that they were not used in this way. Shells taken back to the mainland may have served this function.

Although no historical records for the prohibition of personal objects by the hospital staff exist, it may reflect why few personal items were found with the Aborigines on Bernier and Dorre Island. Although it is probable that illicit materials found their way to the islands, these items could not have been disposed of through normal channels and it is reasonable to surmise that illicit items may have been dumped in the bush (Prangnell 2002:37) – though no evidence suggested this. Photographs do show however that women possessed personal items in the form of body ornamentation, though they may not have been recognised as such by the hospital staff, and items of true importance may have been removed. Alternatively, the wearing of shell adornments may have been a form of resistance.

European objects such as combs, building material, a metal file and buttons were found at Aboriginal sites on Dorre Island. These items appear to have been used in different ways, for shelter, for hunting and collecting animals in cages or traps and for use as utensils or tools. European objects found at Indigenous sites were mainly subsistence and status objects. European materials at Aboriginal campsites do not appear to have been used according to their original function. Bricks for example, were used for hearths. Many buttons were found at Aboriginal sites without any evidence for their attachment to clothes. As the majority of buttons were found on Dorre Island it may reflect the fact that the women (both the nurses and Aboriginal

females) did the sewing and the buttons may be explained by these activities rather than from their use on clothing.

It was originally expected that some evidence of rock art, engravings and grinding patches would be found on the natural outcrops on the island so the research methodology did incorporate looking for this evidence on both natural outcrops as well as artificial rocks like buildings and concrete pads. However, surprisingly few natural outcrops were found and no evidence was found on European structures.

Although the limestone nature of the islands makes them good places for finding engravings, the lack of natural rock outcrops across the islands probably explains this absence. Any limestone that was found flaked off in small pieces from around the cliffs on the islands - good for making portable objects but not good for engraving sites.

The complete absence of any hard rocks like granite and dolerite, typical of the material used for finding grinding patches found across the rest of the state would explain the lack of grinding patches. One also does wonder what they could have been grinding, as there are few native grass seed varieties, or at least too small in quantities that would warrant effort for grinding, and they were probably given rations of pre ground flour, as is recorded in historical records.

The lack of rock art is also not surprising as no known habitable caves, overhangs or cavities exist on the islands – places that are usually used for rock paintings. Again one does wonder at the source of the paint as the islands do not naturally produce ochres and there is no evidence of Aboriginal people being allowed to bring these items to the islands. Although, historical photographs do show evidence of the Aboriginal people being painted with some form of paint, probably clay, this would have been an unlikely choice for any rock art paint as it is not normally considered a paint choice for caves as it weathers quickly and is not easily applied to rock surfaces. Alternatively, European paints could have been used, but no evidence was found on the islands in the form of paint tins or painted building materials and no photographs of the island show painted buildings.

One possibility that may explain the lack of evidence on artificial places is that many building structures were removed from the islands in the early twentieth century,

taking away any evidence. However, this is probably unlikely as the walls of the building were made of a tarred canvas which does not warrant a good surface for paintings.

At other places such as at the Peel Island Lazaret, scarred trees have been found. These are trees which have been scarred by Aboriginal people through the deliberate removal of bark or wood (Long 2003). The bark is usually removed from the tree because it is a versatile and plentiful material, which can be used for shelter, bowls, shields and other artefacts for collecting foods (Long 2003). Before survey work was undertaken, it was expected that some of the trees may have had evidence of cultural scarring, but the lack of suitable trees in terms of size and bark quality was not conducive to making cultural items from the bark of trees and hence no scars remain.

Alternatively, the Aboriginal patients may have been too sick, too disempowered or controlled to be able to undertake such activities.

SUBSISTENCE

The elements needed to support the Aboriginal patients on the islands including water, food and fuel were acquired from Europeans and from the exploitation of the local environment.

WATER

There is no evidence of bores to underground water near the Aboriginal sites, but there was evidence that all stored water sources (major storage cisterns and water tanks) were controlled by Europeans and, presumably, rationed. Natural water soaks were found on the island, and it does rain frequently throughout winter, so Aboriginal people could have collected water this way. Briscoe (1996c:3) suggests that the women ‘dug holes in the sand to access the underground water system and then carried the fresh water back to the hospital’s kitchen’, and the men probably did so too. The presence of many Aboriginal campsites and middens next to small seasonal stream beds and water soaks suggested some independent supply of water for the Aboriginal people. This was probably only possible seasonally, however, so for at least parts of the year water could only be obtained from European supplies.

FOOD

The intent of the scheme was to let Aborigines collect food resources themselves (West Australian 1909). Some Aboriginal patients did. Historical evidence suggests that turtle eggs, shellfish, goannas and wallaby meat formed the staple diet of the Aboriginal patients during the summer (Chief Protector of Aborigines 1909) though Bates in 1910 (1938:99) claimed that 'there were plenty of wallabies, but most of the natives were too emaciated or ill to go hunting'. It is also likely that many patients came from districts where their food gathering experience was inapplicable to the island environment. Archaeological evidence suggests that parts of domestic animals, whole native fauna and ocean resources were included in the diet. However, it is likely that many more varieties of food sources were exploited. In traditional settings many plant foods, including fruits, bulbs, nectar, gums and marine resources like oysters and other shellfish are eaten fresh and raw as soon as they are collected (O'Dea 1991:237). That is, such materials are unlikely to be found in camp middens and hence in the archaeological record.

However, the archaeological evidence does show that at least one of the island resources, the oyster beds located on the coast was exploited by the Aboriginal patients, as 37 Aboriginal campsites on Dorre Island and 14 campsites on Bernier Island contained oyster shells. This is consistent with Watson's (1968:50) observations.

> Of most practical interest to the hungry men are the small but sweet oysters which, clustered upon themselves, make rocks of their own groupings

Watson (1968:61) also recorded that the Aboriginal patients would catch black, slug- and vegetable like creatures (sea cucumbers/trepang/holothuroidea) and slit them open and dry them in the sun. As these only live in sub-tropical/tropical environments it is likely that only those Aborigines from the north of Western Australia would have known how to exploit them.

Although no plant remains were evident in the archaeological surveys some species known to be used in traditional foods were present on the islands (refer to Chapter 3 for more detail). Aboriginal people have been reported to eat roots, starchy tubers, seeds, fruits and nuts (O'Dea 1991:233).

Many of the people collected for the scheme lived around towns and were likely to have been accustomed to some sort of rationing. They may not have wanted to exploit island resources. That this was the case is suggested by the findings of the 1905 Roth commission that approximately four and a half thousand Aborigines were in service to Europeans in Western Australia (Jebb 1984:70). If they (and their dependents) were employed they were entitled to rations of flour, tea, blankets and some clothing, although whether many of them got these is uncertain. Many of the Aboriginal people transported to the islands were taken from station properties.

Furthermore, many Aboriginal people were either too sick to find their own food or came from districts where their food gathering experience was unsuited to the island environment. Rations were therefore supplied by the Europeans (Lovegrove 1909). Bates (1938) claimed in 1910 that communities were so dependent upon supplies that the position became pitiable when weather conditions delayed stores from Carnarvon. Despite difficulties of supply, the occupants of the islands appeared from the archaeological evidence to retain a heavy reliance on sheep/goats in preference to readily accessible native fauna. Stores of food (including livestock, garden and imported foods) were located in close proximity to the Europeans. This control of the limited resources fostered dependency on the part of the Aborigines. This would mean that to obtain food in a resource poor environment the Aboriginal patients would have to come to the hospital areas for ratios. Maybe rationing food was a way the medical staff could make sure that patients were receiving treatment/medicines as it could easily have been a trade (forced treatment for food). The common treatments at the time (Salvarsan) was also known to have severe side effects by weakening the patients leaving them unable to hunt for reptiles, birds, wallabies or to collect plants and shellfish around the islands, again fostering the dependence of rations.

The domestic animal bones found at Aboriginal sites also suggest that the Aboriginal people ate domesticated animals. The butchery patterns seen on the domestic animal bones, specifically those identified as sheep or goat, were consistent with the position of sharp saw like marks on the bones and breakages of skeletal elements as seen with Anglo-Australian preparation methods (McVicar 1993). It also noted that some of the cut marks may have been created by Aborigines using European objects like axes, hatchets or saws. However, these butchery patterns did not reflect those of traditional Aboriginal butchery in which everything on an animal carcass was eaten including

bones being broken open to obtain marrow (O'Dea 1991:233). The domestic bones were possibly the remnants of meat given as rations.

Animal bones associated with Aboriginal occupation were generally from the poorer parts of the animals such as the axial skeletons (vertebrae, scapula, ribs, pelvis). It is commonly assumed that the meatier parts of the animal such as the legs and main body muscles provide better quality meat and the feet and head parts the poorer parts and affordability and accessibility usually determine the parts of animal different hierarchical groups eat. That is, the better parts of the animal are usually reserved for higher status people. This is not always the case however, as wealthy households commonly consume inferior meat parts like heads and feet as delicacies (Bowen 1992:276). Other factors, such as how the cut is used and the way it is cooked, can also demonstrate status (Bowen 1992: 276). It is also noted that many of the best cuts of meat actually contain no bones and hence there is no way of knowing who consumed these items from archaeological records. Those who had first access to the meat (the Europeans) probably did.

It is most likely that the parts of the animals represented in the archaeological record on Bernier and Dorre Islands reflect the fact that Aboriginal rations consisted of the parts from the domestic sheep and goats left over after Europeans had taken the parts they wanted. The explanation for the cattle bones and the fact they were comprised of short sections of ribs is consistent with their origin from salted, tinned or barrel foods (English 1990). That they were found in association with Aboriginal and not European sites suggests that such low quality of sources of meat were kept as rations for the Indigenous patients.

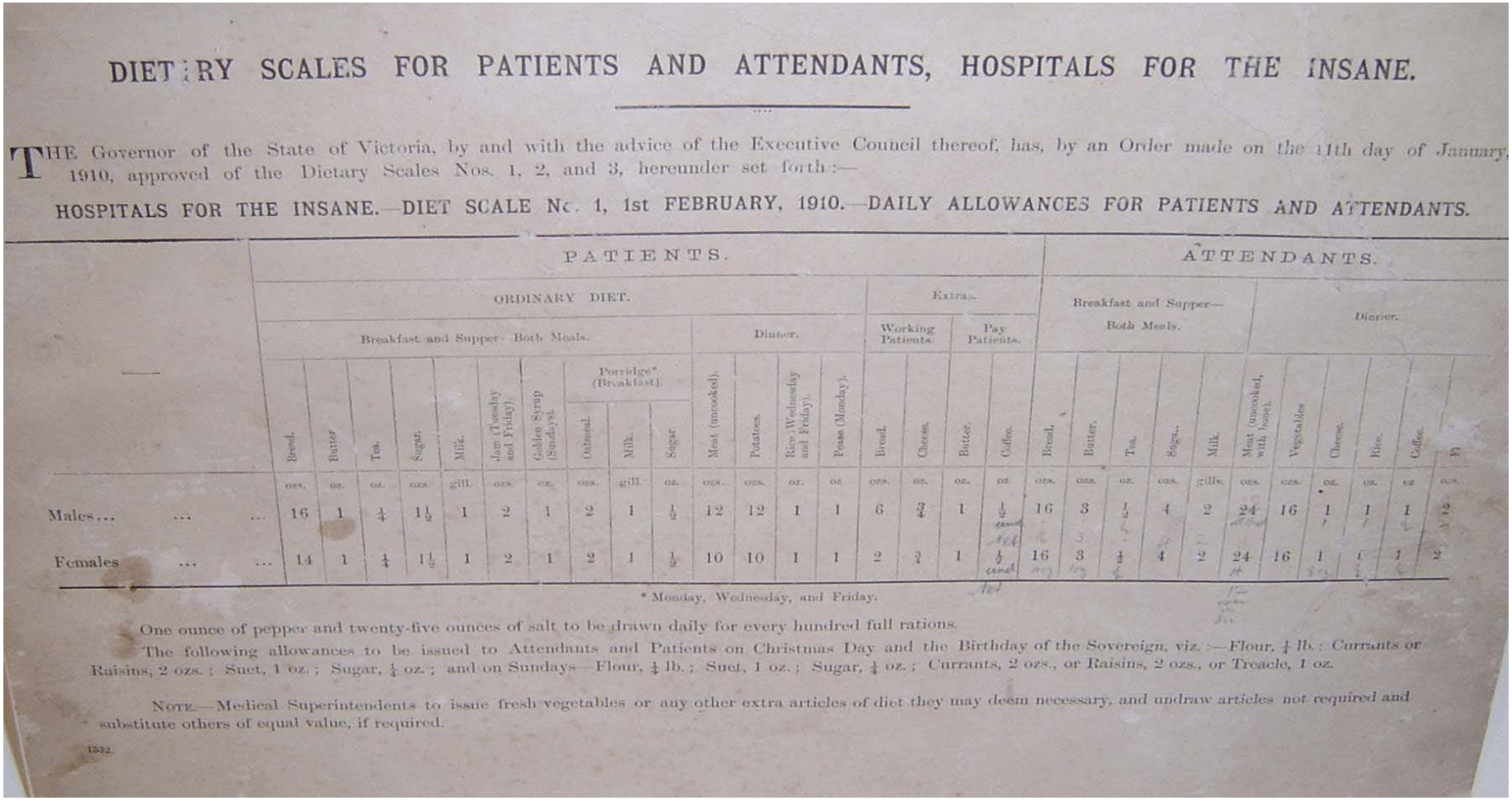
Rations on the islands were recorded as being halved in 1909 to ten pounds of flour, one and half pounds of sugar and one quarter of a pound of tea per week (Jebb 1987: 106-108). The government arranged for accounting books to be sent to the islands in all years, and in accord with a desire to keep costs to a minimum, ordered that the meat ration to Aboriginal people be withdrawn. The rationale for the withdrawal was to force Aboriginal people to utilise the available game on the island and in the surrounding oceans. This did not prove successful, however and Lovegrove continued to provide meat to Aboriginal people who would otherwise have gone without (Annual Report of Aborigines Department 1908-1917 cited in Jebb 1987).

The apparent lack of hunting and gathering on the islands could have been the result of the patients being too incapacitated. Another possibility is that they were prohibited from hunting and that they had to rely on rations. Food provisioning could have been another way in which the Europeans exerted their control over the Indigenous people. They had control over what types of food the Aboriginal people got, and how they cooked it. Even the insane in Australia seem to have received better provisions than the Aboriginal people incarcerated under the Lock Hospital Scheme (Figure 11.1). On Fantome and Palm Islands it was historically recorded that food provided to patients was nutritionally inadequate and dangerously low in vitamin content (Parsons 2008:48). This was probably the case at Bernier and Dorre Island as they too were only rationed flour sugar and tea. However, at other times during the scheme the medical superintendents were relatively free to order extra food from Carnarvon, and from 1913 vegetables were added to the diet. From that time onwards the ration of flour, tea, sugar and meat was assured unless the supply boat was late (Jebb 1987) and there was no need to hunt.

No direct archaeological or documentary evidence of flour, vegetables or non-faunal dietary items was identified at Aboriginal sites, and the extent to which the produce of the Europeans' gardens was shared or used in rations is unknown. Records suggest that the rations distributed were not sufficient to form a complete diet and much of the Aboriginal food would have had to come from natural resources gained as a result of the patients' own exertions.

Historical and archaeological evidence does suggest that control of people on the islands probably was maintained by rations, however it is clear that this was not the message the government was sending to the public. The government wanted to justify their method of letting the Aboriginal people live 'traditionally', and that if they could not get resources off the island it was due to their own incapability.

> The female patients are allowed to live in their own natural way as far as possible, game is at present very plentiful and hunting and fishing are the principal occupations of those who are fit to do it (Chief Protector of Aborigines 1909).



DIETARY SCALES FOR PATIENTS AND ATTENDANTS, HOSPITALS FOR THE INSANE.

THE Governor of the State of Victoria, by and with the advice of the Executive Council thereof, has, by an Order made on the 11th day of January, 1910, approved of the Dietary Scales Nos. 1, 2, and 3, hereunder set forth:—

HOSPITALS FOR THE INSANE.—DIET SCALE No. 1, 1st FEBRUARY, 1910.—DAILY ALLOWANCES FOR PATIENTS AND ATTENDANTS.

	PATIENTS.																		ATTENDANTS.										
	ORDINARY DIET.													Extras.					Breakfast and Supper—Both Meals.						Dinner.				
	Breakfast and Supper—Both Meals.										Dinner.					Working Patients.		Pay Patients.											
	Bread.	Butter	Tea.	Sugar.	Milk.	Jam (Tuesday and Friday).	Golden Syrup (Sundays).	Porridge* (Breakfast).			Meat (uncooked).	Potatoes.	Rice (Wednesday and Friday).	Peas (Monday).	Bread.	Cheese.	Butter.	Coffee.	Bread.	Butter.	Tea.	Sugar.	Milk.	Meat (uncooked, with bone).	Vegetables	Cheese.	Rice.	Coffee.	Jam
								Oatmeal.	Milk.	Sugar																			
	ozs.	oz.	oz.	ozs.	gill.	ozs.	oz.	ozs.	gill.	oz.	ozs.	ozs.	oz.	oz	ozs.	oz.	oz.	oz	ozs.	ozs.	oz.	ozs.	gills.	ozs.	ozs.	oz.	oz.	oz	ozs.
Males	16	1	¼	1½	1	2	1	2	1	½	12	12	1	1	6	¾	1	½ and ½	16	3	½	4	2	24	16	1	1	1	2
Females	14	1	¼	1½	1	2	1	2	1	½	10	10	1	1	2	¾	1	½ and ½	16	3	¼	4	2	24	16	1	1	1	2

* Monday, Wednesday, and Friday.

One ounce of pepper and twenty-five ounces of salt to be drawn daily for every hundred full rations.

The following allowances to be issued to Attendants and Patients on Christmas Day and the Birthday of the Sovereign, viz.:—Flour, ¼ lb.; Currants or Raisins, 2 ozs.; Suet, 1 oz.; Sugar, ¼ oz.; and on Sundays—Flour, ¼ lb.; Suet, 1 oz.; Sugar, ¼ oz.; Currants, 2 ozs., or Raisins, 2 ozs., or Treacle, 1 oz.

NOTE.—Medical Superintendents to issue fresh vegetables or any other extra articles of diet they may deem necessary, and undraw articles not required and substitute others of equal value, if required.

1532.

Figure 11.1. Provisions for the insane, Melbourne (n.A 1910). Courtesy Melbourne Museum Exhibition Display December 2007.

The presence of cooking pots and billies together with native animal remains at campsites on Bernier and Dorre Islands support the picture of Aborigines receiving rations, but supplementing them with local resources and cooking their own food, rather than eating what was given to them at the hospitals like the occupants of Killalpaninna mission (Birmingham 2000:394).

The islands do carry a variety of small wallabies, reptiles and other wildlife as well as edible plants (Ride *et al.* 1962). Their location adjacent to Shark Bay, which is rich in fish, shellfish and marine mammals including dugongs and turtles, suggests that the majority of resources that could be collected were marine. Up to six thousand marine turtles presently inhabit the Shark Bay waters and during summer female green turtles lay their eggs on the white sandy beaches of Dorre, Bernier and Dirk Hartog Islands (Bailey 1991). The presence of marsupials, fish and turtle bones and shellfish at Aboriginal campsites and the likelihood of smaller animals being consumed whole (lizards) or animal remains being disposed of in the ocean suggests that at least some of the Indigenous patients on Bernier and Dorre Islands had the knowledge to exploit island resources. It was likely that Indigenous people from inland areas knew how to exploit animals on the island such as the rufous hare wallabies, as they were major sources of food for the desert people (Helms 1896; Finlayson 1935).

An interesting difference was seen between Bernier and Dorre Islands in this respect, however. The archaeological evidence suggested that the use of ocean resources was limited on Bernier Island. This may be because Aboriginal males came from areas such as the Goldfields and Pilbara where marine resources were infrequently eaten. Watson (1968) says that 'most of them had never seen the sea before'. Alternatively, it may be as Mulvaney (1989:190) suggested that the plentiful natural food supplies of fish, crustacea, turtle eggs, wallaby and lizards, were not exploited to any extent after the first months of occupation. Lovegrove in his report of April 1909 mentioned that turtle eggs and meat were a staple diet of the Aboriginal patients during the summer, where wallabies were hunted for meat and that iguanas [meaning local lizards] were also obtained in large numbers. No mention is made of patients hunting after the first few years. No absolute dateable material which could be used to confirm this pattern was found in any midden. The limited number of native marsupial remains and lack of evidence as to how Indigenous people caught them support the view that hunting diminished over time.

Food remains could provide information on the kinds of foods Indigenous patients consumed, but their frequency and nutritional value do not always show up in the archaeological record. Many remains, such as soft meat and plant material, do not survive, making it hard to judge the quantity of food consumed and its availability over extended periods. Questions concerning diet could possibly be resolved by analysis of human remains, but legal and moral considerations mean that such an approach is generally avoided in archaeological investigations of the recent or Indigenous past (Singleton 1995:172-173).

Very little evidence pointed to how the Aboriginal people ate their food or what implements they used. The presence of a few sherds of ceramic and enamelware at Aboriginal sites tells us very little except that they probably did not use utensils for preparation or consumption of food in the manner of Europeans. However, the presence of cast iron cooking pots and billies suggests that there did not seem to be any real resistance to use of European goods for food preparation.

FUEL

As the patients were living a 'natural' lifestyle it is presumed they used hearths and slept around campfires. The presence at a number of sites (particularly that of B9a on Bernier Island) containing hearths of burnt native woods, bones and other artefacts provided evidence for the Aboriginal people using fuel. The fuel to supply these campsites probably came from natural vegetation, driftwood or discarded building timbers, though the particular varieties used is unknown. No evidence remains for what other Aboriginal camps used. Given the close contact between the Europeans and Aboriginal people on Bernier Island, the Aboriginal people may have shared fuel sources with the Europeans. Unlike Bernier Island, where it seems that male patients and staff worked together for resources, it appeared unlikely that the Europeans shared fuel with the Indigenous patients on Dorre Island, especially since, at the time, exposure to the elements was a common treatment of their diseases.

PARTICULAR INDIGENOUS GROUPS ON THE ISLANDS

We know from medical admission records that the majority of people on Bernier Island were men from the Goldfields and Pilbara while those on Dorre Island were women from the Kimberley and Pilbara regions of Western Australia. The question is

whether their origins are reflected in their use of the islands and in the archaeological record.

The first indication that this is so lies in the location of the sites. Most sites on Bernier Island were inland, away from the dune systems and on flat land. The knowledge that the Pilbara and Goldfields patients came from areas where it was necessary to exploit inland species led to the expectation that more inland species such as lizards and wallabies would have been used for food than was evident in the remains found. Similarly, given the number of patients from coastal areas like the Pilbara and the Kimberley, more evidence of exploitation of marine resources on Bernier Island could be expected than the 18 sites which were found with marine shells in such quantities that could not be explained by a one-off meal.

On Dorre Island the continuation of familiar practices may be reflected in the mainly coastal situation of the Aboriginal sites. The Pilbara and Kimberley people are most likely to have come from areas that exploited coastal resources, or at least had knowledge of them. The large quantity of oyster shells and exploitation of marine resources and native marsupials also suggests familiarity with these sources of foods.

Two types of traditional artefacts, the glass points found on Bernier Island and the perforated pearl shells for adornment found on both islands as well as the descriptions by Watson (1968:61) of holothuroidea (trepang) being exploited can be attributed to the presence of coastal, northern Australian Aborigines. The use of pearl shell is common amongst Kimberley Indigenous people (Akerman 1993:1) and trepang only lives in the north of Western Australia. The finding of these objects does not necessarily mean that coastal, northern Australian people made or used them, however, as they and the knowledge to exploit these resources were widely traded across Australia (Akerman 1993:1). As we know that many coastal, northern Australian people were sent to the islands the presence of traditional artefact types suggests that they probably were, however.

MORTALITY

Mention is made in the historical records of cemeteries for Indigenous patients. Daisy Bates (1938:98-99) observed at least 38 graves on Bernier Island and she commented that she ‘dare not count the graves ’ and ‘deaths were frequent – appallingly frequent,

sometimes three in a day – for most of these natives were obviously in the last stages of venereal diseases or tuberculosis'. The absence of evidence for burials or grave markers on the islands is surprising given the records of deaths and burials on both islands and the presence of a mortuary on Dorre Island. It is consistent with the failure of all other expeditions to the islands (Ride *et al.* in the 1950s and by representatives from CALM, DIA and descendants from the scheme in the 1990s) to locate burial grounds.

The spatial relationship between the position of the documented cemetery and the Aboriginal camps is interesting, as the historical documents (Bates 1938) suggest that graveyards were placed in such a way as to be within sight of patient living areas. The nomadic background of Indigenous people leads to the expectation that they would move camp if they were forced to look at gravesites all day. If, on the other hand, the accounts were describing the living quarters, it would suggest that the graveyards were located close to the wards in the dunes, possibly right near the mortuary. It is possible that references to the graveyard actually meant the mortuary. None of the present dune systems matches those in photographs of gravesites, and no archaeological evidence of their location at this site was found. If anything, the topographical evidence suggested that the graves could be located almost 400m north of the ward, away from any Aboriginal campsite.

The fact that graves were not marked or recorded may tell us more about the attitudes of those on the islands than their presence would. Historic photographs show evidence of only four wooden crosses marking graves, leading to the question of the location or marking of the rest of the burials described by Daisy Bates (1938). Because of the absence of grave markers or an indication of a cemetery the possibility must also be entertained that the deceased patients may have been buried in unmarked graves or in mass rather than individually marked graves and that the four crosses depicted indicated no more than the general area of interments. However, mass graves are only likely if large numbers of people died on a single day, which historic medical records (Pritchard 1929a-f) suggest did not happen. Further archaeological surveys, forensic soil tests for the presence of decaying matter, excavations, ground penetrating radar and other geophysical techniques could assist in answering these questions if the Indigenous custodians ever thought it desirable to do so.

Bates' (1938) description of how 'a dead body would be wrapped in a blanket and carried away to be buried in the sands' suggests that little would have been likely to be preserved. Records make clear however, that the treatment of the dead was not in accord with the beliefs of the Indigenous people. An account of one of the nurses published in the *West Australian* in 1910 exemplifies this.

> ..seeing many deaths, performing the last rites of preparing the bodies, sewing nine of them in blankets, closing their eyes in death and stretching their legs, for unless I happened to be present at the actual death they invariably doubled their legs behind the back, I could never get used to the frightful dirge, indescribably weird…. I tried every means of preventing this but in vain (West Australian 1910).

No care was taken to bury patients in their traditional way, as is reflected in the use of Christian crosses for grave markers, the burial of people in the traditional Christian position, flat on back, and as Bates (1938:100) observed, the use of other patients to bury the dead 'whose spirit would certainly haunt them'.

MEDICAL TREATMENT

While medical objects found on the islands were assumed to be for diagnoses of diseases or the treatment of Aboriginal patients (use on Aboriginal patients is recorded in historical documents), the association of most medical and tonic bottles and all medical equipment with European sites and hospital buildings indicated European control of medical resources (evidence of locks).

EUROPEAN MEDICINES

Evidence for medicines found on Dorre Island comprised 48 objects and on Bernier Island only 21 objects. These included medicinal bottles, tonic bottles, mixing bowls, test tubes, pipettes, flasks, syringe plunger, microscope slides, ceramic crucibles, shaker lids and glass funnels. The only evidence of the specific content of medicine was a heavy metal compound residue in one bottle and a ceramic crucible containing a mercury-like residue (similar medical objects have been found at the Peel Island Lazaret (Prangnell 2002). The shaker lid was presumed to be used for applying powdered medicines to diseased tissues and the syringe plunger for the injection of medicines. The glass test tubes, mixing bowls, pipettes, flasks and funnel were thought to be used for the preparation of medicines and the microscope slides for examination of the diseased parts. However, what was contained in the majority of

medical bottles is unknown and few markings or labels exist that could give hints to use.

Knehans' (2005:44) study of dispensary bottle label types suggests that most (66%) bottles of the time had printed labels and a few (2%) were engraved. None of the bottles on the islands could be specifically identified as having contained any particular medicine as most were not embossed or labelled. Many bottles would have had paper labels that did not survive (Knehans 2005:43) or were unlabelled because the medicines were controlled by doctors who could recognise their contents without the use of labels.

Patent and proprietary medicine bottles are the most commonly recovered pharmaceutical artefacts in the archaeological record (Knehans 2005:41). These types of medicines were popular because of their ease of acquisition and relatively low costs (Knehans 2005:41). It is surprising, given that the government was providing the funds to acquire medicines and that a constant use of medical objects would lead to the probability of the discarding of broken or obsolete items (Knehans 2005:45) that so few medical remains were found on the islands and most unbroken over one hundred years after the discard. This suggests that they were discarded at the end of the scheme when they were no longer needed, rather than with use in the course of the scheme to cure patients. It may have been that there were no patients to treat – those people sent to the islands did not need to be 'cured' from syphilis. An alternative explanation may be that the treatments involved tablets which were stored in tins or boxes, packets, papers or other materials not preserved in the archaeological record (Graham 2005:52). Graham noted that,

> Thousands of patent medicines existed and were common worldwide throughout the nineteenth and twentieth centuries, and yet most of these products are not present in the archaeological record (Graham 2005:52).

Many medicines may have been imported into Australia in vats or kegs (Graham 2005:50). Given that the islands were hospital environments in which large quantities of medicines were needed, this is a distinct possibility. No such large containers were found however.

A lack of medical bottles in other historical sites is often attributed to the action of bottle collectors, but this seems unlikely on Bernier Island, as minimal visitation has

occurred. The presence of complete bottles and other collectable objects at the beach near the mooring to the islands also lends weight to such an interpretation. It may have been that the products were expensive, not available locally, not discarded at the site, or never there in the first place. This begs the question of what treatments were actually being used for the Indigenous patients and were there limits on what was spent on medications? It is possible that many of the medical bottles and other medical equipment were taken off Bernier Island and sent to Dorre Island at the end of the scheme, as many bottles may still have been suitable for further use. The lack of bottles on Dorre Island mitigates against this interpretation, however. Alternatively, at other hospital sites like the Peel Island Lazaret backfilled trenches or incinerators were commonly used for the disposal of sanitary or medical objects (Prangnell 2002:36) and this may have occurred on the islands. This factor may lend weight to justify test pitting excavations being carried out in the future if approvals could be obtained.

The remains found on the islands were typical of late nineteenth century dispensary collections which characteristically included drug jars and pharmacy equipment, including that used in the preparation of prescriptions or medicines, glass measures and funnels, scales, weights, prescription ledger, stamps, mortars and pestles, marble slabs and spatulas, pill cutters, suppository moulds, labels, empty bottles and cork stoppers (Knehans 2005:44).

Most of the medical equipment found on the islands was made in places like London, USA, Germany and Melbourne. In the nineteenth and early twentieth century most patent and proprietary medicines were imported to Western Australia from Europe (mainly Britain) and North America (Graham 2005:51). Some products were manufactured in eastern Australia. Many of the overseas companies had eastern state divisions and distributors (Graham 2005:51) which may explain the Australian labels on some of the products.

The amount of medical equipment, the wide range of it and the fact that it was of good quality and acquired from around the world suggests that considerable money was spent on medical supplies during parts of the scheme. We do know however, that funds were cut from 1909 onwards from 30 pounds to 17 pounds per person (Gale 1909) and the allowance for medicines halved from two pounds to one pound (Jebb 1987:106-108). It may have been that money was tight for other reasons (other

governmental schemes, war relief) or that the scheme was more interested in finding out about the etiology of the disease than spending money on medicines to cure patients.

The presence of medical objects on the islands does indicate that at least some patients taken to the islands were treated for something, according to the stated intent of the scheme (Gale 1909). Most medical objects and medicinal bottles were associated with European sites, indicating their control over their use and distribution of the means of healing. The fact that more poison bottle fragments were associated with Aboriginal womens' sites is hard to explain. It may have been that the bottles were reused for other purposes or if they were intended for their original purpose their presence at these sites may suggest that the women on Dorre Island tended to go off by themselves for several days and took their medicines with them, were long term internees trusted enough to dispense their own medicines, or alternatively nobody cared if the medicines were dispensed incorrectly and they died. The higher mortality rates of females (27%) than males (21%) may attest to this.

Many reports suggest that the medical treatment on Bernier and Dorre Island did little to 'cure' the disease, at best doing little more than easing some symptoms. Even doctors on the islands commented that the medical treatment and operations were known to be ineffective and painful (Bates 1938:99). This is not surprising given that medical records do show that patients had granuloma not syphilis and there were no effective cures for syphilis then anyway. It is also interesting to note that many photographs of Aborigines on the islands show patients with bowed legs – a common symptom of yaws. This may attest to the fact that they did not have venereal diseases.

Medical examinations were carried out. An improvised 'small shed out of spare material to act as operating theatre and outpatient department for male inmates' was constructed on Bernier Island (Lovegrove 1910a) (Figure 8.27). The fact that it was not well constructed suggests that it was rarely used, and when it was, was probably only used for examinations or applying treatments to patients.

The scientific and medical equipment which was found suggests that medical tests were carried out. Steel (one of the island's doctors) was recorded as arriving on the island with laboratory equipment, a research assistant and a monkey for comparative research purposes (PMO 1910). Olivey, one of the travelling inspectors during the

scheme, had a medical kit which sounds very like the objects found on the island. Although no records say that any of these items were reported at the islands it was reported to contain

> 1 set of scales and weights, 4 prs teeth forceps, 1 speculum ½ lb zinc sulphate, 1 large tin of boracic, 3 bandages, 2 catheters, 200 solid corrosive sublimate, 1 tin potassium permanganate, 500 tabloids Cascara, 100 tabloids calomel, 100 tabloids aloid compound, 60 tabloids Easton's syrup, 75 tabloids diver's powder, ½ lb alum, thermometer, injection syringe, micro slides, bluestone laudanum, permit forms, agreement forms, 8 chains, 2 dozen pair handcuffs, 9 single handcuffs (Olivey 1915).

Lovegrove (1910b) believed that men were capable of continuing their own treatment as they had been following his instructions while on the island and he released them earlier as a result. No evidence in either the historical records or archaeological remains suggests that the male patients were treated with Salvarsan or had major operative procedures to remove diseased tissues.

Historical records indicate that treatments for female patients included those commonly used on the men and, in addition, the use of Salvarsan and experimental operative procedures. It was reported that from January to April 1911 Steel administered Salvarsan to female patients (Steel 1911, Jebb 1987). Steel managed to acquire this expensive new drug despite its scarcity of supply. He requested and received one hundred doses, which exhausted all sources in Perth (Steel 1911, Jebb 1987). Pritchard, Steel's replacement immediately stopped the use of Salvarsan however, as the nursing staff believed women were decidedly worse after injections of the drug. Even doctors on the islands commented on the medical treatment and operations which were known to be ineffective and painful (Pritchard 1913; Bates 1938:99). As this news was made public, many travelling inspectors preferred to treat patients on the spot rather than send them to the islands to have medical experiments done on them. The presence of a syringe plunger suggests that something was injected, and it may well have been Salvarsan, but no direct evidence in the way of residue samples was forthcoming.

It is not unconceivable that patients were experimented upon as many other Aboriginal – only hospitals around Australia also did so. The doctors on Fantome Island were recorded as having to work out their own doses of drugs (usually arsenic and bismuth) to use on patients by trail and error, often with severe reactions

including pain, vomiting, swelling, unconsciousness and toxic poisoning (Parsons 2008:50, 51). The fact that these drugs were not used on Europeans further attests this point. It was also recorded that the medical treatments performed at Fantome Island were in many cases performed in a medically negligent manner (Parsons 2008:51). It is likely that this was also the case at Bernier and Dorre Island as similar (mis) diagnosis, (experimental) treatments and (poor) overall health care was observed

TRADITIONAL MEDICINES

> Traditional medications and cures for some illnesses did exist among Aboriginal people. …sorcerers treated the sick person by ordering them to eat a particular plant or by rubbing the juice and oils of the plant on the body with animal fat. …the symptoms rather than the disease were treated (Briscoe 1996c:9).

The healing of trivial non-spiritual complaints using herbs and other remedies was practised by all Aboriginal people, although older women were usually the experts. The absence of women on Bernier Island may however, have presented a problem. Whether the males, isolated from the women, knew how to exploit these resources is unknown.

What is known, however, is that there are examples of plants on the islands that have properties capable of alleviating some of the symptoms of venereal diseases. Pounded leaves of quondong trees (*Santalum acuminatum*) were used by Indigenous Australians to treat diseases introduced by European settlers, including possibly syphilis, by applying them in a paste to the infected tissue (Daw *et al*. 2007: 52). Interestingly, some male Aboriginal sites on Bernier Islands were positioned near these trees, although whether they were used for medicines as opposed to a food or as a shade source is unknown. No comparable arrangement of camps in relation to quondong trees was found on Dorre Island, so the use of the plant as medicine, shade or food remains unresolved.

Clematis microphylla (small–leaved Clematis), a woody climber, which many of the patients may have been familiar with due to its distribution from Carnarvon to the south of the state near Esperance (Bindon 1996:82) can be used to treat itches and rashes (Bindon 1996:82). It is rare on the islands however, (Ride *et al.* 1962) and may not, on this account, have been exploited.

Pittosporum phylliraeoides, a small tree with yellow fruit containing orange to red seeds (Bindon 1996:200) can be taken internally to relieve pain and cramps (Bindon 1996:200), such as induced by the use of Salvarsan. The plant is distributed from south of Carnarvon across the southern part of the state (Bindon 1996:200), so at least people from those areas may have known how to use it. It is common on Dorre Island and found occasionally on Bernier Island (Ride *et al.* 1962).

Santalum spicatum (sandalwood) has nuts which, though edible, are rarely eaten by Aboriginal people. They are more commonly crushed and the oil used as a liniment on aching joints and sometimes for symptoms of venereal diseases such as gonorrhea (Bindon 1996:222). Sandalwood is distributed throughout the mid-west Western Australia and around the Carnarvon region (Bindon 1996:222) and is common on both islands (Ride *et al.* 1962). There were probably many uses for other plants on the islands, including exploitation as medicines which have not been reported. Animal products and crushed rock (Nannup 2006) may also have been used. No such trace has been preserved in the archaeological record. It is also possible that none was used as the question still remains as to how many of the patients sent to the islands had any of the conditions for which they were incarcerated, or which they recognised as suitable for treatment with resources available.

ROLE OF THE NURSES AND DOCTORS ON THE ISLANDS

The history of sexually transmitted infections and their associated control in the nineteenth and twentieth centuries have been well documented in many countries, yet the roles and involvement of the doctors and even more so of the nurses in the Western Australian Lock Hospital Scheme are unclear. We know from historical sources that several doctors were on the islands at one time or another and that they spent less time on Bernier Island than on Dorre Island.

It seems from historical documents (Triado 1917) that at least one of the islands (probably Bernier) did not have a medical doctor stationed on it for the last years of the Lock Hospital Scheme, when the nurses took over their jobs. It has been suggested that the role of nurses in the management of sexually transmitted diseases varied over time from technician, almoner, counsellor and doctor's assistant to one in which they are able to provide first line management of the infections (Miles 2002:292). On

Bernier Island, with the doctor's infrequent visits, it is likely that the nurses took on the role of administering treatment.

> Nurses have often been called upon in times of crisis and need – their role often evolving through demand for services and personnel (Miles 2002:292).

At some Lock Hospitals, such as the London Lock Hospital which operated from the eighteenth to twentieth century, male nurses are recorded as supplying the needs of the few male patients (Miles 2002:292). There is no record of any male nurses at the Western Australian hospitals.

The fact that there were frequent changes of medical staff supports the impression that doctors were not highly motivated (Mulvaney 1989:191). Evidently the male patients on Bernier Island were visited infrequently, even when weather conditions favoured the sea crossings from Dorre Island, and more often than not no medical staff resided on the island. Eight and a half percent of all deaths were recorded as occurring suddenly, when the doctor was absent from the islands (Figure 2.11).

ROLE OF THE HOSPITAL

The chief objective of a hospital defined by Georgeopoulos and Mann (1979:296) is to provide adequate care and treatment to patients. Its central concern is the life and health of the patient. Georgeopoulos and Mann (1979:296) also suggest that doctors and nurses forgo personal comfort and satisfaction to give good care to patients. It is not at all certain that the Lock Hospitals on Bernier and Dorre Islands can be said to have satisfied this objective. Historical records, oral histories and research on death rates, living conditions and care or lack thereof would suggest otherwise. This archaeological survey, which revealed the possessions held by doctors and nurses to be the expensive ceramics, delicate housewares, well built houses with aesthetic views and objects like pianos while Indigenous people were left to sustain themselves off native fauna and the use of government supply objects while living in corrugated tin shacks, would also suggest otherwise.

It must be said that it is not known whether the European doctors and nurses ever asked for these goods or had any influence in hospital design, whether they were being paid for their work or if these items were given to them by the government to attract them to employment in an unpleasant environment under unpleasant

circumstances. It may well have been better for the Aborigines to live poorly off the natural environment of the islands than to have been trapped in European buildings eating European rations, under European control.

It is also noted that lock hospitals, missions and other such institutions themselves contributed to the spread of disease. As Abbie (1969:93) has remarked, missions…

> imposed a sedentary lifestyle that eliminated natural hygiene of nomadic life; they insisted upon the wearing of clothes that became tattered, dirty and germ-laden; …rations that lacked the essential factors of the native diet…there is little doubt that some practical knowledge of medicine, hygiene and diet would have been of much greater initial help than the current concept of civilisation.

The Bernier and Dorre Island Lock Hospital, like the Fantome Island Lock Hospital was another example of the Australian government's mismanaging and sometimes neglectful treatment of Aboriginal people and their health (Parsons 2008:52).

ROLE OF THE SCHEME IN RELATION TO OTHER INSTITUTIONS

This section provides evidence from the results of this research on the Bernier and Dorre Islands Lock Hospital Scheme in relation to ideas proposed in chapter 2 about forced internment and incarceration under the umbrella of the 'total institution' (Goffman 1961) – a way of controlling and manipulating certain groups of people by the use of institutions. The Lock Hospitals of Bernier and Dorre Islands are compared with those institutions previously discussed such as the British Lock Hospitals, the Madras Lock Hospitals, The Peel and Fantome Island Hospitals, the Adelaide Destitute Asylums, the Claremont Asylum and missions on Flinders Island (Wybalenna), Tasmania and at Killalpaninna.

Within this framework, evidence is presented for the claim that the Western Australian Lock Hospital Scheme was by no means successful in its stated goal of ridding Western Australia of syphilis and that its primary intentions were economic. The question of whether the Bernier and Dorre Islands Lock Hospitals were a case of intentional harm or good intentions having the reverse of the effect intended is also discussed. The use of hospital set-up, control of time, use of uniforms, removal of personal items and forced workload all provide evidence to back the claim that

patients were controlled. The poor living conditions and lack of provisions in both food and accommodation add to this testament.

Whether the Bernier and Dorre Islands Lock Hospital Scheme is viewed through historic site plans or simply by visitors with an eye to archaeological detail, the implicit ideology and symbolism of dominance is as unmistakable as that seen at other institutions like Killalpaninna (Birmingham 2000) where placements of buildings were designed for control. Placement of many buildings on Bernier and Dorre Islands may have been designed for control also, especially in respect to the European houses and possibly the mortuary positioned on the highest dunes to overlook patients living areas on Dorre Island as well as a view of the coming and going of people on the islands and to the islands.

If the intention of the design of the hospitals was to scare patients into submission by placing symbols of death near to places of daily activities then the intention of scheme would be malign or evil in nature and the terms genocide should be used to describe the Scheme. However, I do not believe that this was the case, as it is a more convincing argument is that the site was set up either with great insensitivity or complete lack of understanding of Aboriginal beliefs and feelings. It is likely that others reasons not found within the archaeology may explain this phenomenon.

It is likely that while the fact that there is no practical reason for the mortuary to be positioned on the exact dune that directly overlooks the living areas of sick patients may indicate a deliberate attempt to control the inmates through intimidation, it is a more convincing argument that, based on the European mindset at the turn of the twentieth century, this layout was set up with no thought and understanding to the Aboriginal beliefs and feelings on death and burial. As a result this set up can be seen as great insensitivity to Aboriginal people. Although it is less likely that the mortuary position was designed for control I am not disputing that patients were not controlled in other ways.

The presence of bells in the archaeological record as well evidence for physical labour being performed in the historical records suggests that the Europeans controlled the activities permitted time and work was controlled. Bells and clocks found on Bernier Island may suggest males were involved in reforming tasks, like labour involving looking after domestic animals and making infrastructure on the islands. No bells or

clocks were found on Dorre Island; perhaps the women were not carrying out activities which needed to be controlled or were not controlled by work activities.

Typically, reformers have concluded that children and women had higher potential for reform than men (Spencer-Wood and Baugher 2001:9). In the case of Bernier and Dorre Islands, however, I would argue that in general males were easier to reform than women because they had a 'job in the pastoral industry' to go to when they left the islands. That they were rewarded for their work is indicated by their being issued with hats (Figure 6.6) and early released- as-cured dates.

It is interesting to note that at many institutions it was observed that while female inmates were constantly busy with domestic work, not enough work could be found for men (Piddock 2001). The opposite seems to have been the case at the Western Australian Lock Hospitals where males, not females, appear to have been trained in skills that were useful to work on the mainland. This is possibly also the reason why males were selected for the Lock Hospital Scheme in Western Australia when it seems that the government originally had no intention of incarcerating them for 'syphilis'. It may also explain why males were moved from Dorre Island in 1909 to Bernier Island to do construction work.

It is likely that as no sites were located further than one and a half kilometres from the hospital locations there was some other control. Most likely this was related to the fact that people were controlled by gaining access to medicines or the distance sick patients could be expected to travel for rations. Of course, if the Aboriginal people could not collect their own resources from the island it is likely that additional control was the access to rations provided by the Europeans.

However, the point has been considered that many patients who could get their own resources could spend considerable times away from the hospital areas and were not under as much control as the sick patients confined to the ward. However, if they wanted to get off the island and return to their homelands, the quickest way home was to put up with the treatment which meant being close to the hospitals and probably under the control of the Europeans.

Photographs of Bernier and Dorre Islands (Battye Library 21072P, 3185B/22, 21085P, 21075P (Chapter 6)) showing patients wearing the same clothes as one

another may be evidence for the imposition of uniforms, and the hats provided to men for their work could also be considered a uniform. Jebb (1987) suggests that the staff at the Bernier and Dorre Islands Lock Hospitals imposed a uniformity in character on Aboriginal inmates through the institutional setting as well as by giving Aboriginal people European first names, removing all the Aboriginal womens' closely guarded hair necklets for hygienic purposes, distributing rations only after ocean baths and moving shelter sheds after a death in an attempt to stifle the practice of avoiding places where someone had died (Jebb 1987). Staff members exercised control over inmates' behaviour and felt within their rights to 'discipline' them if necessary (Jebb 1987). Briscoe (1996c:3) suggests that conflict between nursing staff and inmates arose because the Indigenous people were expected to perform duties in accordance with European whims and that patients would be physically whipped by hospital staff if they failed to complete tasks allocated. Mulvaney (1989:189) suggests that punishment of defaulters was common and the unruly might be locked up – unusual powers for doctors whose normal concern is healing the sick.

Several things about the Western Australian Lock Hospital Scheme are different from other institutions in the European colonies - there was never any mention of most of the Indigenous patients being prostitutes, and men as well as women were incarcerated. On this basis it could have been expected to be more effective than other schemes. However, the fact that it was selective in whom it took - old females and males in areas where they were not needed as cheap or free labour - mitigated against this. It also reinforces the idea that people were taken for purposes other than the cure and control of disease.

As was the case with other institutions like the Madras Lock Hospitals (Hodges 2005:393), Fantome Island Lock Hospitals (Parsons 2008:42) many patients were admitted to the Western Australian Lock Hospital for complaints other than syphilis and were treated for other diseases (Stingemore 2002). The conditions for which the majority of the Indian patients were treated is unspecified (Hodges 2005:393).

While patients of the Western Australian Lock Hospitals were clearly not enclosed with the severity of those at other institutions, the argument for an island prison could negate this, as they were just as incarcerated, and for well beyond the nine months commonly specified in Contagious Diseases Acts and legislation. The incarceration

for women, if not for men, clearly exceeded by years, in some cases, the recommended time for other Lock Hospitals in the British Empire (Stingemore 2002).

It seems that the Bernier and Dorre Island Lock Hospitals shared the same common themes under total institutions - by-gone bureaucratic battles, the living battles of the confined against their suffering, and the new professional classes, like the doctors and governors, who tied their social ascent to the new institutions (Ignatieff 1983:168, 169). The Lock Hospitals could be considered not only an administrative entity, but as a social system of domination and resistance, ordered by complex rituals of exchange and communication between the European workers, the Aboriginal patients and the Western Australian government.

HIDDEN AGENDA AND GOVERNMENTAL POLICY

The government's power to control all aspects of Aboriginal people's lives from their sexual behaviour, to employment, education, social restrictions and cultural denial was probably one of the most neglectful if not criminal activities that the Australian government ever undertook. Under these policies, the Chief Protector was able to move Aboriginal people from town to town, institutionalise them in reserves, and place 'uncontrollable' Aboriginals in gaol indefinitely (Westerman 1997). The result was the removal of Aboriginal people from ancestral lands, the placement of unrelated people in missions and reserves, leading to familial, social and cultural disruption, the emotional effects of which can never be truly measured (Westerman 1997). The Lock Hospital Scheme on Bernier and Dorre Islands did all of these things and more.

In light of the modern view on the violation of human rights, which I define as the taking away of the rights, dignity and freedoms of humans and other actions towards one another that is not in the spirit of humanity, coupled with the medical experimentations, the poor living conditions and the high death rates on the islands an argument can be raised for criminality of the scheme.

The role of the hospital could also be questioned as it removed people who never had disease. The presence of a large number of children (seen in historical photographs and recorded in medical reports) who clearly do not have venereal diseases attests to this. It seems that any persons 'suspected' of being diseased for any reason (medical, economic, racial) was 'treated' accordingly – not the correct role of a hospital.

Today, schemes that targeted particular groups and not others have to be questioned. The Lock Hospitals targeted Aboriginal people who were not of economic interest to the state. It was convenient to blame the problem of syphilis on them and even more convenient to be able to lock them away on an island in the Indian Ocean, out of sight, out of mind of the Western Australian public under the power of the 'Contagious Diseases Acts'. Whether any of these people had these diseases is questionable and why only Aboriginal people when records also clearly indicate that many Europeans had the disease were targeted is an important factor in leading to the conclusion that the Lock Hospital Scheme was not just designed to rid the state of disease but also to rid Western Australia of the unwanted Aboriginal populations.

However, at present there is no consensus as to the precise nature of what in particular should or should not be regarded as a human right and this abstract concept of human rights has been a subject of intense philosophical debate and criticism. This is more so the case, when these ideas are looked at in a time and place different to now, when the intentions of the people establishing these acts are not known and can not be rigorously and forensically questioned.

While the individual doctors (except maybe Hickenbotham who was described by Watson (1946:113) as being more interested in spirochetes than in the suffering men) and nurses may have personally believed that they were helping the Indigenous patients, it is still hard to determine whether the same idea was foremost in the minds of higher ranked government officials and whether there were other agendas. Grant Watson (1968:53) also believed that the hospitals had been inaugurated by the Australian government with most admirable intentions, but whether those intentions ever amounted to anything, he is doubtful. Dr Lovegrove, one of the doctors on the island, was quoted as saying in relation to an earlier plan for an Aboriginal reserve at Onslow that such an action would result in a 'tragic fiasco as Aborigines unable to escape would die in considerable numbers' (Lovegrove 1907). The question is raised, therefore, of why he agreed to take part in the Lock Hospitals Scheme on Bernier and Dorre Islands. Maybe he legitimately thought someone who cared could make a difference.

The use of the term total institutions on the Bernier and Dorre Islands Lock Hospitals can provide the theoretical and contextual framework for understanding the intention of the scheme. As the key characteristics of total institutions include the following, I would argue that evidence can be seen for all on the islands.

- barriers to social intercourse with the outside, often built right into the physical plan, such as locked doors, high walls, barbed wire, cliffs, water, forests or moors

Evidence for the use of visual and spatial elements were seen in controlling the islands. The way in which people organise space, including how they conceptualise and alter landscapes are important aspects of structure that shape and are shaped by social action (Joyce 2006:84). The position of the hospitals within the dunes and the presence of keys and locks attest to this. Although no evidence is seen for large walls or barbed walls around patient accommodation, I would argue that the island environment itself made these features redundant. However, it may have been possible, as at other institutions, that the ward quarters were often locked at night, and carefully watched by guards or in this case by the doctors, nurse, or stockmen. This may explain some of the archaeological evidence for the locks and the presence of numerous keys worn by the nursing staff in historical photographs.

- two different social and cultural worlds develop (staff and inmates)

There is clear evidence of the differences between the two in terms of food, accommodation, access to facilities and resources.

- incentives are given for work (but does not have the same significance as it had on the outside)

Evidence includes earlier release dates for those who worked and were needed for jobs around the state (Aboriginal men) and men were given hats as a reward for doing manual labour.

- mortification of the self – ID#, uniform, channels of communication shut off

Removal to an unknown island would be evidence for communication cut off and the wearing of the same clothing is evidence of a uniform.

- rules are abundant, novel, and closely enforced and staff can discipline on things like dress, manner, social intercourse

Archaeological evidence, sheds very little light on this matter but historical sources suggest that staff members exercised control over inmates' behaviour and felt within their rights to 'discipline' them if necessary (Jebb 1987). Briscoe (1996c:3) suggests that conflict between nursing staff and inmates arose because the Indigenous people

were expected to perform duties in accordance with European whims and that patients would be physically whipped by hospital staff if they failed to complete tasks allocated. Mulvaney (1989:189) suggests that punishment of defaulters was common and the unruly might be locked up – unusual powers for doctors whose normal concern is healing the sick.

- prohibition of certain items

Although no direct evidence can be found for prohibition, if it id occur, the humiliation and stripping away of an inmate's identity would appear to be most characteristic of a closed and coercive total institution (Davies 1989:93).

- release is part of a privilege system.

To some extent release from the islands was based on privilege. If this research has proven anything, release was based on sex, age, gender and usefulness in society, not anything to do with 'cure' from disease.

Ignatieff (983:169) proposes that the essential question about the 'total institution' is what part it plays in the reproduction of social order in the world beyond its walls. This function is not static and unchanging; nor is it discharged simply by what the institutions do, by their actual effectiveness in deterrence, rehabilitation and incapacitation (Ignatieff 1983:169). Total institutions work their effects on society through the mythic and symbolic weight of their walls on the world outside, through the ways, in other words, in which people fantasize, dream and fear the archipelago of confinement (Ignatieff 1983:169). If the historical stories of people fleeing incarceration and the terrifying stories of what happened on Bernier and Dorre Island spoken of by the Malgana and surrounding Indigenous peoples today are anything to go by, it seems that the Bernier and Dorre Islands Lock Hospitals achieved this.

However an interesting aspect about using total institutions to define the Lock Hospitals is that it seems total institutions only appear particularly distinctive from all other institutions in the free and highly differentiated societies of the West where there is a tendency to see them as essentially oppressive and opposed to the individual (Davies 1989:79). This view may not have been shared with the Aboriginal patients sent to the hospitals and it may have been that the forced removal and the separation of their families for what seemed like unjust reasons, which probably added to the

distrust in the medical and legal system and the state, may have made more of an impact.

The Bernier and Dorre Islands Lock Hospital Scheme should be considered a total institution, but it stops short of representing extreme versions of institutions like slavery or genocide camps, even if it shared some of the driving factors and outcomes. Even Watson's (1946:110) choice of words in which he describes the island as a place where large numbers of men [and women] could be interrogated is suggestive of some kind of prison of forced internment.

Many forced medical incarcerations in the late nineteenth and early twentieth centuries exhibited similar features of poor conditions, medical experimentation and high death rates. In Australia the Peel Island Hospitals, Killalpaninna Mission, the numerous Queensland missions and the Bernier and Dorre Islands Lock Hospitals provide examples in which 'good intentions' to help individuals of an 'undesirable' class, race or sex failed to deliver on their promise to either 'cure' or 'help'.

One does have to wonder, however, whether such a scheme could exist today, as I am sure that public outcry would make those involved justify and be accountable for their actions.

POWER RELATIONS IN AUSTRALIA

Overall the Bernier and Dorre Island Lock hospitals have been architecturally and materially structured in similar ways to facilitate and control inmate's lives (Spencer-Wood and Baugher 2001:9) and that they are characterised by physical isolation, a single authority that governed most aspects of life and a breaking down of barriers that in modern life separate the spheres in which people sleep, play and work. The divisions and inequalities between staff and inmates common in 'total institutions' like the Western Australian Lock Hospitals and others missions and reserves of the time (Sutton 2003:81), reflect the wider backdrop of power relations in Australia.

The situation of the Lock Hospitals in Western Australia was not an isolated experience for the time and most schemes in Australia that dealt with Indigenous groups up until the second half of the twentieth century were intended as modes of social and economic engineering of populations. Many had an unstated agenda for eradication and alienation through isolation from or assimilation into the dominant

society. This power of the government led to control of the Indigenous populations, in terms of movement around the state, reproduction and over health care. The uprooting to unknown islands was a traumatic psychological experience, even without the burden of disease (Mulvaney 1989:185) and this power the government had to remove people was common throughout Australia.

Prangnell's (2202:32) research on the Peel Island Lazaret was to supply evidence of paternalistic behaviour in the institution as well as addressing the interrelationships of the various groups at the Lazaret and their relationship with the Queensland Department of Health and Home Affairs that forced them to occupy the island. This research also attempts to do the same and offered important information about power relationships; the creation and maintenance of diverse social connections; and the preservation of economic, political, and spiritual life (Orser 1998:69).

RESISTENCE

A common theme in institutions which enforce enculturation is that Indigenous people do adopt some cultural elements but blend them into a new culture, different from either parent culture (Birmingham 2000). At the Bernier and Dorre Islands Lock Hospitals there is evidence that the inmates collected and modified European items like glass and building materials and situated themselves in the best positions to exploit European rations, but far enough away not to be watched constantly. They also continued to practice traditional tool making and participate in traditional ceremonies, as seen in photographs (Battye Library 5021B/53, 3185B/5). This type of resistance to being 'totally' controlled is consistent with what was seen in other missions (Flinders Island and Killalpaninna), medical institutions (Madras Lock Hospitals, London Lock Hospital, Palm and Fantome Island Lazaret, Adelaide Asylum), and prisons throughout the European colonies.

Certainly covert acts of resistance, such as feigning illness or misplacing tools, may have occurred, though these are impossible to determine in the archaeological record and historical sources give no clues to these. Other overt forms of resistance may have taken place in the form of modifications to accommodation provided – as seen in the historical photographs. Cultural resistance may have also been done in a variety of ways not evident in the archaeological record, including song, dance, folktales, religion and medicinal practices. Historical photographs of patients dressed in traditional dress may attest to this.

Historical records suggests that there was some resistance to control as Pritchard (1911) stated that 22 male pastoral labourers were released because they were ready to work and were becoming difficult to control (Pritchard 1911).

Rather than seeing resistance as simply reactive - a problem which has generated much criticism - we can reconceptualize it to encompass a more nuanced understanding of the volition and agency of people in inferior positions of power (Frazer 1999:1). For example it was still the patients decisions to put their camps where they did may assist explanations of decision-making by less powerful (Frazer 1999:4).

FUTURE RESEARCH

At the Bernier and Dorre Islands Lock Hospitals, few, if any, patients had the diseases for which they were incarcerated. They were misdiagnosed, mistreated, experimented on without permission and taken from their homelands without just cause. Many patients died under the care of the scheme. The historical written evidence (doctors' reports/ letters etc), the archaeological data and oral stories about Aboriginal patients' experiences at the hospitals all lead to the suspicion that those involved in the general scheme knew that the scheme itself was a façade to control Indigenous populations and rid at least parts of European Australia of its unwanted Indigenous people.

As most of the patients, doctors, nurses, and government officials are no longer living their testimony and opinion cannot be used to shed light on the scheme. To make an adequate scientific assessment of whether there is evidence of wilful mistreatment and whether the scheme itself had nefarious underlying purposes, it is necessary to further the investigation along the following lines.

One approach could involve analyses of the physical remains of the patients themselves, to determine whether they showed signs of syphilis or granuloma, although as stated in Chapter 2 the differences in bone deformation between these two diseases are hard to determine from historical remains. One could look for inconsistencies between the historical records and the physical remains in regards to malnutrition, cause of death and treatment (heavy metal-based poisoning) to determine whether the Scheme's stated agenda matches the outcome. Analysis of the type of burial of patients could also shed light on upon cause of death. For example,

mass graves could reflect near simultaneous deaths due to epidemics or the effects of experimental treatments. Burial type according to particular tribal customs or European manner could show the subsequent respect granted to bodies. Photographs of wooden crosses as graves markers indicate that at least some were buried in a European manner and this may be an indication of the lack of respect or at least ignorance of traditional burial customs. The opposite could also be considered in that despite the conditions at the Lock Hospitals the crosses may indicate respect given by the individual Christian nurses and doctors. However historical records do indicate that the Aboriginal patients had different ways of burying their dead from the way the European nurses and doctors chose to bury the patients. Archaeological evidence could be tested against the following historical report,

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> Performing the last rites of preparing the bodies, sewing nine of them in blankets, closing their eyes in death and stretching their legs, for unless I happened to be present at the actual death they invariably doubled their legs behind the back, I could never get used to the frightful dirge, indescribably weird…. I tried every means of preventing this but in vain (West Australian 1910).

Objects buried with bodies could also yield clues to individual identity and DNA might be recovered, which could also assist. A more appropriate line of research could be to use metal detection across the grave sites and search for grave goods associated with the burials. Cultural identity may also be seen through the examination of grave goods. If remains could be found and if one were ever set on doing such a task, it may be important to look into these matters.

However, the fact that no human remains nor indication of burial grounds was found during my research and previous attempts to locate the remains of ancestors by various Indigenous groups with the Department of Indigenous Affairs throughout the 1980s and 1990s has so far rendered this approach unfruitful. The value of such information should be conveyed to extant Indigenous groups if human remains are found in the future.

A second approach is to look at the remains of medicine and medical equipment used on the islands to see if it could possibly have helped to treat the conditions for which people were incarcerated. At the time of the scheme, Dr Cleland and Dr Hickenbotham (1909) concluded that all patients sent to the islands were in a late stage of syphilis. They also concluded that there was no evidence of diseases showing

symptoms similar to that of syphilis such as leprosy, granuloma or other venereal diseases. This was not however the opinion shared by all the doctors. Other contemporary reports, many by people untrained as doctors, contradict both claims. The question remains as to whether the doctors deliberately misdiagnosed patients to justify the existence of the scheme, or whether they were correct in their diagnoses. The causal organism of syphilis was identified in 1905 and a simple test to determine its presence was available in 1908. Since these events predated the duration of the scheme, it would be hoped that any doctor practising epidemiology might have been competent in their practice. The isolation of Western Australia from the rest of the world in 1908 made it plausible that medical knowledge was lagging behind current best practice, however.

Medical equipment, medicines and treatments described in the records by the doctors like Cleland and Hickenbotham (1909) are similar to those found on the islands and in historical photographs, including the use of salt baths and heavy metal based products. The two main epidemiologists associated with the scheme, Hickenbotham and Cleland (1909), reported treating the patients with natural remedies and salt baths. There is no record that they used Salvarsan, a heavy metal based compound, but we do know that subsequent doctors (Steel and Lovegrove) did. These doctors reported that they conducted surgery on patients to remove parts affected by ‘syphilis’.

The most common treatment for syphilis today is the use of penicillin, which eliminates the organism responsible for the disease. Penicillin was not available during the scheme and the treatments that were, like mercury, bismuth and arsenic compounds such as Salvarsan failed to cure the disease. As a result, diseases like syphilis were probably never cured in most cases and continued to spread. In general practice, by 1911 heavy metal treatments were banned, as many practitioners had reported severe side-effects from their use. So why were they still used on the Indigenous patients? While the lagging behind of medical knowledge in Western Australia may provide the answer, the question of the violation of human rights through experimentation conducted without informed consent and without any real promise of benefit to the patient must be raised.

Even if doctors were given the benefit of the doubt as to the state of medical knowledge at the time, the lack of successful treatments, the number of deaths and the obvious state of malnourishment and oppression of patients still brings into question

their intentions as doctors. It reinforces the impression that the doctors knew the scheme was designed for purposes other than cure and public health and their participation in the scheme should be challenged.

More detailed research could be conducted in direct comparisons of objects found on Bernier and Dorre Island and that at other Lock Hospitals, such as the Port Hedland and Fantome Island Lock Hospitals. The detailed catalogue of material found on the Bernier and Dorre Islands surveys produced in this thesis would be invaluable to this study.

Another interesting line of research would be to look at what happened to those released from the Lock Hospitals, as other studies (Harcourt 2008) suggest that those released may ended up in another form of incarceration. This is not surprising under the umbrella of total institution as it is suggested that these institutions are designed to represent an ordering of spatial exclusion necessary to appease apprehension of the unknown (Harcourt 2008) – that is a place for those that do not fit into the Bourgeois. It is likely that many may have ended up in the jail system. Historical records could easily track this line of inquiry. One does wonder how these people could bounce from institution to institution without the government being aware of the situation. Further research could include cross checking the names of Indigenous patients on Bernier and Dorre Island against those imprisoned in jails across the state.

At the same time, it is clear that as in many other race repression societies (see Orser's 1998:69 study on African American slaves) many Indigenous people may have become tired of hearing about the hardships of their relatives and wish to know more about the material culture of freedom, their resistance to being institutionalised and how resilient they were in surviving in these powerless environments. Further research in conjunction with extant Aboriginal populations could be conducted in this manner and would empower their ancestors as well as their culture.

SUMMARY

When the historical documentation along with the archaeological record was incorporated with the theoretical framework of analysing the Lock Hospitals, using spatial patterning, total institution concept, gender, racial and sex biases and power struggles, new interpretations of the Lock Hospitals were identified. Archaeological

evidence found on Bernier and Dorre Islands has provided clues about cultural survival as no other discipline could.

Distinct differences emerge between sites associated with Europeans and Aborigines on Bernier and Dorre Islands. Objects associated with Aboriginal sites were confined to domestic and native animal bones, marine shells, highly fragmented bottle glass, earthenware ceramic, government-supply corrugated iron, makeshift traditional tools like glass flakes and flimsy and impermanent humpies. In contrast, refuse associated with the European sites gave evidence of the availability to the medical staff of the latest delicate and expensive ceramics, imported foodstuffs, items of personal comfort, and substantial permanent accommodation.

Further differences can be seen in terms of the layout of the buildings. These are noticeable through the segregation of the patients between the islands according to sex, without which differences in accommodation and living conditions would not have been obvious in the archaeological record. Historical documents lead us to believe that there were differences in incarceration, living conditions and treatments on the two islands. Archaeological evidence implies power differences between the controllers of resources (the Europeans) and the controlled (the Aboriginal patients).

This straightforward interpretation of the differences between European and Aboriginal distribution of artefacts, the quality of objects and resources, the type of accommodation and the access to resources as a direct reflection of the hierarchies and inequalities between groups does not take into account whether the same artefact can be used in different ways at different times by different people to represent different things. There is an assumption that the European categories of status and consumption of goods were the same as those of the Indigenous peoples. Patterns of interpretation are applicable only to the remains of a single cultural tradition, and once outside this tradition, other rules may apply (Deetz 1996:210). That is, we may not be seeing a real difference in empowerment or disempowerment with respect to resources but choices about how different groups of people chose to live and thrive and relate to one another on the island.

This research tried to look at the detailed intricacies of specific power relations and the likely possibility that resistant discourses have been suppressed from official

historical transcripts (Frazer 1999:5) and hence archaeology is the only way to see these issues.

In many ways, the Western Australian Lock Hospitals have proved analogous to Lock Hospitals and institutions elsewhere in the colonial world and can be considered under the umbrella of 'total institutions'. In other respects they are unique. The continuity with other schemes displays itself in the way ideas of gender, class and race informed the recruitment, treatment and stigmatisation of patients, in the design of hospitals and the eventual failure of funding.

Economic agendas dominate the theme of forced incarcerations. The drying up of the need for Indigenous labour with the sinking of bores and fencing of properties at the beginning of the twentieth century, and the need at the same time for economic stimulus packages as an antidote to the depressed economic conditions of the 1890's in the form of support for new industries, promoted the flowering of such institutions in Australia.

Today, sites of historical incarcerations and institutionalisation like those on Bernier and Dorre Islands polarise emotions and opinions between those who consider the scheme under which they operated crimes characterised by great injustice and inhumane acts and those who see them as genuine if misguided or inadequate attempts to provide a useful service. The strength of the emotional response tends to preclude examination of the factual evidence. In reality, it is almost impossible to judge the acts from different times, cultures and circumstances, even when the full facts are known. In the historical and archaeological contexts the task is practically impossible. The fact that little can be done at this stage to compensate those involved, beyond acknowledging their stories of injustice and inhumanity in modern terms, makes the exercise not only difficult but pointless.

However, it does raise the point that there is probably no acceptable level of legal discrimination or institutionalised abuse (Madley 2004:190) under any scheme. The Western Australian Lock Hospitals certainly do not provide an exception.

Chapter Twelve

CONCLUSIONS

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Conclusions

This project used a combination of archaeological, historical and human biological data to address the wider issue of the impact of supposed or introduced diseases on minority populations like the Indigenous peoples and also looked at the effects of the medical measures introduced to control them. The government approaches to disease through schemes like the Bernier and Dorre Islands Lock Hospital Scheme worked in terms of 'treating' the problem of the 'people', not the problem of the 'disease' and as a result made very little impact on reducing the incidences of the disease, instead having a harmful effect on the people themselves, creating disassociation with culture, loss of home and place and a general break down of the people's culture. When placed with the theoretical context of the ideas of power and control, together with similar institutions 'total institutions' like Lock Hospitals (Fantome Island, Mandras Lock Hospital, London Lock Hospital, Indian Lock Hospital), Aboriginal reserves (Palm Islands), missions (Flinders Island mission, Killipanna mission), asylums (Adelaide Destitute Asylum, Claremont Asylum, Magdalen Asylum), prisons (Ross Female Prison) and workhouses, this research extends our knowledge, not only of the lives and backgrounds of the people forcibly removed at the time, but also to begin to provide an understanding of the mindset of those doing the removal (something that the archaeology or the historical records could ever provide) and sheds insight into the past actions at a time in history when there was a failure to acknowledge and understand the fragility and complexities of those groups that were impacted by these schemes. No research has looked at this issue so broadly within Western Australia and, although studies have looked at disease as a solution to racial issues, few studies have provided the concrete evidence for this – the archaeological evidence is therefore invaluable to understanding these issues.

Controlling medical and other institutional environments like the Bernier and Dorre Islands Lock Hospital Scheme have been implemented in European colonies over the last few hundred years to legitimise attempts to rid society of 'problem' people whose values and way of life differed from those of the coloniser. The apparent emergence of venereal diseases in the north of Western Australia, the attitudes towards sexuality and race at the time and the widespread anxiety as to what was to be done with

Aborigines who were no longer needed in the pastoral industry, were used to justify a 'total institutional' scheme – the Bernier and Dorre Islands Lock Hospital Scheme.

Jebb (1984, 1987), Mulvaney (1989), Briscoe (1996c), Stingemore (2002) and this research all point towards the Western Australian Lock Hospital Scheme being very much more than a straightforward response to disease, devoid of social, political or economic implications. The involvement of usually ill-educated police in the diagnosis, collection, transport and treatment of the subjects of the Lock Hospital Scheme puts into question the medical intent of the scheme. This ambitious government intervention in the area of Aboriginal health (Jebb 1987:v) appears rather to be intentionally designed to control Aboriginal populations and provide an economic stimulus. Presentation of the scheme as medical treatment or a public health program was important in elevating it from the simple jailing of sick and unwanted Aboriginal people to a scheme that attracted funding and political and public support (Jebb 1987:50). Warren (2000) has even argued that in both the Western Australian and British situation the establish of such hospitals were more a punitive action based on twisted 19th century Victorian morality than a genuine attempt at a medical solution.

Historical documents and archaeological evidence suggest that living conditions for Aboriginal patients on the islands were pitiful. The total area of the islands was much smaller than that of the average territory these people were accustomed to drawing upon for sustenance, and the island environment itself would have meant no less than a jail to those unaccustomed to coastal lifestyles. Many people were hundreds of kilometres from home, with no local knowledge and no contact with those who spoke the same language or shared the same ideologies. Rationing was limited in magnitude and frequency, and there was poor provision of accommodation and basic survival needs. It was not surprising that 70% of deaths on the islands were unrelated to the condition for which people were incarcerated (Stingemore 2002). High mortality rates are common in these types of institutions as it is believed that poor accommodation, inadequate food rations and toxic medical treatments provide to patients attribute to the death rates (Parsons 2008:48) – all of which all is applicable to the Bernier and Dorre Island Lock Hospitals. Many Aboriginal people (Stingemore 2002) also failed to return to their homelands due either to death during incarceration or the fact that 'repatriation' of those released from the islands was to the nearest mainland port, at Carnarvon, with no provision for return to where they had been collected.

Life on the islands was slightly better for Aboriginal males than females, a direct reflection on the economy and values placed on the sufferers of disease. Males undertook manual tasks, were praised for their skills (Pritchard 1913) and rewarded with extra food, better accommodation and early releases (Lovegrove 1910a). Females, although they must also have worked, received no recognition for their efforts, were forced to collect island resources for sustenance and accommodation, and were incarcerated for longer. In contrast, Europeans lived a moderately comfortable lifestyle with the latest delicate and expensive ceramicware, imported foodstuffs, the latest in domestic objects, building material and permanent accommodation at the best aesthetic and geographic vantage points on the island.

A lot can be concluded from the design of the Bernier and Dorre Islands Lock Hospitals. Spatial analysis of the hospital and camp sites for males on Bernier Island led to the conclusion that it was set up functionally with good infrastructure and space. The same could not be said for the design of facilities for females on Dorre Island. Dorre Island findings gave the impression that the site was set up either with great insensitivity or as a deliberate attempt to control inmates through intimidation. Photographs and architectural plans do not give a true indication of the spatial reality of hospital and living precincts on the islands. Inconsistencies between plans and actual layouts partly reflect adaptation to the three dimensional reality of the sites, but it is difficult to explain the specific positioning of elements like mortuaries next to living quarters and locks on doors by reference to functional purposes.

It must be noted, however, that Aboriginal women and men confined to the islands maintained some of their cultural beliefs and traditions and some small and occasional measures of independence, suggested by photographs of them painted up for ceremonies and the presence of the formed points as well as a range of more strictly functional tools clearly constructed on the islands.

The medical treatment on Bernier and Dorre Islands did little to ‘cure’ disease. It probably did little more than help some of the symptoms of disease. While medical treatment included surgical excisions of ulcerated flesh, the government had not provided suitable facilities for surgery, and ‘a small shed made out of spare material’ was used as an improvised operating theatre and outpatient department (Lovegrove 1910a). The fact that there were frequent changes of medical staff and at times no medical staff resided on the islands supports the impression that doctors, and possibly

the government were not highly motivated or had more important medical appointments elsewhere (Mulvaney 1989:191).

Archaeological investigations revealed a surprising lack of medical objects. Sixty seven such pieces were found in total from a ten year period in which over 800 people were supposedly treated. The majority of objects found were broken medical bottles and instruments for experimentation. Whether this says anything about the lack of real health care, or the actual rates of disease (or lack thereof) on the islands can only be speculated about on the basis of the evidence available. Further research (Chapter 11) may provide greater clarity.

What can be concluded is that the Lock Hospitals on Bernier and Dorre Islands cannot be said with any certainty to have fulfilled the role of a hospital. Historical records, oral histories, death rates, living conditions and records of care all suggest otherwise. The case that the islands functioned primarily as places of confinement and incarceration – as 'total institutions' can be made with far more conviction. The experiences of patients more closely resembled those of criminals and the inmates of workhouses, asylums and prisons. The scheme was by no means successful in its primary goals of ridding Western Australia of syphilis or in curing Indigenous Western Australians of the disease, nor conducted in a manner which might reasonably lead to the fulfilment of those goals. The scheme can be seen at best as a program of imprisonment. At worst it could be seen as a mechanism of genocide. Historical documentation of collection methods, rates of incarceration, medical experimentation and death rates, combined with archaeological evidence of hospital design, treatments, living conditions and the huge discrepancies in the material resources available to the Aboriginal patients compared with the Europeans on the islands all lead to the impression of an underlying agenda which had little to do with health or wellbeing.

It is also clear that the Australian government did little to understand the ramifications of the scheme especially that of the dislocation of Aboriginal people across Australia and the devastation to individuals who were labelled as syphilitic, as two other schemes, the Port Hedland Lock Hospitals and the Fantome Island Lock Hospital were set up after the closure of the Bernier and Dorre Island Lock Hospitals. These did not close until the end of World War II, possible because it was only after a time

when the government may have seen the public outcry at other enforced incarcerations and inhumane acts across the world.

This research provides historical and archaeological data for understanding Indigenous Western Australians and their way of life in the European controlled medical environments on the islands. Without all sets of data the clarity of unequivocal proof of the intent of the scheme is incomplete. This research was more than a catalogue of archaeological data, the objects themselves all adding to a story which tells us about past societies and one which may be chosen to be forgotten by the Western Australian government.

The research aimed to promote public awareness of the Lock Hospitals' history and heritage as the first Aboriginal-only hospital in Western Australia. This research hopes to shed light on the whole Lock Hospital Scheme, as well as helping to clear up some of the issues associated with it. The project itself goes some way towards making clear the role of public health policies of the time in the social and economic regulation of Aboriginal people. Medical facilities are rarely incorporated into investigations of the framework of control and domination. The issues raised are not too far removed from those which affect Aboriginal Australians now, and the work is one which may help in understanding the wider aspect of the injustices and institutionalisation of Indigenous people, not only in Australia but possibly the world.

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APPENDICES

Appendix A

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Appendix B

APPROVALS FOR USE OF HISTORICAL DOCUMENTS

Approvals for the access to restricted historical document files pertaining to Aboriginal patients on Bernier and Dorre Islands were from two main sources:

- Health Department of Western Australia (request for restricted access material)
- Department of Indigenous Affairs (request for restricted access material)

Attached are copies of their approvals.

HEALTH INFORMATION CENTRE

Health Department of Western Australia

HEALTH DEPARTMENT OF WESTERN AUSTRALIA

REQUEST FOR ACCESS TO RESTRICTED ARCHIVAL MATERIAL

I hereby seek approval to obtain access to restricted Health Department records which are held at the Public Records Office.

PERSONAL DETAILS

Full Name: Jade Stingemore

Home Address: 2a Oceanic Dve Clorat

Telephone No: 9387 6410 wk 9380 3490

DETAILS OF RECORD TO BE SEARCHED

Accession/AN/Consignment or WAS Number:

File number and/or volume: Refer to attached

File Title sheets.

NOTE: If access to more than one file is requested, please attach a list.

REASON FOR SEARCH

Honours Project: Looking at incidences, age, sex, location of syphilis and venereal disease in North Western Australia. Need assess to primary data to obtain data.

CONFIDENTIALITY DECLARATION:

I declare that I shall keep confidential any patient name identified data may have been sighted by me during my research.

Signed: J Stingemore

Please forward completed forms to the Manager Records Services, Information Resources Branch, Health Department of Western Australia, 189 Royal St, EAST PERTH WA 6004.

Applicants will be advised in writing of the result of their application

OFFICE USE ONLY:

Request has been: Granted ☑ Denied ☐

Date: 7/5/02 Signature: [signature] Applicant Advised: ☑

Department of Indigenous Affairs
Government of Western Australia

ENQUIRIES: Deanne Jane Eldridge DJE

OUR REF: 97/0911-13 an-arclt.dot

YOUR REF:

Jade Stingemore
29 Oceanic Drive
Floreat Wa 6014

Dear Jade.

Your application for access to the following files is approved:

ACC 652	812/1909; 899/1909; 1056/1909; 1069A/1909; 1216//1909; 1280/1909; 66/1910; 809/1910; 846/1910; 907/1910; 675/1911; 1372/1911; 1431/1911; 1483/1911; 732/1912; 798/1912; and 964/1913;
ACC 653	119/1916.

You may research these records by arrangement with staff at State Archives. Please be aware that permission to research archival documents should not be interpreted as conferring an automatic right to take copies from them. As a general rule and in the interest of preserving these unique records photocopying will only be allowed at the discretion of the State Archivist.

These documents have been released to you on your undertaking to respect the confidentiality of any personal information that may be contained within them.

Please note that the following files remain CLOSED under our Library policy and we cannot provide access:

ACC 652	15/1909; 134/1909; 237/1910; 399/1910; 690/1911; and 678/1912;
ACC 653	309/1922.

Yours sincerely

KEITH DAVEY
ASSISTANT DIRECTOR INFORMATION MANAGEMENT

21 August 2002

cc
State Records Office
Alexander Library Building
Perth Cultural Centre
PERTH WA 6000

1st Floor, 197 St George's Terrace, Perth, Western Australia 6000
PO Box 7770, Cloisters Square, Perth, Western Australia 6850
Telephone (08) 9235 8000 Facsimile (08) 9235 8088
www.dia.wa.gov.au

Appendix C

APPROVALS FOR FIELDWORK

Approvals for the archaeological work undertaken on Bernier and Dorre Islands for this project are from five main groups, the Department of Indigenous Affairs, the various Aboriginal Land Councils and groups, the Department of Conservation and Land Management, the Health Department of Western Australia and the University of Western Australia.

Attached are the various approvals.

- University of Western Australia research approval
- University of Western Australia ethics approval
- Kimberley Land Council approval
- Pilbara Native Title Service approval
- Yamatij Land and Sea Council approval
- Department of Indigenous Affairs Section 16 approval
- Department of Conservation and Land Management approval 2004
- Department of Conservation and Land Management approval 2005

Attached are copies of their approvals.

THE UNIVERSITY OF WESTERN AUSTRALIA

Postgraduate Research and Scholarships Office
Hackett Hall - M358
35 Stirling Highway
Crawley, Western Australia 6009
Telephone +61 8 9380 2968
Facsimile +61 8 9380 1919
Email pghelp@admin.uwa.edu.au
WWW http://www.research.uwa.edu.au/postgrad
CRICOS Provider No. 00126G

Ref. 9920509

16 September 2003

Miss J L Stingemore
29 Oceanic Drive
FLOREAT WA 6014

Dear Miss Stingemore

RESEARCH PROPOSAL – APPROVED

I am pleased to inform you that the Board of the Postgraduate Research School has considered your Research Proposal and, subject to the following, will approve your proposed research.

- Your proposal indicates that appropriate special approvals (such as Animal Experimentation, Human Ethics, etc) in relation to your research are currently being sought. Please note that the Boards's approval for your research **is conditional upon approval from the appropriate committee**. *You and/or your supervisor are required to inform the Postgraduate Research and Scholarships Office in writing immediately if this approval is not forthcoming.*

On behalf of the Board please accept my best wishes for the remainder of your candidature.

Yours sincerely

Sue King

SUE KING
Administrative Assistant
Postgraduate Research and Scholarships Office

cc Dr J Gordon (Head)
Professor S Bowdler
SCHOOL OF SOCIAL AND CULTURAL STUDIES - M257

Associate Professor B Waddell (Head)
Dr J Meyer
Associate Professor I Dadour
SCHOOL OF ANATOMY AND HUMAN BIOLOGY - M309

PhD/T-RS4

THE UNIVERSITY OF WESTERN AUSTRALIA

Research Ethics
Research Services
M459

35 Stirling Highway, Crawley, WA 6009
Telephone: (08) 9380 3703
Facsimile: (08) 9380 1075
Email: kkirk@admin.uwa.edu.au
WWW: http//www.research.uwa.edu.au/hethics.html

RA/4/1/0818

5 November, 2003

Dr J Meyer
Anatomy & Human Biology - M309
UWA

Dear Dr Meyer

Project: Surviving the "Cure": Life on Bernier and Dorre Islands under the Lock Hospital Regime

Please be advised that ethical approval of the above project has been granted by the Human Research Ethics Committee.

Whilst the Committee is satisfied that the protocol as submitted has adequate safeguards to protect the rights of individual participants it is the responsibility of the researcher to advise the Committee of any departure from the original protocol which could impact on this ethical approval. Please note that as a condition of this approval you are required to inform the Committee, giving reasons, if the research project is discontinued before the expected date of completion.

The Committee is bound by NHMRC Guidelines to monitor the progress of all approved projects until completion to ensure that they continue to conform to approved ethical standards. Therefore, you will be required to submit annual reports on the human rights aspects of your study. You will also be required, at this stage, to submit copies of advertisements that have been used to recruit subjects for your project. An annual report form will be sent to you twelve months from this date.

Please note that approval has been granted for a period of four years. Initial approval is for a period of one year, and, thereafter for future periods of one year at a time subject to the receipt of satisfactory annual reports. At the end of the four-year period you will be required to complete a new *"Application to Undertake Research Involving Human Subjects"* should you wish to continue with your research. However, in special circumstances, the Chair has the authority to extend the approval period for up to six months in order to complete a project.

Please quote Project No 0818 on all correspondence associated with this study.

Yours sincerely

KATE KIRK
Administrative Officer
(Human Research Ethics Committee)

HREC/APP-PROJ.up

Kimberley Land Council

P.O. BOX 2145 BROOME WA 6725
Phone: (08) 9193 6199 Facsimile: (08) 9193 6279

Our ref: 1-03-053: JF: 210704

21 July 2004

Jade Stingemore
PhD/MForSc Student
School of Anatomy and Human Biology,
Centre for Forensic Science
Centre for Archaeology
35 Stirling Highway,
CRAWLEY WA 6009

Dear Jade

PHD RESEARCH PROPOSAL

We welcome your proposed study *'Surviving the "Cure": Life on Bernier and Dorre Islands under the Lock Hospital Regime'.*

In general the Kimberley Land Council refers your proposal to the Yamatji Land and Sea Council, whose jurisdiction covers the proposed areas in your research.

The KLC is able to endorse your proposal, provided it meets the requirements established for Ethical Research by AIATSIS, and the requirements of your University's Ethics Committee.

The KLC would be pleased to receive a copy of your thesis, and any other published materials resulting from your research.

We wish you success with this proposal.

Yours faithfully

JOSEPH FOX
Community Relations Officer

REGIONAL OFFICE
DERBY
PO Box 377, WA 6726
TEL: (08) 9193 1118
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PILBARA NATIVE TITLE SERVICE

A SERVICE DIVISION OF THE YAMATJI MARLPA BARNA BABA MAAJA ABORIGINAL CORPORATION

NATIVE TITLE REPRESENTATIVE BODY

GERALDTON OFFICE	PERTH OFFICE	KARRATHA OFFICE	SOUTH HEDLAND OFFICE	TOM PRICE OFFICE
171 Marine Terrace Geraldton WA 6530 P.O. Box 2119 Geraldton WA 6531	14th Floor Septimus Roe Building 256 Adelaide Terrace Perth WA 6000 P.O. Box Y3072 Perth WA 6832	Suite 4/16 Hedland Place Karratha WA 6714 P.O. Box 825 Karratha WA 6714	6/2 Byass Street Sth Hedland WA 6722 P.O. Box 2252 Sth Hedland WA 6722	Lot 8&9, Cnr Central & Stadium Roads, Tom Price WA 6751 P.O. Box 27 Tom Price WA 6751
Tel: (08) 9965 6222 Fax: (08) 9964 5646	Tel: (08) 9225 4644 Fax: (08) 9225 4633	Tel: (08) 9144 2866 Fax: (08) 9144 1274	Tel: (08) 9172 5433 Fax: (08) 9140 1277	Tel: (08) 9188 1722 Fax: (08) 9188 1996

This correspondence originated from the
☒ PERTH OFFICE

30 June 2004

Jade Stingemore
School Anatomy & Human Biology
Centre for Forensic Science
Centre for Archaeology
University of Western Australia
35 Stirling Highway
Crawley WA 6009

Dear Jade

This letter is to confirm that the Yamatji Marlpa Barna Baba Aboriginal Corporation (Yamatji), which is the Representative Body for native title claimants in the Yamatji and Pilbara regions, has considered your request for approval to conduct postgraduate studies on Bernier and Dorre Islands at Shark Bay. As you are aware this issue was referred to the November 2003 meeting of the Malgana Working Group, which you attended; Malgana being the Traditional Owners of those islands. The Malgana Working Group approved your research proposal, but were keen to express their desire that you keep them informed of your progress, and that you forward them (via Yamatji) a copy of your final thesis. The Yamatji Marlpa Barna Baba Aboriginal Corporation is satisfied that you have made genuine attempts to consult in good faith with Traditional Owners and therefore has no objection to you commencing your research project. The organisation would however add to the general Malgana request to be kept informed by asking if you would in addition to providing a copy of your thesis also forward any other reports or publications.

You may want to present this letter to the Department of Indigenous Affairs as evidence of your consultation with the relevant Traditional Owners and their approval – and consequently Yamatji approval – for your research at Shark Bay. We take this opportunity to wish you success on what appears to be a very interesting and worthwhile research project.

Yours faithfully

Robin Stevens
Heritage Officer

YAMATJI MARLPA BARNA BABA MAAJA ABORIGINAL CORPORATION
YAMATJI LAND AND SEA COUNCIL
PILBARA NATIVE TITLE SERVICE

GERALDTON (HEAD) OFFICE	PERTH OFFICE	KARRATHA OFFICE	SOUTH HEDLAND OFFICE	TOM PRICE OFFICE
171 Marine Terrace Geraldton WA 6530 P.O. Box 2119 Geraldton WA 6531	14th Floor Septimus Roe Building 256 Adelaide Terrace Perth WA 6000 P.O. Box Y3072 East St. Georges Tce Perth WA 6832	Suite 4/16 Hedland Place Karratha WA 6714 P.O. Box 825 Karratha WA 6714	6/2 Byass Street Sth Hedland WA 6722 P.O. Box 2252 Sth Hedland WA 6722	118 Oleander Street Tom Price WA 6751 P.O. Box 27 Tom Price WA 6751
Tel: (08) 9965 6222 Fax: (08) 9964 5646	Tel: (08) 9225 4644 Fax: (08) 9225 4633	Tel: (08) 9144 2866 Fax: (08) 9144 1274	Tel: (08) 9172 5433 Fax: (08) 9140 1277	Tel: (08) 9188 1722 Fax: (08) 9188 1996

This correspondence originated from the
☐ HEAD OFFICE ☒ PERTH OFFICE ☐ STH HEDLAND OFFICE
☐ KARRATHA OFFICE ☐ TOM PRICE

09 December 2003

Your Ref -
Our Ref MAL069

Ms Jade Stingemore, PhD Student
School of Anatomy & Human Biology
Centre for Forensic Science
Centre for Archeology
35 Stirling Highway
Crawley, WA - 6009

Dear Jade

PROPOSED RESEARCH - BERNIER AND DORRE ISLANDS

Thank you for your attendance at the Malgana working group meeting in Denham on 21 November 2003.

We confirm that the Malgana working group support your proposed research at Bernier and Dorre Islands and have no objection to it proceeding. The group did ask however that you keep them informed as to the progress of the project and provide a copy of the final report for their information.

We wish you all the best in your endeavors.

Yours sincerely

C. D. S

CEDRIC DAVIES
FUTURE ACTS OFFICER

Department of Indigenous Affairs
Government of Western Australia

ENQUIRIES: Lesley Dan 9235 8067
OUR REF: 04/0078
YOUR REF:

Ms Jade Stingemore
School of Anatomy & Human Biology
University of Western Australia
35 Stirling Highway
CRAWLEY WA 6009

Dear Ms Stingemore

SECTION 16 PERMIT

Enclosed is Permit No.394 authorising the surface survey by mapping, measuring and recording the characteristics of Aboriginal sites on Bernier and Dorre Islands, Shark Bay.

The ACMC has requested that you provide a report at 12 monthly intervals and at the conclusion of the project in accordance with the attached conditions.

Please do not hesitate to contact me further should you wish to discuss this permit or pertaining conditions further.

Yours sincerely

Lesley Dan
REGISTRAR OF ABORIGINAL SITES

3 September 2004

1st Floor, 197 St George's Terrace, Perth, Western Australia 6000
PO Box 7770, Cloisters Square, Perth, Western Australia 6850
Telephone (08) 9235 8000 Facsimile (08) 9235 8088
www.dia.wa.gov.au

Section 16 Permit

Aboriginal Heritage Act 1972 -1980

PERMIT No.: 394

RECIPIENT: Ms Jade Stingemore

OF: School of Anatomy & Human Biology
University of Western Australia
35 Stirling Highway
CRAWLEY WA 6009

is hereby permitted under Section 16 of the *Aboriginal Heritage Act 1972 - 1980* to:

SECTION 16 TYPE: *F. Management of the site(s) described hereunder for the purpose of detailed recording and research.*

for the following location(s)

SITE(S)/ AREA: BERNIER & DORRE ISLANDS, SHARK BAY

BERNIER ISLAND (DIA 7123)
DORRE ISLAND (DIA 7124)

for the period of

PERIOD: 3 September 2004 *Commences* — 3 September 2007 *Expires*

FINAL REPORT DUE: 30 SEPTEMBER 2007

This licence is issued subject to the provisions of the above Act, its regulations and conditions (please see overleaf).

Dated this 3 rd day of September 2004

Signed: _____
Registrar – Aboriginal Sites

CONDITIONS FOR PERMIT HOLDER

The holder must:

1. Adhere to the provisions of the *Aboriginal Heritage Act 1972-1980* and its Regulations.

2. Consult with and, where appropriate, involve members of the relevant Aboriginal communities in all aspects of the project (e.g. prior to submitting application, during activity, providing copies of the results and report). The researcher is accountable to the relevant Aboriginal people and communities during the research and the archaeological method and procedures must be explained to them, and approved by them. An appropriate protocol should be established with the relevant Aboriginal people and any representative organisations in regard to community reporting procedures.

3. Keep any test pit(s) within the minimum size necessary to evaluate the archaeological potential of the site. Such a pit is envisaged to have a maximum area of 1m x 2m at its base or comprise no more than 10% of the site whichever is the smaller. Once the potential of the site is demonstrated the test pit should be terminated. (see 4).

4. When intending to excavate a site (e.g. a site with proven potential under 3 above) submit an application to the Aboriginal Cultural Material Committee outlining the purpose of the investigation in sufficient time to be considered. Meetings are bi-monthly.

5. Submit site documentation on appropriate forms to be accessioned with the Department of Indigenous Affairs, and a report on the results, after consultation with and agreement from the relevant Aboriginal people.

6. Register all cultural material recovered with the Anthropology Department, Western Australian Museum in accordance with their instructions. Copies of the instructions for the registration of archaeological materials are available from the Anthropology Department, Western Ausralian Museum, Francis Street, Perth.

7. Where human skeletal material is discovered at any site, cease any activity at the site, inform the relevant Aboriginal people and the Registrar immediately and await instructions.

8. Where any site is sampled, site plans should be included in the documentation provided to the Aboriginal Affairs Department (see 5 and 10).

9. Provide the Department of Indigenous Affairs and the relevant Aboriginal communities/people with;
   i) interim reports of the project at the end of each calendar year, and
   ii) a final report within 12 months of the expiration of the permit.

   Also provide the Department with any subsequent documentation and published reports (e.g. theses, carbon dates, journal articles).

10. In the case of a general area permit (refer Q17), the relevant Aboriginal people make the final decision as to whether any archaeological investigations proceed.

PARTICULAR CONDITIONS

1. ***Interim reports are to be lodged each year (30/9) until the completion of the project in September 2007.***
2. ***All work to be conducted with the consent and involvement of the Aboriginal community.***
3. ***Site recording forms to be submitted to DIA for all new sites recorded on Islands.***

DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT

Enquiries: 17 DICK PERRY AVE, KENSINGTON, WESTERN AUSTRALIA
Telephone: 08 9334 0333
Facsimile: 08 9334 0242

Correspondence: **Locked Bag 30**
Bentley Delivery Centre WA 6983

PAGE 1
NO. CE000480

RECEIPT NO. **AMOUNT** $0.00

CONSERVATION AND LAND MANAGEMENT REGULATIONS 2002 REGULATION 4

AUTHORITY TO ENTER CALM LAND AND/OR WATERS

FOR THE PURPOSE(S) DESCRIBED

A LAWFUL AUTHORITY APPLICABLE TO REGULATIONS 8, 10, 12, 18 AND 31 OF THE CONSERVATION AND LAND MANAGEMENT REGULATIONS 2002.

EXECUTIVE DIRECTOR

CONDITIONS

1 *****LICENSEE TO CONTACT CALM DENHAM OFFICE (08 9948 1208) 67 KNIGHT TERRECE, DENHAM PRIOR TO COMMENCEMENT OF ACTIVITIES. PLEASE MAKE CONTACT WITH GASCOYNE DISTRICT MANAGER, KEVIN CRANE, COLLEEN SIMS OR DELEGATE.*****

2 ****ATTACHMENT TITLED " OVERNIGHT CAMPING CONDITIONS FOR BERNIER AND DORRE ISLAND FROM SHARK BAY DISTRICT OFFICE OF DCLM " TO BE ADHERED TO AT ALLTIMES.****

3 AUTHORISES S.BOWDLER, J.MEYER, I.DADOUR & S.BOURKE.

4 THIS AUTHORITY IS A WRITTEN NOTICE FOR THE PURPOSES OF REGULATION 4(1) OF THE CONSERVATION AND LAND MANAGEMENT REGULATIONS 2002 (THE REGULATIONS) AND IT AUTHORISES THE PERSON NAMED AS THE AUTHORITY HOLDER TO CARRY OUT CERTAIN ACTS AS DESCRIBED UNDER "PURPOSE" (BELOW), THAT WOULD OTHERWISE BE UNLAWFUL UNDER THE REGULATIONS CITED IN THIS AUTHORITY.

5 THIS AUTHORITY, TOGETHER WITH THE ACCOMPANYING ATTACHED CONDITIONS, PERMITS ACCESS TO "CALM LAND" (REGULATION 2) FOR THE PURPOSE OF TAKING FLORA OR FAUNA (REGULATION 8), FEEDING FAUNA (REGULATION 10), POSSESSING THINGS USED FOR TAKING FAUNA (REGULATION 12), TAKING NON-INDIGENOUS ANIMALS (REGULATION 18), AND/OR REMOVAL OF A NATURALLY OCCURRING FEATURE (REGULATION 31), AS APPLICABLE FOR THE PURPOSE DESCRIBED BELOW.

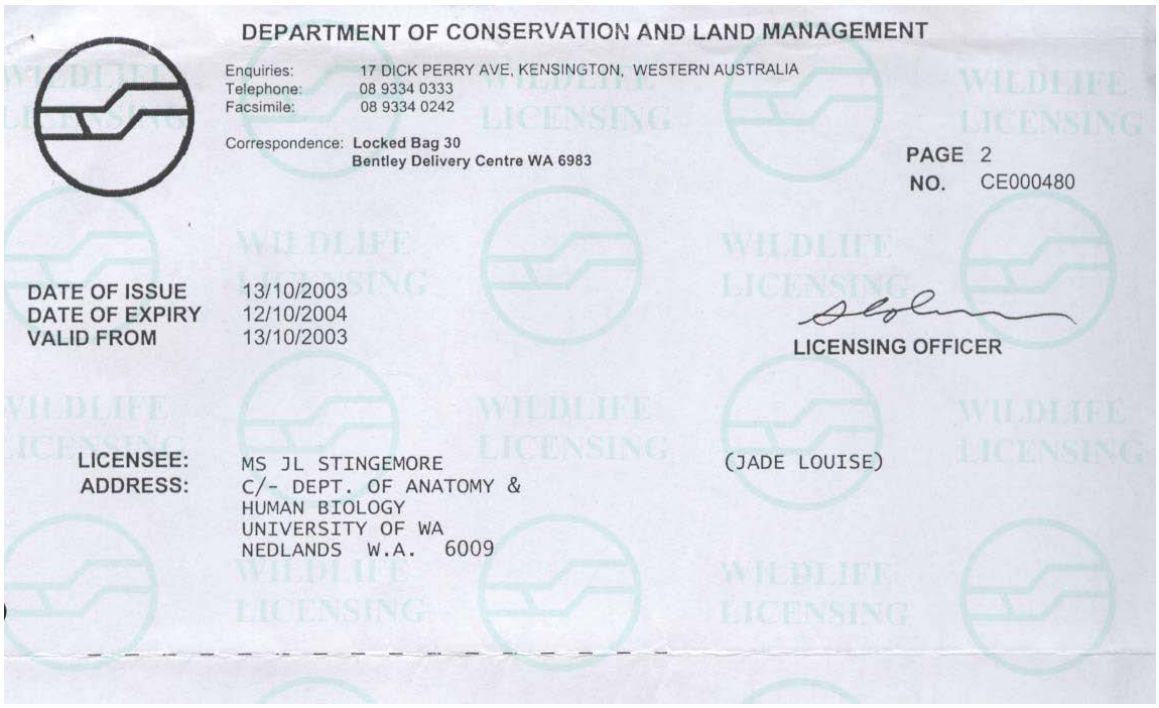
6 WHERE APPLICABLE, LICENCES ISSUED UNDER REGULATION 89 OR SECTION 15(1) AND/OR SECTION 23C OF THE WILDLIFE CONSERVATION ACT 1950 FOR THE TAKING OF FLORA AND/OR FAUNA ARE REQUIRED IN ADDITION TO THIS AUTHORITY.

7 THIS AUTHORITY DOES NOT COMPRISE A LAWFUL AUTHORITY TO ENTER "CALM LAND" THE SUBJECT OF DIVISION 1 OF PART 3 OF THE REGULATIONS UNLESS THE LAND AND/OR WATERS IS DESCRIBED BELOW. ("CALM LAND" IS DEFINED IN REGULATION 2 TO MEAN LAND, OR LAND AND WATERS, TO WHICH THE REGULATIONS APPLY, INCLUDING CAVES AND PARTS OF CAVES ON, OR UNDER THAT LAND. THE REGULATIONS APPLY TO THE LAND AND WATERS DESCRIBED IN REGULATION 3).

8 IT IS ESSENTIAL THAT CALM REGIONAL/DISTRICT OFFICE(S), AND WHERE APPLICABLE PARK RANGER(S), ARE CONTACTED BY THE AUTHORITY HOLDER AT LEAST 48 HOURS PRIOR TO ACTIVITIES TAKING PLACE IN CALM LAND UNDER THIS AUTHORITY.

9 NO BIOPROSPECTING INVOLVING THE REMOVAL OF SAMPLE AQUATIC AND TERRESTRIAL ORGANISMS (BOTH FLORA AND FAUNA) FOR CHEMICAL EXTRACTION AND BIOACTIVITY SCREENING IS PERMITTED TO BE CONDUCTED WITHOUT SPECIFIC WRITTEN APPROVAL BY THE EXECUTIVE DIRECTOR OF C.A.L.M.

PURPOSE ARCHAELOGICAL RESEARCH AT BERNIER & DORRE ISLAND.



DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT

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PAGE 2
NO. CE000480

DATE OF ISSUE 13/10/2003
DATE OF EXPIRY 12/10/2004
VALID FROM 13/10/2003

LICENSING OFFICER

LICENSEE: MS JL STINGEMORE (JADE LOUISE)
ADDRESS: C/- DEPT. OF ANATOMY &
HUMAN BIOLOGY
UNIVERSITY OF WA
NEDLANDS W.A. 6009

Overnight Camping Conditions For Bernier and Dorre Island from Shark Bay District Office of DCLM.

The Shark Bay Terrestrial Reserves Management Plan (2000-2009) recommends restricting access to daytime only, for recreational purposes. However, there is some scope to allow for overnight camping for research purposes only.

The following are some of the restrictions that would be requested by this district as conditions of such a permit allowing overnight camping on these A Class reserves:

- No Campfires at anytime.
- No smoking except on beach.
- Small Gas cooking stoves are permitted only (Depending on the season [November – March], no naked flames may be allowed at all).
- Camping must only take place at Hospital Bay on Bernier Island and White Beach on Dorre Island (please indicate planned camping sites on map of study area as per Reg 4 application).
- We request that you display a large easily visible sign (e.g. on side of tent) identifying your group as a research group and your affiliated organization (e.g. UWA – RESEARCH).
- No disturbance of vegetation or fauna other than that indicated in the attendant Regulation 17 license.
- All toilet waste to be buried, to a minimum depth of 600mm, and behind fore-dunes.
- All other wastes and equipment must be removed on completion of visit.
- All food stuffs and food wastes to be sealed in animal proof containers (Boodies are adept at scavenging!) and removed at completion of visit.

Due to the islands' relative remoteness and difficulty of access, the Shark Bay District office of DCLM, also require the provision of details of SAR (Search And Rescue) procedures, contact base (e.g. UWA administration?) and schedule and type of communications e.g. marine radio and satellite telephone.

Notification to this office, of dates and details for specific field trips is requested at least 6 weeks prior to visitation.

At completion of research project, DCLM – Shark Bay District request a copy of data results &/or any reports/publications related to it, for their records library.

AUTHORITY CONDITIONS

General

1.1 All Authority holders must comply with the CALM Act and Regulations, and the Wildlife Conservation Act and Regulations.

1.2 The Executive Director retains the right to terminate the Authority at any time.

1.3 The District Manager and/or National Parks Ranger is to be notified before the commencement of any activity.

1.4 The District Manager or his/her delegate has on-site control of all activities.

1.5 The Authority holder shall keep the Authority on hand during all periods of collection activity, and produced on demand to an officer of the Department of Conservation and Land Management.

1.6 Authorities are not transferrable.

1.7 All individuals assisting with the project must be supervised by the Authority holder. The Authority holder remains fully responsibility for all actions under taken under this Authority.

1.8 Commercial use, or sale of any specimens taken under this Authority is prohibited.

1.9 The Authority does not allow the taking of Declared (or Threatened) Rare Flora or Fauna.

1.10 The Authority provides no entry to Parks or Reserves, or parts thereof, listed as limited access or prohibited areas.

1.11 The Executive Director shall be provided with a report at the expiry of the Authority detailing the results of the project and a copy of all publications arising from the project. Details of all specimens taken, where lodged and registration numbers in those collections must also be provided.

Environmental Considerations

2.1 Disturbance to the environment must be minimal.

2.2 Rocks, logs, litter or similar material are to be returned to their original orientation on completion of research.

2.3 Excavations, regardless of size, must be backfilled upon completion of work.

2.4 Pit traps must be filled or capped following completion of the work period and removed entirely after completion of the project.

2.5 All reference markers must be removed before the expiry date of the Authority.

2.6 Camping or lighting fires on Nature Reserves is prohibited.

2.7 Fires within a Park must be in an approved site.

2.8 On-site camping in a Park may be permitted on a site selected by the District Manager or her/his delegate.

3. Dieback Hygiene

3.1 Moist soil access will be restricted to approved low risk management tracks and firebreaks.

Approved tracks will generally:

3.1.1 Be hard surfaced, well drained and/or low in the landscape.

3.1.2 Be predominantly within a single dieback risk category i.e. all dieback free, dieback, uninterpretable etc.

3.1.3 Pose minimal threat to downgrade area i.e. boundary tracks with private property or resistant vegetation downslope.

Access to additional management tracks and firebreaks may be approved by the District Manager or his delegate under soil conditions.

3.1.4 Vehicles must be cleaned down before entry into a Park or Reserve, and at the direction of the District Manager when travelling within a Park or Reserve.

3.1.5 All excavation equipment must be clean before entering a Park or Reserve, and must be cleaned down between excavations. There is to be no soil or plant tissue movement between sites.

4. Specimens

4.1 A LICENCE TO TAKE FAUNA FOR EDUCATIONAL OR PUBLIC PURPOSES, or a SCIENTIFIC OR OTHER PRESCRIBED PURPOSES LICENCE (Flora), or a Regulation 89 licence to take flora and fauna in a Marine Reserve for Scientific Purposes is required to collect flora or fauna.

4.2 Plant specimens are to be restricted to standard herbarium sheet size or smaller unless specifically indicated.

4.3 Rootstocks of plants are to remain undisturbed unless specifically indicated.

4.4 All fauna including invertebrates are to be released at the site of collection unless otherwise indicated.

4.5 The taking of Buprestidae beetles is not permitted.

4.6 Geological specimens are restricted to hand specimens (approx 20 cm x 10 cm x 5 cm) unless specifically indicated.

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RECEIPT NO. **AMOUNT** $0.00

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PURPOSE ARCHAELOGICAL RESEARCH AT BERNIER & DORRE ISLAND.

DATE OF ISSUE 27/01/2005
DATE OF EXPIRY 12/10/2005
VALID FROM 13/10/2004

LICENSING OFFICER

LICENSEE: MS JL STINGEMORE (JADE LOUISE)
ADDRESS C/- DEPT. OF ANATOMY &
HUMAN BIOLOGY
UNIVERSITY OF WA
NEDLANDS W.A. 6009

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Appendix D

BERNIER ISLAND ARTEFACT LISTS

Note: GPS readings have a 10-15 metre error. Sites indicated on the maps taken from GoogleEarth found within this thesis are more reliable for accurate positioning.

SITE NUMBER	SITE NAME	GPS LOCATION	SIZE	ALTITUDE	DESCRIPTION	ABORIGINAL/ EUROPEAN	PHOTOGRAPHS (Figures)	COMMENTS
A1	Hospital Administration	S24^{0}47' 45.7" E 113^0 09' 30.7"	12.5m x 7.8m	26m	Concrete pad with a number of different rooms. Fire place made with red brick and aggregate cement. Corrugated iron sheet protrudes from fire place on the western side. Charcoal scatter found directly west of the fireplace off the pad. Artefacts associated with the concrete pad include ceramics (piece porcelain, tiles, vessels, home wares, pot plant), glass white and green (fragments, jars, bottle, window), metal tins and tin associated objects, red brick, bed frames and mattress springs, enamelware, metal buckets, watering can, metal brackets, shovels, building materials like scrap metal and concrete aggregate. Plaque of remembrance placed in centre of pad in 1990s by CALM	European	8.15 8.17 8.18a,c 8.31a 8.37a,c 8.42a 8.42 8.43 8.47 8.54 8.58b	Highest point in the Hospital Bay area. Situated on hill overlooking other sites, especially the ward. Associated with other sites A2, A3, A4, A5
A1a	Rubbish scatter	S24^{0}47' 45.7" E 113^0 09' 30.7" (point taken at SE edge of A1)	10m x 10m	25m	Artefact scatter extending from A1 to 10m the northeast. Artefacts including metal bucket with handle, metal billy, scrap metal, cut wooden posts, concrete aggregate, brown glass, medical tonic bottle, white broken glass, metal straps, brown glossed stoneware, sewage/water pipe pieces, porcelain jar lid, oyster shell	European	8.59a	-
A2	Brick and rockpile scatter	S24^{0}47' 45.9" E 113^0 09' 31.0"	3.5mx 2.5m	26m	Rock mound 2.5m in height with cement and aggregate, blocks and bricks, porous limestone, scrap metal. It is partially covered by vegetation. Metal shovel and square metal box associated with it	European	8.15 8.18d	Not a site itself probably part of the clean up at the end of the scheme. Bricks and rocks probably came from other sites A1, A3, A4, A5
A3	Underground Concrete cistern	S24^{0}46' 45.5" E 113^0 09' 30.2	5.8m x 3.2m	22m	Underground concrete cistern enclosed by cement. Inside it has two sections. A manhole is located on top. There is no evidence that a building was ever located above it. A timber structure which looks like some sort of pulley system to retrieve water is attached to the concrete slab on the western end of the pad. Scattered nails are found on top of pad. Metal billies, metal tin can, white glass, blue enamel billy and plate and bucket, shells, ceramic and metal handles are also evident	European	8.15 8.18b 8.18g	Building overlooks the ward and Aboriginal camps. Associated with other sites A1, A2, A4, A5

A4	Garden wall	S24^{0}47' 45.3" E 113^0 09' 30.4"	7.8m x approx 0.3m	24m	Rock retaining wall (maybe gardening function). It is L shaped. Associated with administration building. Associated artefacts are chicken wire, bin lid, ceramics, medical crucible, white ceramic, wash trough, bottle glass, metal door bell, ceramic tiles, bone china	European	8.15 8.18e 8.45c 8.47 8.53 8.59c	Associated with other sites A1,A2, A3, A5
A5	Garden Wall	S24^{0}47' 45.7" E 113^0 09' 31.6	16m x 0.4m	24m	Garden wall located north of administration area. Assumed purpose is a retaining wall associated with doctor's house. Coral and shell grit pad associated with it. Presence of a water tank nearby. Exotic (pepper tree) located nearby. Other artefacts include down pipe, timber, corrugated iron, porcelain, shell, white glass, everyday ceramics, green glass, blue glass, brown glass, teapot spout, chimney top flute, shell, scrap metal. Presence of an Aboriginal flaked glass artefact	European	8.15 8.18f 8.47	Associated with other sites A1,A2, A3, A4.
A5a	Rubbish scatter	S24^{0}47' 38.3" E 113^0 09' 39.1"	50m x15m	24m	Rubbish scatter associated with A5 and extends all the way along the sand dune ridge to F1. Associated artefacts include green bottle glass, metal straps, Holbrook bottle, flowerpot, pine plank (probably not dating to LH period), clay pipe fragments, porcelain, and medicinal shaker lid	European	8.48 8.49 8.59d	Associated with doctor's house and administration area
A6	Ward	S24^{0}47' 39.8" E 113^0 09' 32.9" NW corner of pad	24.4m long x 10.5 m wide	18m	Concrete pad that contains a number of rooms within the pad structure. A veranda extends along the outside. Artefacts present include metal bolts, scattered nails, metal posts and straps, scattered glass, bed frames, bucket, night soil cans, white bed pan, bricks, crank and cog, down pipe, two water tanks, geared metal object, blue and white enamel cups, plates, ceramic, various glass, stump caps, pipe stem, watch works, metal springs, Coolgardie safe material, boiler parts, metal jug, molten black glass. Flaked Aboriginal style glass also present	European	8.12 8.13 8.18g 8.31b 8.38 8.42b 8.58a 8.79	Largest structure on the island. Located the most inland of all hospital site on flat ground. Overlooked by all other European buildings on the island
A7	Laundry	S24^{0}47' 43.4" E 113^0 09' 27.8"	3.6mx3.4m	20m	Concrete pad that seems to be only one room. Charcoal scatter located nearby measuring approximately 4mx2m. Associated artefacts included plumbing pipe, window pane glass, metal cans, bolts, wire frame, metal pipe, metal objects, corrugated iron, wash basin bits and concrete wash trough	European	8.23	Vegetation growing from the centre of it
A8/A12	Stables and paddock	S24^{0}47' 38.2" E 113^0 09' 36.2"	6.8m x 3.4m	20m	Broken building slabs made of local stones and rubble. Corrugated iron remnants make up side walls. Associated artefacts included, iron chain links, down pipe, corrugated iron, chicken wire, water tanks, metal tins, weeds (non native plant species), water pipe, enamel plate, green glass, cork shoe sole, glass pot (toiletries) and glass funnel (medical)	European	8.24 8.25b 8.37d 8.39e 8.59e	Located inland on flat ground
	Pens/yards	S24^{0}47' 42.2" E 113^0 09' 29.8	100mx100 m	24m	Area which has evidence of once being cleared and fenced off. Presence of remnant fencing and chicken wire and guttering, concrete aggregate fence posts and presence of a line of white rocks with chicken wire	European	8.24	Associated with stables, paddocks, trough and water tanks

	Trough	S24^{0}47' 38.0" E 113^0 09' 35.2"	2mx0.5m	24m	Water trough for animals	European	8.24 8.25b	Associated with stables, paddocks, pens, yards and water tanks
	Water tank	S24^{0}47' 42.9" E 113^0 09' 31.0"	2mx2m	21m	Corrugated iron water tank. Lid of tank is two metres in diameter	European	8.24 8.25a	Associated with stables, paddocks, pens, yards and trough
A9	Outpatients	S24^{0}47' 36.6" E 113^0 09' 37.0"	5.4mx5.4m	20m	Concrete slab with presence of two rooms. Contains a red brick fireplace. There is evidence of scattered rock for an extra pad around the site (possible veranda). Associated artefacts include window pane glass, nails and screws, enamel billy, blue enamel cup and square metal cans	European	8.21 8.37b	Site is visible from most structures on the island
A13	Brick pad	S24^{0}47' 37.8" E 113^0 09' 37.0"	1mx2m	20m	Rectangular shaped pad structure outlined with bricks with compressed shell grit inside. Associated metal tray and remnant wood pieces.	European	-	Most likely associated with the outpatients
BA1	Southern Cliff of Hospital Bay	S24^{0}47' 51.7" E 113^0 09' 51.1"	-	9m	Southern cliff of Hospital Bay. Area contains a variety of eagles nest and has good view up and down the coast and to mainland WA	Geographical location	-	Not a site Geographical location
BA2	North Cliff of Hospital Bay	S24^0 47' 28.5" E 113^0 09' 46.7"	-	11m	Northern cliff of Hospital Bay. Area contains a variety of eagles nest and has good view up and down the coast and to mainland WA	Geographical location	-	Not a site Geographical location
B1	Rubbish scatter	S24^{0}47' 37.3" E 113^0 09' 41.3"	5mx7m	22m	Artefact scatter to the south east side of administration site. Associated artefacts include broken pieces of green glass, cooking pots, metal pipes, asbestos, ceramic, pearl button, charcoal, nails, stump caps, lead sheet, galvanized fragments, red brick	European	8.49	Most likely artefact scatter associated with administration building
B3	Rubbish scatter	S24^{0}47' 38.3" E 113^0 09' 39.1"	30mx10m	24	Artefact scatter from F1 along ridge to administration buildings. Associated artefacts include green bottle glass, clear glass, other broken bottles, wood, corrugated iron, top of a medicine bottle, bed frame, bits of metal, burnt rock	European	8.39d	Most likely artefact scatter associated with doctor's building
B4	Rubbish scatter	S24^{0}47' 39.4" E 113^0 09' 32.9"	60mx10m	24-20m	Artefact scatter south of administration building and doctor's house. Artefact include Penfolds metal wine seal, iron bar, ceramic cup handle, green glass, white glass, fragments of metal.	European	8.41	Most likely associated with the administration building. Material likely to have been washed down the hill towards the ward
B5a,b,c/B6	Rock pads	S24^{0}47' 40.4" E 113^0 09' 33.8"	Approx 4x3m each	20m	Three sets of rock pads SE of ward. The pads containing scattered artefacts including square mesh metal, glass bottles. Exotic plants including milkweed and thistles also found in rock pad	European	-	Probably areas to place small sheds upon (building pads)
B7	Aboriginal Campsite	S24^{0}47' 38.6" E 113^0 09' 31.9"	5x5m	16m	Large repeat use campsite. Scatter of artefacts including burnt domestic bone, burnt rock, blue, green, clear brown glass, asbestos, metal can, large metal tins, clay pipe bow, pierced shell, clay pipe, large shell button	Aboriginal	8.68 8.72	-

B8	Rubbish scatter	S24^{0}47' 39.6" E 113^0 09' 32.0"	10mx4m	18m	Scatter of various objects including various ceramic, metal door knob, blue, brown, green broken glass, whole bottles, metal bed frame, brass attachment electrical, clock parts, boiler, metal gear ware, cognac lid, big belt buckle, clay pipe and stems, blue white ceramic vase, metal tins, metal lock, Night soil buckets which are labelled 'Bernier Island'	European	8.45a 8.46 8.48 8.50 8.52 8.53 8.54 8.79	Located close to ward and probably disposed of at the end of the scheme
B8a	Aboriginal campsite	S24^{0}47' 39.6" E 113^0 09' 32.0"	10mx8m	17m	Repeat use campsite. Artefacts include ceramic, metal objects, glass, burnt shell and bone. Whole area has been largely burnt.	Aboriginal	8.62b 8.74b 8.79	Located close to the ward site
B9	Aboriginal campsite	S24^{0}47' 41.0" E 113^0 09' 2.0"	8mx6m	24m	Large repeat use campsites. Artefacts include marsupial bones, ceramics (creamware), thin bottle, flaked green glass, shells white glass, weeds, charcoal	Aboriginal	8.69a 8.74a	Located close to the ward site
B10	Rubbish scatter	S24^{0}47' 41.4" E 113^0 09' 33.9"	8mx5m	24m	Artefact scatter located near the doctor's house. Artefacts include blue and white ceramic (creamware), stonewares, ornamental shells, clear and mauve glass and burnt domesticated bone	European	8.45b	Artefacts of high quality (probably associated with doctor's house)
B10a	Rubbish scatter	S24^{0}47' 41.8" E 113^0 09' 34.7"	1mx1m	21m	Artefact scatter that consists primarily of shells including non-edible species like cowrie shells and coral clusters, located near administration building	European	-	Shells likely chosen for aesthetic purposes
C1	Rubbish scatter	S24^{0}47' 42.7" E 113^0 09' 24.0"	3mx3m	25m	Artefact scatters containing ceramic cup, blue, green and clear glass, and native wallaby bones. A scorched rock pile is located nearby	Aboriginal	8.68b	-
C2	Rubbish scatter	S24^{0}47' 44.5" E 113^0 09' 21.2"	4mx3m	30m	Artefact scatter consisting of enamel plates, glass bottles, whole green glass bottle, enamel plate and corrugated iron	Aboriginal	-	Likely to be remnants of corrugated iron humpy provided as accommodation for Aboriginal patients
C3	Aboriginal campsite	S24^{0}47' 40.4" E 113^0 09' 17.6"	5mx5m	33m	Repeat use campsite. Artefacts include scattered corrugated iron, clay pipes, Bakelite pipes, ceramics, food cans, scorched and cut domestic bones	Aboriginal	8.70	-
C3a	Rubbish scatter	S24^{0}47' 41.4" E 113^0 09' 18.3"	3mx6m	31m	Artefact scatter consisting of guttering and metal pipe	European	8.32a	Likely piled up in the clean -up at the end of the scheme
C4	Aboriginal campsite	S24^{0}47' 25.7" E 113^0 09' 29.6"	2mx3m	30m	Repeat use campsite containing oyster shells, glass fragments, metal can fragments. Located underneath a quandong tree	Aboriginal	-	-
C5	Aboriginal campsite	S24^{0}47' 19.7" E 113^0 09' 37.8"	4mx2m	20m	Repeat use campsite containing glass and oyster shells. Situated on top of sand dune overlooking the group of quandong trees west and the ocean looking east	Aboriginal	8.80	Situated onto of sand dune overlooking the group of quandong trees west and the ocean looking east

C6	Windmill Flats	S24^{0}47' 23.5" E 113^0 09' 36.1"	Approx 50mx50m	13m	Flat clearing. Remnants of various structures within the clearing, evident by wooden posts. Various artefacts including shoe with metal tacks, metal perforated, can, smoking pipe stem, large rocks, glass, burnt bone, metal handle, oyster shells	European	8.28	-
D2b	Rubbish scatter	S24^{0}46' 38.9" E 113^0 09' 55.4"	4mx1m	20m	Artefact scatter consisting of fragments of clear glass, oyster shells. Numerous driftwood located nearby	Aboriginal	-	Located on NW tip of island looking back to mainland WA
D2c	Rubbish scatter	S24^{0}46' 45.4" E 113^0 09' 53.3"	1mx6m	14m	Scatter of charcoal, clay pipe, metal, horse shoe, glass located in a wash area	Aboriginal	-	Site disturbed by wash from seasonal rains
D3	Single artefact	S24^{0}47' 18.7" E 113^0 09' 44.8"	-	11m	Tobacco box	European	-	-
D4	Rubbish scatter	S24^{0}47' 14.8" E 113^0 09' 37.4"	5mx3m	12m	Artefacts scatter consisting of large metal cooking pot, ceramics and remnants of wooden structure	European	-	-
D5	Rubbish scatter	S24^{0}47' 17.6" E 113^0 09' 37.8"	3mx2m	13m	Artefacts scatter consisting of oyster shells, Bovril bottle, charcoal, scattered metal, white bottle 12m scatter	Aboriginal	-	-
D6	Rubbish scatter	S24^{0}47' 16.1" E 113^0 09' 39.4"	1mx1m	12m	Artefact scatter consisting of galvanised iron wash tub and whole beer bottles	European	8.57a	-
D7	Rubbish scatter	S24^{0}47' 16.5" E 113^0 09' 41.3"	15mx 4m	12m	Scatter of artefacts including a test tube with holes perforated at the sides and open at both ends (unknown purpose), shell and glass scatter	European	8.59f	-
D8	Well	S24^{0}47' 17.2" E 113^0 09' 40.7"	2.5x1.5m Depth unknown	15m	Cement lined hole. Depth unknown as it has been filled in by sand. Pump equipment labelled F.E. Meyers and Son. Associated artefacts include green glass, clam shell and oyster shells, scattered metal throughout, burnt bone charcoal, can base, wire, ceramic, 4 hole button	European	8.30	-
D9	Aboriginal campsite	S24^{0}47' 18.4" E 113^0 09' 42.2"	3mx4m	13m	Repeat use camp consisting of hearth, bones domestic, oyster shells, large rock in fireplace arrangement	Aboriginal	-	Located within the Windmill Flats area
D10	Rubbish scatter	S24^{0}47' 17.9" E 113^0 09' 43.0"	3x4m	12m	Artefact scatter containing a large cooking pot , rock pile. Other artefacts include ceramics, glass, lead sheet, Bovril jar, brass/copper metal tin, wooden posts	European	-	Exotic plant present (flax) Site located in NE corner of Windmill Flats
D11	Rubbish scatter	S24^{0}47' 17.0" E 113^0 09' 42.2"	2x1m	12m	Artefact scatter including blue glass, clear glass, and tarpaulin rings	European	-	-
D12	Wagon	S24^{0}47' 18.1" E 113^0 09' 43.6"	5mx3m	13m	Remnants of an almost complete wagon. The frame of the wagon being 1.2m wide and 2m long and the wheel diameter spokes about 1.5m. Associated artefacts included horse shoe and nails	European	8.35	-
D13	Aboriginal campsite	S24^{0}47' 18.9" E 113^0 09' 44.0	4mx4m	13m	Repeat use campsite containing purple and green glass, enamel plates charcoal, burnt bone, green glass, small metal fragments and oyster shell	Aboriginal	8.67a	Site located in NE corner of Windmill Flats
D14	Rubbish scatter	S24^{0}47' 19.5" E 113^0 09' 43.6"	1mx1m	15m	Artefact scatter consisting of clay smoking pipe fragments green and clear glass (mould visible)	European	-	Site located in NE corner of Windmill Flats

D15	Rubbish scatter	S24^{0}47' 22.0" E 113^0 09' 41.9	0.5mx0,5m	16m	Artefact scatter consisting of shells (operculum) and glass fragments	Aboriginal	-	-
D16	Rubbish Scatter	S24^{0}47' 28.6" E 113^0 09' 47.4"	3mx2m	14m	Scatter of large wooden planks that look like they once belonged to the jetty	European	-	Jetty is located just over the dune from this site
D17	Rubbish scatter	S24^{0}47' 30.1" E 113^0 09' 46.6"	0.5mx0.5m	9m	Remains of sheep/goat bones (Long bones, pelvis, vertebrae, teeth). Bones show evidence of domesticated butchery cut.	Aboriginal	8.74c	-
E1	Rubbish scatter	S24^{0}47' 35.6" E 113^0 09' 39.0"	0.8mx0.4m	12m	Artefact scatter consisting of fragmented brown and green glass en	Aboriginal	-	Located east of outpatients building over the sand dune
E2	Rubbish scatter	S24^{0}47' 37.6" E 113^0 09' 47.0"	1mx1m	13m	Artefacts scatter consisting of tiny fragments of metal (possible remnants of a humpy)	Aboriginal	-	Located east of outpatients building over the sand dune
E3	Aboriginal campsite	S24^{0}47' 36.6" E 113^0 09' 42.0"	3mx4m	14m	Repeat use campsite consisting of shell, burnt bone, Bakelite glass, metal tin pin, scattered bones, charcoal	Aboriginal	-	Located east of outpatients building over the sand dune
E4	Rubbish scatter	S24^{0}47' 36.6" E 113^0 09' 45.0"	2mx2m	12m	Artefacts scatter consisting of metal fragments, nail, blue and brown glass	European	-	Located east of outpatients building over the sand dune
F1	Doctor's house	S24^{0}47' 41.9" E 113^0 09' 35.1"	4mx4.5m	27m	Building pad consisting of small rocks. Associated with site is water tank, down pipe, building support stumps and stump caps, chicken wire, ventilation rim and asbestos. This building would have once sat on stilts	European	8.19a	Highest point in Hospital Bay area. Overlooks all sites on island and has good geographical view point to access routes and to mainland WA
J1	Jetty	S24^0 37' 33.4" E 113^0 09' 44.4"	3m x at least 20m	Sea level	Functional jetty site on Hospital Bay made from jarrah wood nuts and bolts extends across rock reef for about 20m. Beams were approximately 3m wide and embedded into the natural rock on the bay	European	8.26	-
M1	Sandalwood area	S24^{0}48' 14.5" E 113^0 09' 08.2"	40mx60m	33m	Area of sandalwood in middle of the island	Geographical feature	-	-
M2	Isolated artefact	S24^{0}46' 58.1" E 113^0 09' 57.3"	0.5mx0.5m	21m	Billy with red oxidized material (possible paint)	European	-	Associated with the ward
N1	Aboriginal campsite	S24^{0}47' 68.5" E 113^0 10' 03.1"	1mx2m	18m	Single use campsite with metal strap and nails, metal rim artefacts. Possible remnants of humpy	Aboriginal	-	Located near a serious of quangdong trees
N2/D1	Aboriginal campsite	S24^{0}47' 00.9" E 113^0 09' 41.1"	2mx3m	15m	Single use campsite consisting of glass fragments and metal fragments	Aboriginal	-	
N3/D1a	Aboriginal campsite	S24^{0}46' 57.28" E 113^0 09' 42.4"	0.5mx0.5m	17m	Single use campsite containing six flaked dark green glass artefacts and glass fragments	Aboriginal	8.79	Located on cliffs overlooking ocean towards mainland WA
N4/D2a	Aboriginal campsite	S24^{0}46' 41.7" E 113^0 09' 54.7"	2mx2m	19m	Single use campsite containing flaked dark green glass material, metal, oyster shells, ceramic, clear and purple glass. Located near an outcrop that naturally pools water	Aboriginal	-	Very exposed on cliff overlooking ocean. Large resources of oysters located nearby

N5/D2c	Aboriginal campsite	S24^{0}46' 45.4" E 113^0 09' 53.3"	4mx1m	14m	Single use campsite containing charcoal, clay smoking pipe fragments, horseshoe, green glass, blue glass, asbestos, cowrie shell, metal can, burnt bone, various shells, ceramic. Located in a wash area that has seasonal runoff of rain water	Aboriginal	8.62a 8.68a	-
N6	Aboriginal campsite	S24^{0}46' 38.9" E 113^0 09' 55.3"	2mx2m	14m	Single use campsite containing oyster shells and metal fragments	Aboriginal	-	-
N7	Aboriginal campsite	S24^{0}46' 37.3" E 113^0 09' 56.4"	1mx3m	14m	Single use campsite containing oyster shells and glass fragments	Aboriginal	-	-
01	Aboriginal campsite	S24^{0}47' 15.9" E 113^0 08' 35.8"	5mx4m	7m	Repeat use campsite located within a rock shelter. Site contains fragmented glass, goat bones, oyster shells	Aboriginal	-	Site is located on the other side of island from the hospital structures.
R1	Rubbish scatter	S24^{0}47' 37.3" E 113^0 09' 38.2"	0.5mx0.5m	20m	Artefact scatter containing goat skull, teeth and vertebrae, ribs	Aboriginal	-	Site located near outpatients Site may post date the Lock Hospitals
S2	Single artefact	S24^{0}47' 41.3" E 113^0 09' 35.5"	-	25m	Pressure valve approximately 10cm long.	European	8.32b	-
V1	Single artefact	S24^{0}47' 22.6" E 113^0 09'29.4"	-	25m	Metal sheath from a knife	European	8.57b	-
V2	Single artefact	S24^{0}47' 25.5" E 113^0 09'32.8"	-	18m	Clear glass bottle (medical)	European	8.59a	-
V3	Aboriginal campsite	S24^{0}47' 30.4" E 113^0 09'30.6"	2mx1.5m	20m	Single use campsite containing clay smoking pipe, clear glass bottle, oyster shells and metal fragments	Aboriginal	8.38a	-
W1	Single artefact	S24^{0}47' 51.7" E 113^0 09' 51.1"	3mx4m	9m	Hull of boat (probably dated to 1950's)	European	-	Not associated with Lock Hospital period
X1	Well	S24^{0}47' 27.1" E 113^0 09' 36.4"	2.5x1.5m Depth unknown	714m	Cement and limestone lined hole. Depth unknown as it has been filled in by sand. Associated artefacts include clay smoking pipes, metal bolts and nuts, metal objects, metal pipes, and green glass bottle	European	8.39b	-
X2/BD	Rubbish scatter	S24^{0}47' 18.6" E 113^0 09' 23.2"	0.5mx0.5m	29m	Artefact scatter containing six green glass wine/beer bottles, one with indent for label	European	8.39c	Located approximately 20m south east of D6
X3	Single artefact	S24^{0}47' 40.2" E 113^0 09' 32.8"	-	16m	Isolated green glass wine/beer bottle	European	-	-
X4	Rubbish scatter	S24^{0}47' 32.3" E 113^0 09' 30.6"	9mx7m	20m	Artefact scatter containing glass fragments, shells (oyster cockles) circular meta and clear glass	European	-	Located between administration building and the ward
X5	Rubbish scatter	S24^{0}47' 45.4" E 113^0 09' 23.6"	10mx15m	20m	Artefact scatter west of administration area containing glass fragments, iron, ceramic, charcoal and food cans	European	-	Most likely associated with administration area
X6	Aboriginal campsite	S24^{0}47' 34.7" E 113^0 09' 7.9"	3x4m	26m	Repeat use campsite. Artefacts associated include metal bucket, metal rim, food can, charcoal, broken glass, smoking pipe stem and enamel plate	Aboriginal	-	-

Appendix E

DORRE ISLAND ARTEFACT LISTS

Note: GPS readings have a 10-15 metre error. Sites indicated on the maps taken from GoogleEarth found within this thesis are more reliable for accurate positioning. No reliable altitude measures were taken for Dorre Island.

SITE NUMBER	SITE NAME	GPS LOCATION	SIZE	DESCRIPTION	ABORIGINAL /EUROPEAN	PHOTOGRAPHS (Figures)	COMMENTS
A1	Artefact scatter	S 25^{0}10'52.7" E 113^{0}05' 44.7"	110mx20m	Red sandy cleared pad with remnant objects scattered across it. Objects include yellow glazed pipe bowl, various oyster shells and marsupial bones, asbestos, blue glass, green glass, purple glass, blue enamel cup, metal tin can base, ventilation or chimney tin, sewage pipe, various metal pieces, comb, ceramic, pipe stems, ceramic cups and bowls, plates, domestic bones, oyster shells, large shell midden, bones, metal tin base, window glass, various animal bones, metal basin and an animal water trough	European	9.48c 9.57b 9.67a	A1 is located closest to White Beach landing.
A1a	Repeat use campsite	S 25^{0}10'47.1" E 113^{0}05' 49.8	2mx2m	Discrete shell midden made up predominately of oyster shells	Aboriginal	-	Located at northern end of A1
A2	Repeat use campsite	S 25^{0}10'51.6" E 113^{0}05'46.5"	3mx4m	Shell midden with presence of oyster shell, barnacles, gastropods, chitons, burnt shell and bone and butchered bone	Aboriginal	9.115b	Discretely situated within A1
AS1	Rubbish scatter	S 25^{0}10'47.08" E 113^{0}05'49.8"	20mx30m	Artefact scatter containing remnants of canvas, rocks, white perfume glass, window pane glass, brown glass, white glass, cup handle, ceramics (gold and flower designs), iron bolts, iron straps and cut timber	European	9.70 9.79	Located roughly between the administration building and the stables
AS2/W3	Rubbish scatter	S 25^{0}10'48.5" E 113^{0}05'41.6"	20mx15m	Artefact scatter containing red paint base, cork, large shell, ceramic basin, window pane glass, whole green bottles, glass cups, comb, copper sheathing (boat) **and** lead pieces	European	9.55a 9.73a	Located in between brickpile and doctors house
AS3	Rubbish scatter	S 25^{0}10'46.6" E 113^{0}05'44.4"	40mx15m	Artefact scatter containing the white glass cup, white glass bottles, brown glass, ceramics, watertank/day well, domestic animal bones and a roll of metal wire	European	9.56a 9.64b 9.80b	Located between ward and mortuary
BH1	Repeat use campsite	S 25^{0}10' 47.4" E 113^{0}05'55.5"	2mx1.5m	Remnants of a campsite with flaked stone artefacts and turtle shells	Aboriginal	9.119a	Located along the eastern side of the island in the dunes directly behind White Beach Landing
BH2	Repeat use campsite	S 25^{0}10' 48.1" E 113^{0}05'55.3"	0.5mx 0.5m	Remnants of a campsite. Associated artefacts include fish bones, green glass, cracked pebbles, metal tin lids, metal file, green glass, brown Bovril base, other rocks, buttons, tobacco tin, oyster shell, domestic animal bones, crab remains and a flaked stone pebble	Aboriginal	9.113a	Located along the eastern side of the island in the dunes directly behind White Beach Landing

BH3	Repeat use campsite	S 25^{0}10' 48.4" E 113^{0}05'54.8"	0.5mx 0.5m	Remnants of a campsites containing animal bones (bird/sheep), oyster shells, copper sheet and a stone anvil	Aboriginal	9.119b	Located along the eastern side of the island in the dunes directly behind White Beach Landing
BH4	Repeat use campsite	S 25^{0}10' 48.7" E 113^{0}05'54.2"	2mx1.5m	Remnants of a campsites containing sheep/goat animal bones, copper sheet, and corrugated iron	Aboriginal	-	Located along the eastern side of the island in the dunes directly behind White Beach
BH5	Repeat use campsite	S 25^{0}10' 49.4" E 113^{0}05'53.2"	3mx1m	Remnants of corrugated iron which probably was once used as a humpy	Aboriginal	-	Located along the eastern side of the island in the dunes directly behind White Beach
BR	Isolated artefact	S25^{0}10'48.7" E 113^{0}05'39.9	0.5mx0.5m	Carcass of a whole bird (unidentified species)	-	-	Unlikely to be associated with Lock Hospital period
C1	Single use campsite	S 25^{0}10' 54.8" E 113^{0}05'18.6"	2mx0.5m	Remnants of corrugated iron which probably was once used as a humpy	Aboriginal	-	Located on the west side of the island
C2	Single use campsite	S 25^{0}11' 02.8" E 113^{0}05'35.1"	0.5mx0.5m	Remnants of a site containing flaked glass, periwinkle shells, scattered copper and nails	Aboriginal	9.118c	Probably single meal midden
C3	Single use campsite	S 25^{0}11' 03.7" E 113^{0}05'34.6"	0.5mx 0.5m	Small scatter of periwinkle shells	Aboriginal	-	Probably single meal midden
C4	Single use campsite	S 25^{0}11' 04.6" E 113^{0}05'33.7"	0.5mx 0.5m	Small scatter of periwinkle shells	Aboriginal	-	Probably single meal midden
C5	Single use campsite	S 25^{0}11' 04.4" E 113^{0}05'33.4"	0.5mx 0.5m	Small scatter of periwinkle shells	Aboriginal	-	Probably single meal midden
C6	Single use campsite	S 25^{0}11' 05.8" E 113^{0}05'30.9"	0.5mx 0.5m	Small scatter of periwinkle shells. Some gastropod shells culturally broken	Aboriginal	-	Probably single meal midden
C7	Single use campsite	S 25^{0}11' 06.7" E 113^{0}05'29.7"	0.5mx 0.5m	Remnants of a site containing top shells, various flaked glass and metal pieces	Aboriginal	9.118e	-
C8	Single use campsite	S 25^{0}11'08.1" E 113^{0}05'28.3"	0.5mx 0.5m	Oyster shell midden	Aboriginal	-	Probably single meal midden
C9	Single use campsite	S 25^{0}11' 08.5" E 113^{0}05'28.0"	0.5mx 0.5m	Oyster shell midden	Aboriginal	-	Probably single meal midden
C10	Single use campsite	S 25^{0}11' 08.6" E 113^{0}05'27.05"	0.5mx 0.5m	Oyster and gastropods shell midden	Aboriginal	-	Probably single meal midden
C11	Single use campsite	S 25^{0}11' 09.3" E 113^{0}05'26.5"	0.5mx 0.5m	Oyster shell midden	Aboriginal	-	Probably single meal midden
C12	Single use campsite	S 25^{0}11' 10.0" E 113^{0}05'25.7"	0.5mx 0.5m	Oyster shell midden	Aboriginal	-	Probably single meal midden
C13	Single use campsite	S 25^{0}11' 11.7" E 113^{0}05'25.2"	0.5mx 0.5m	Oyster shell midden	Aboriginal	-	Probably single meal midden
C14	Single use campsite	S 25^{0}11' 14.2" E 113^{0}05'24.9"	1mx2m	Scatter of corrugated iron	Aboriginal	-	Possible humpy construction
C15	Single use campsite	S 25^{0}11' 16.7" E 113^{0}05'25.0"	2mx1.5m	Oyster shell midden. Artefact includes a stone that is likely to have been used as a hammer stone	Aboriginal	-	Probably single meal midden
C16	Repeat use campsite	S 25^{0}11' 19.1" E 113^{0}05'27.0"	2mx2m	Dense oyster shell midden	Aboriginal	-	-

C17	Single use campsite	S 25^{0}11' 22.2" E 113^{0}05'24.4"	0.5mx 0.5m	Oyster shell midden	Aboriginal	-	-
C18	Single use campsite	S 25^{0}11' 26.1" E 113^{0}05'25.6"	0.5mx 0.5m	Oyster shell midden	Aboriginal	-	-
C19	Rubbish scatter	S 25^{0}11' 32.7" E 113^{0}05'29.3"	1mx0.5m	Scatter of iron	-	-	Unlikely to be associated with Lock Hospital period
C20	Repeat use campsite	S 25^{0}11' 34.4" E 113^{0}05'28.1"	15mx6m	Heavy scatter of oyster shells	Aboriginal	-	Due to large density of shells likely to be either a larger gathering or a repeated use site
C21	Repeat use campsite	S 25^{0}11' 38.2" E 113^{0}0527.2"	10mx3m	Oyster shell midden with some small gastropods. Remnants of corrugated iron	Aboriginal	-	-
C22	Repeat use campsite	S 25^{0}10' 47.4" E 113^{0}05'55.5"	0.5mx0.5m	Scatter of artefacts containing a blue enamel billy, olive and clear glass and periwinkle shells. Some periwinkle shells were found inside the billy	Aboriginal	-	-
C23	Single use campsite	S 25^{0}11'08.2" E 113^{0}05'23.1"	0.5mx0.5m	Oyster shell midden with some small gastropods	Aboriginal	-	-
C25	Single use campsite	S 25^{0}11' 05.1" E 113^{0}05'25.3"	1mx0.7m	Oyster shell midden, with some barnacles (limpets) and fragments of a tin can	Aboriginal	-	-
C26	Single use campsite	S 25^{0}11' 00.4" E 113^{0}05'30.3"	1mx0.8m	Oyster shell midden with some small gastropods. Flaked glass fragments also present	Aboriginal	-	-
CW/ F4b	Coral Wall	S 25^{0}10'50.1" E 113^{0}05'42.8"	10m	Low wall or line of coral aggregate	European	9.51	Located east of the laundry. Probably used as a garden path between the ward and the other buildings.
F1	Underground cistern	S 25^{0}10'51.2" E 113^{0}05'42.5"	3mx6m	Underground concrete cistern enclosed by cement. Inside was one large section. A manhole is located on top. A lock was located on the man hole. There is no evidence that a building was ever located above it. Artefacts associated with this structure include sewage pipes, corrugated iron, square metal chicken wire, concrete, nails, bolts, wood, various metal objects, down pipes, enamel bowl, metal bucket, clear and purple glass, white bricks, sheet metal, enamel plates and fence post	European	9.22 9.23 9.24 9.25 9.49a 9.49e 9.50a	Associated with F2, F3, F4, F5, F6
F2	Administration building	S 25^{0}10'50.8" E 113^{0}05'42.2"	8.6mx5.8m	T shaped concrete pads, Associated with this structure included sewage pipes, metal brackets and stumps, white glass, nails, metal objects, domestic bones, blue enamel cup (large), metal bread loaf tin, shoe, Coolgardie safe material, pearl shell and metal buttons, tomato sauce bottle, scattered metal sheet, and the sole of a shoe	European	9.22 9.23 9.26 9.49d 9.68a,b 9.69 9.76 9.77a	Associated with F1, F3, F5, F6

F3	Administration building	S 25^{0}10'50.6" E 113^{0}05'42.1"	12.2mx 7.5m	T shaped concrete pad with an extension on its north western side for a red brick boiler/fireplace. Scattered objects found onto of the pad included metal, wood, nails, red brick boiler, metal food tin, green glass, white glass, corrugated iron, jarrah logs, boiler parts, down pipe, metal bits, Coolgardie safe, medical mixing bowl, metal straps, medicine bottle. A line of metal drums was found to the northeast of the site possibly for us as a garden wall.	European	9.22 9.23 9.27 9.50c 9.60a	Associated with F1, F2,, F5, F6
F5	Administration building	S 25^{0}10'50.5" E 113^{0}05'41.6"	15mx2.5m	A long concrete pad. Artefacts associated with the pad include Coolgardie safe material, metal flue, ceramics, cut timber, glass, metal sheets and glass bottles	European	9.22 9.23 9.77b	Associated with F1, F2, F3, F6
F6	Administration Brick pile	S 25^{0}10'44.5" E 113^{0}05'48.5"	6.7mx3.3	Remains of piled up bricks from across the area measuring approximately 2.8m high. Objects within the brick pile include red bricks, large grey bricks, white circular rocks, coral, corrugated iron, housing ventilation material, metal tin buckets, barrel, metal pieces, tin cans, iron head (clothes) and glass bottles	European	9.22 9.28 9.49c 9.75b	Associated with F1, F2, F3, F5. It is likely that these rocks were piled up at the end of the Lock Hospital Scheme.
F4	Laundry	S 25^{0}10'50.1" E 113^{0}05'42.8"	3.1mx2.5m	Concrete pad measuring 3.1mx2.5m. Associated with the pad is a 2.3mx2.4m scatter of coke. Artefacts located on the pad included charcoal, metal frame, water tank lid, metal guttering, twisted metal, down pipes, large metal tins and ceramic. Aboriginal flaked glass was also present. Located approximately 5m away from the laundry pad was an axle of cart. Associated with the laundry was a line of metal drums that acted as a retaining wall. Strap metal, piping, guttering, and a glass jar lid was also present	European	9.34 9.35	-
F7	Garden	S25^{0}10'49.4" E 113^{0}05'41.9"	~20mx20m	Garden area containing a water tank, corrugated lined fence and tin retaining wall. A ceramic flowerpot was also present	European	9.41	Located inland from the administration building
G1	European rubbish dump	S25^{0}10'51.0" E 113^{0}05'39.4"	5mx4m	Large rubbish dump containing metal tins, scrap metal, wood, shells, enamel bowls, copper/bronze sheets, metal rod, flower pot, small horse shoe, coral, slate and children's writing set, metal nails, teapot, ceramic cups, ceramic large bowls, ceramic plates, porcelain, glass bottles, Bovril bottle, glue bottle, various brown, clear and green glass, test tubes, glass medical equipment, asbestos and a chamber pot	European	9.48a 9.56b 9.59b 9.62a 9.63b 9.64c,b,f 9.66 9.72 9.77 9.80 9.82 9.85	Possible associated with doctors house
GK1	Repeat use campsite	S 25^{0}10' 52.0" E 113^0 05'48.2"	0.5mx0.5m	Intact hearth containing various metal objects such as tin cans, keys, unopened tins, cork, bakelite pipes, oyster shells, various other shells, turtle bones, blue glass, various domestic animal bones, brown glass, asbestos, pipe stem, nails, wallaby bones and large quantities of charcoal	Aboriginal	9.73b 9.91b 9.99 9.100c 9.101a 9.109 9.116	-
GY	Graveyard	S 25^{0}10'35.9" E 113^{0}05'57.3"	Unknown dimensions	Possible graveyard. Located approximately 360m from the ward	Aboriginal	-	This location would have to be verified

J1	Repeat use campsite	S 25^{0}10'51.1" E 113^{0}05'48.2"	4mx3m	Large scatter of artefacts containing various clay pipe pieces, Bakelite pipes, degraded corrugated iron, black ware ceramic, white glass, nails, brown glass, marsupial bones, sheep/goat jaw, vertebrae- cut, rubber shoe, comb, metal shovel, coral, rocks, aggregate, canvas cloth, shell, metal tin, fence posts, bullet, bricks, copper fitting for water pipe and buttons	Aboriginal	9.98b 9.102 9.103	-
J1a	Rubbish scatter	S 25^{0}10'51.5" E 113^{0}05'48.4"	5mx2m	Scatter of objects such as blue glass, jarrah planks, white glass and green glass	Aboriginal	9.111a	-
J2	Rubbish scatter	S 25^{0}10'50.1" E 113^{0}05'48.3"	4mx5m	Various objects scattered together containing brown ceramic, green glass, white glass, coral, bones, metal pieces, flaked green glass bottle, nails, sheep/goat bones and a comb	Aboriginal	9.108a 9.118b	-
J3a	Repat use campsite	S 25^{0}10'50.1" E 113^{0}05'49.3"	4m x1.5m	Large dense artefact scatter containing metal buttons, shell buttons, bones, ceramics, concrete pieces, corrugated iron (humpy) and bricks	Aboriginal	9.89a 9.112a	-
J3b	Rubbish scatter	S 25^{0}10'50.1" E 113^{0}05'49.3"	2mx1.5m	Scatter of artefacts including combs, lead sheets, copper metal sheet, green glass, white glass, ceramic plates and a metal teardrop shape tin	Aboriginal	9.100a,b 9.104	-
J4	Hospital Ward	S 25^{0}10'50.6" E 113^{0}05'47.5"	32.5mx13.4 m	A large concrete pad with a smaller 5mx7m pad attached to its east. A coral garden wall was built to its west. Associated artefacts include purple glass, nails, bolts, window pane glass, metal fastener, water pipe, corrugated iron, clear glass, syringe end, water tank, honey jar and metal straps	European	9.14 9.15 9.16 9.18 9.19 9.20 9.21 9.50b 9.86	Largest structure built on the island. Completely surrounded by the dune system
J4a	Artificial dune	S 25^{0}10'50.1" E 113^{0}05'48.3"	12mx12m	Man made sand dune on east side of ward constructed of coral aggregate and rocks. On top of the dune was a small concrete pad	European	9.17	Artificial dune likely built for protection from the ocean and the wind. The concrete pad on the dune was likely to have been used to hold a small water tank
J4b	Water piping	S 25^{0}10'49.7" E 113^{0}05'49.0"	Length unknown as it extends under the dunes	Wooden stumps supporting a metal water piping system	European	-	Piping likely run to the ward when in use
K1	Rubbish scatter	S25^{0}10'49.7" E 113^{0}05'39.9"	1mx1m	Scatter of broken glass	European	-	-
K2	Artificially gully	S25^{0}10'49.2" E 113^{0}05'40.4	10m wide	Artificially cut gully running through the dunes	European	9.47 9.54a 9.55b 9.64e	Likely access road between stables and ward/administration buildings
K3	Large rubbish dump	S25^{0}10'48.2" E 113^{0}05'38.8 "	9mx11.4m	Large rubbish dump containing ceramics, medical equipment, Bovril bottle, ceramic saucers, glue pot, various glass fragments, metal scooper, cork, white bottle, teapot and face washer	European	9.48b 9.64a 9.81	Rubbish dump likely associated with the doctor's house

K4	Large rubbish dump	S25^{0}10'48.1" E 113^{0}05'40.3"	5mx7m	Large rubbish dump containing stoneware vessels, ceramics, glass, enamel buckets, complete bottles, metal and broken glass	European	9.82	Rubbish dump likely associated with the doctor's house
K5	Single artefact	S25^{0}10'45.6" E 113^{0}05'49.2"	-	Large metal pipe	European	-	-
L1	Resource	S 25^{0}10'27.2" E 113^{0}06'07.1"	~50m long	Oyster shell beds	Resource	-	Island resource
L2	Resource	S 25^{0}10'42.4" E 113^{0}06'04.1"	~50m long	Oyster shell beds	Resource	-	Island resource
L3	Natural	S 25^{0}10'44.1" E 113^{0}06'04.2"	1mx1m	Sea eagle nest located on cliffs at White Beach Landing	Natural	-	-
M	Mortuary	S25^{0}10'49.6" E 113^{0}05'45.6"	10mx15m	Scatter of objects which included door handle, chimney, enamel plate, down pipe, metal construction, medicinal bottles, basin, sponge and door. No pad was evident	European	9.36 9.37 9.57a	Located on the highest point of the dune system that overlooked the ward and Aboriginal campsites
M1	Rubbish scatter	S 25^{0}10'51.5" E 113^{0}05'22.4"	1mx4m	Remnants of metal especially corrugated iron	European	-	Located on the west side of the island
M2	Single use campsite	S 25^{0}10'48.5" E 113^{0}05'21.4"	4.5mx2.5 m	Oyster shell midden	Aboriginal	-	Located on the west side of the island
M3	Single use campsite	S 25^{0}10'46.5" E 113^{0}05'21.6"	1mx2.5m	Periwinkle shell midden with presence of metal and various rocks	Aboriginal	-	Located on the west side of the island
M4	Single use campsite	S 25^{0}10'44.8" E 113^{0}05'20.7"	3mx4m	Periwinkle and oyster shell midden	Aboriginal	-	Located on the west side of the island
M5	Single use campsite	S 25^{0}10'43.5" E 113^{0}05'21.0"	3mx5m	Periwinkle and oyster shell middens. Some top shells also present	Aboriginal	-	Located on the west side of the island
M6	Single use campsite	S 25^{0}10'41.9" E 113^{0}05'20.0"	10mx10m	Huge shell scatter made up of molluscs, large gastropods (periwinkles) and presence of operculum	Aboriginal	-	Located on the west side of the island
M8	Single use campsite	S 25^{0}10'27.2" E 113^{0}06'07.1"	2mx2m	Shell midden made up of oyster shells and dark gastropods. Some driftwood also present	Aboriginal	-	-
M9	Single use campsite	S 25^{0}10'27.2" E 113^{0}06'07.1"	1mx1m	Scatter of oyster shells and china	Aboriginal	-	-
M10	Single use campsite	S 25^{0}10'46.5" E 113^{0}06'05.1"	0.6mx0.3m	Oyster shell midden with white ceramic	Aboriginal	-	Sea eagle nest nearby
M11	Single use campsite	S 25^{0}10'44.1" E 113^{0}06'04.2"	1mx1m	Remnants of metal and a wooden post	Aboriginal	-	Likely to have been used as some sort of humpy structure
M12	Single use campsite	S 25^{0}10'42.4" E 113^{0}06'04.1"	2mx2.5m	Oyster shell midden with green bottle glass	Aboriginal	-	-
M13	Single artefact	S 25^{0}10'30.7" E 113^{0}05'38.9"	-	Modern star pickets	Modern	-	Likely put there by Ride et al in 1950's or CALM in 1990's

M15	Resource	S 25^{0}10'28.4" E 113^{0}05'40.1"	3mx3m	Depression in landscape. Possible area where water accumulates	Natural	-	-
MON	Large rubbish dump	25^{0}11'01.8" E 113^{0}05'32.9"	50mx40m	Largest rubbish dump site on the island. Located on the southern cliff at White Beach Landing. Artefacts include sewing machine footplate, boiler parts, 6 white enamel cups, green glass bottle, teapot and sugar bowl parts, whole wine size green bottles, half size green bottles, blue enamel cup, gas lamp, ceramics (various), metal pieces, large amounts of broken green glass, clothing iron #8, metal tub, various pieces of broken metal and glass, sheet metal, Coolgardie safe material, washing basin, asbestos, tent eyelets, clamp, tin lids, button, oyster shells, small teat tubes and a tobacco tin	European	9.52a 9.58 9.59a 9.60b 9.62b 9.63a 9.71 9.74 9.75a 9.83	Likely rubbish that was deposited at the end of the scheme. I.e, 'clean-up at end of the scheme'
O1	Single use campsite	S 25^{0}10'53.5" E 113^{0}05'20.2"	5mx7m	Large oyster shell midden. Remnants of barrel/cart. Associated objects include glass fragments, metal fragments, corrugated iron (possible remnants of humpy)	Aboriginal	-	Located on west side of the island
O2	Single use campsite	S 25^{0}10'54.4.0" E 113^{0}05'20.0"	3mx4m	Oyster shell midden	Aboriginal	-	Located on west side of the island
O3	Resource	S 25^{0}10'48.0" E 113^{0}05'52.5"	-	Large tidal area suitable for crabbing, fish trapping, lower rock pools	Resource	-	Located on west side of the island
OY	Resource	S 25^{0}10'49,5" E 113^{0}05'54.7" to S 25^{0}10'50.9" E 113^{0}05'52.0"	100m long	Oyster beds located directly on White Beach Landing	Resource	-	-
Q	Artefact scatter	S 25^{0}10'13.2" E 113^{0}05'57.5"	1mx1m	Large flat rock outcrop with a clay pipe and a honey jar	European	9.54b 9.67a	-
Q1	Repat use campsite	near S 25^{0}10' 49.1" E 113^{0}05'53.9")	5mx2m	An intact hearth with associated artefacts including perforated shell ornaments, bakelite pipe, metal billy, various bones, fish, domestic bones, marsupial mandible and corrugated iron	Aboriginal	9.107	-
Q2	Repat use campsite	S 25^{0}10' 49.1" E 113^{0}05'53.9"	3mx6m	A damaged hearth with associated artefacts including a leather pouch, turtle eggs, flaked glass, metal rod with shell on end, glass, oyster shells, corrugated iron, various animal bones, metal fragments, metal nail container, and oyster shells	Aboriginal	9.91a 9.118f	-
Q3	Repat use campsite	S 25^{0}10' 46.5" E 113^{0}05'52.8"	3mx2m	A damaged hearth lined with red bricks, Artefacts include domestic, fish, turtle and marsupial bones, corrugated iron, lead sheet pieces, glass and concrete. Many of the bones were cut and burnt	Aboriginal	9.89c 9.108a 9.111b 9.112b,c 9.113b,c	-
R1	Rubbish scatter	S 25^{0}10'42.9" E 113^{0}05'46.8"	10mx5m	Bottle dump west of the hospital building sites containing various whole green and white bottles	European	9.52b	-
S1	Outpatients	S 25^{0}10'48.0" E 113^{0}05'52.5"	5.7mx5.7m	Concrete and aggregate slab. Associated artefacts include white glass, ceramic, water tank, rusted bits of metal bolts and pipe stem part of bowl. Flaked brown and clear glass also present	European/ Aboriginal	9.32 9.33 9.117a 9.118d	Hidden from view of rest of sites on the island. Northern most building structure on the island

S2	Repeat use campsite	S 25^{0}10'46.7" E 113^{0}05'54.8"	3mx2m	Campsite containing corrugated iron, glass and other building metal	Aboriginal	9.98a	Possible humpy
SM	Single use campsite	S 25^{0}10'48.8" E 113^{0}05'48.7"	0.5mx0.5m	Small oyster shell midden	Aboriginal	9.115a	-
T1	Single use campsite	S25^{0}10'48.2" E 113^{0}05'48.7"	6mx9m	Artefact scatter containing turtle shell oyster shells, little shells, rocks, green glass, clear glass, periwinkles, hard coral, asbestos	Aboriginal	-	-
T3	Single artefact	S 25^{0}10'53.2" E 113^{0}05'45.8"	-	Metal billy	Aboriginal	-	-
W1	Doctor's house	S25^{0}10'51.4" E 113^{0}05'41.5"	4mx4m	Two highly disturbed building pads. Each measuring approximately 4mx 4m. A large accumulation of rocks was piled into a wall like structure. Associated artefacts include water tank, metal and various medical equipment including microscope slides	European	9.29 9.30 9.31 9.49b 9.84	It is likely that these rocks were piled up at the end of the Lock Hospital Scheme
W3	Rubbish scatter	S25^{0}10'51.3" E 113^{0}05'41.3"	1mx1m	Scatter of glass objects	European	-	-
W4	Stables and Paddocks	S25^{0}10'47.5" E 113^{0}05'43.5"	~60mx60m	Corrugated iron walled structure measuring 8.9mx5.2m containing wooden posts, nails, metal chain, small corrugated iron metal sheets and metal tools. Associated with it is a cleared area approximately 50mx50m	European	9.38 9.39 9.40 9.49f	Located over the back of the sand dunes behind the ward and administration building
WM	Windmill	S25^{0}10'42.1" E 113^{0}05'545"	20mx4m	Cement and limestone lined hole/well measuring 1.5mx2m. Associated with it was an almost complete windmill, a water tank and a green bottle	European	9.43	-
X1	Single use campsite	S 25^{0}10'45.7" E 113^{0}05'56.0"	0.5x0.5m	Small site in swale of dunes containing green glass, blue glass, animal bones, metal fragments, asbestos, thousands of tiny periwinkle shells	Aboriginal	-	-
X2	Single use campsite	S 25^{0}10'42.3" E 113^{0}05'56.3"	0.5mx0.5m	Small oyster shell midden with some periwinkles and cowrie shells	Aboriginal	9.88b	-

Appendix F

MAPS

Various maps including those of Western Australian shires and regions from the Department of Land Information (2002), the Department of Indigenous Affairs (2002), and Tindale's Tribal Boundary maps (1995) consulted for research.

DISCLAIMER

The information contained in this publication, including particulars of community locations on maps, is based on information available to the Department of Indigenous Affairs Western Australia at the time of printing. While every endeavour has been made to ensure that the information is as accurate as possible, no warranty is given about its accuracy, nor that it is free from error or omission. The information may become out of date over time.

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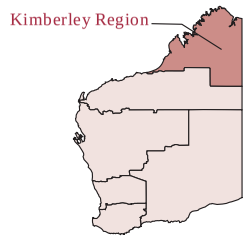
DIA KIMBERLEY REGION & LGA BOUNDARIES

DIA Region Location



Legend

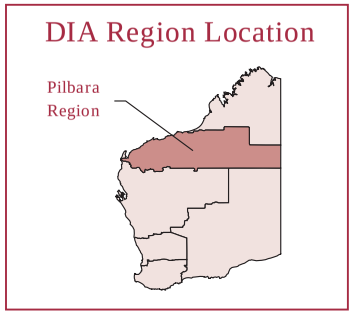
- Neem — Community
- Local Government boundary
- Roads
- Broome — Town

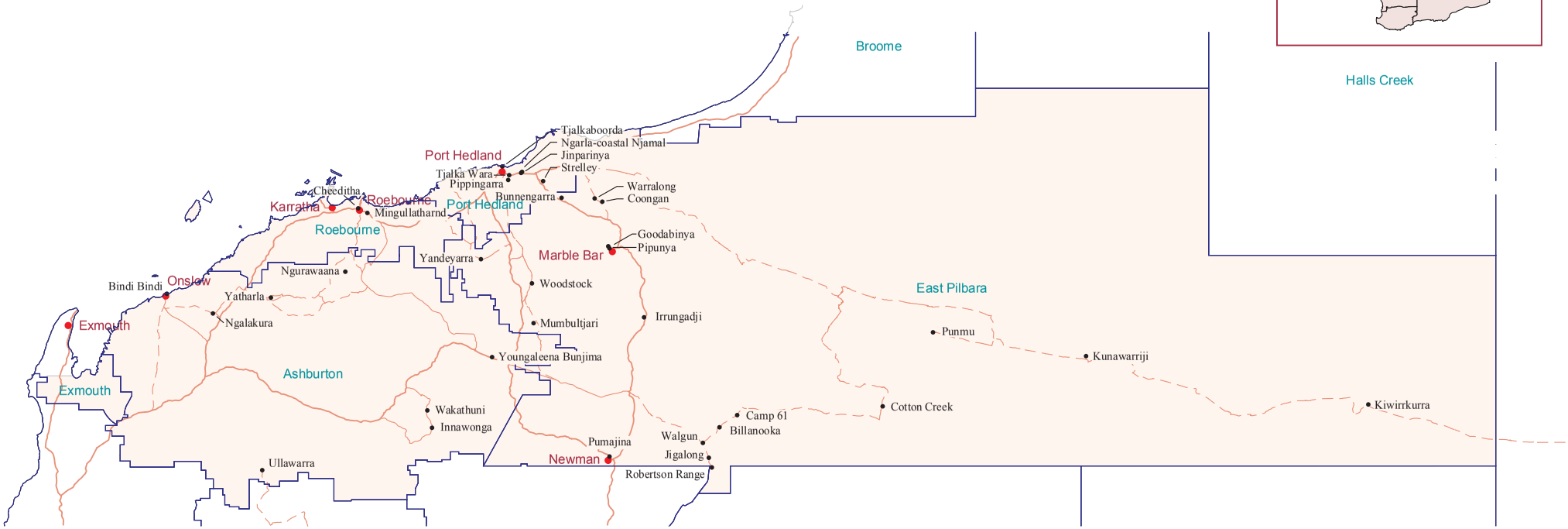
0 km 200

Department of Indigenous Affairs

Last Update : September 2002

DIA PILBARA REGION & LGA BOUNDARIES





Legend

• Yatharla	Community Name
Exmouth	Local Government boundary
	Road Network
• Onslow	Town

N

0 km 100

WALIS

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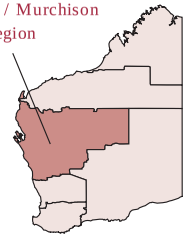
DIA GASCOYNE / MURCHISON REGION & LGA BOUNDARIES

DIA Region Location

Gascoyne / Murchison Region



N

0 100
km

Legend

- Mungullah — Community Name
- Wiluna (Greenough) — Local Government boundary
- Road Network
- Kalbarri — Town

Last Update : September 2002

Exmouth
Ashburton
Exmouth
Innawonga
Pumajina
Newman
Jigalong
Robertson Range
Puntawari
Ullawarra
Carnarvon
Burringurrah
Carnarvon
Mungullah
Upper Gascoyne
Meekatharra
Gascoyne Junction
Wiluna
Yulga Jinna
Denham
Kukabubba
Bondini
Desert Gold
Emu Farm
Windidda
Meekatharra
Gidgee Gully
Bundundea
Wiluna
Shark Bay
Murchison
Ullula Station
Pia Wadjarri
Cue
Cue
Kalbarri
Northampton
Barrel Well
Guddo Marddah
Mt Magnet
Sandstone
Leonora
Wandanooka
Mount Magnet
Mullewa
Mullewa
Yalgoo
Geraldton
Bundy Bunna
Morawa
Eneabba
Coorow
Mount Marshall
Moora
Dandaragan

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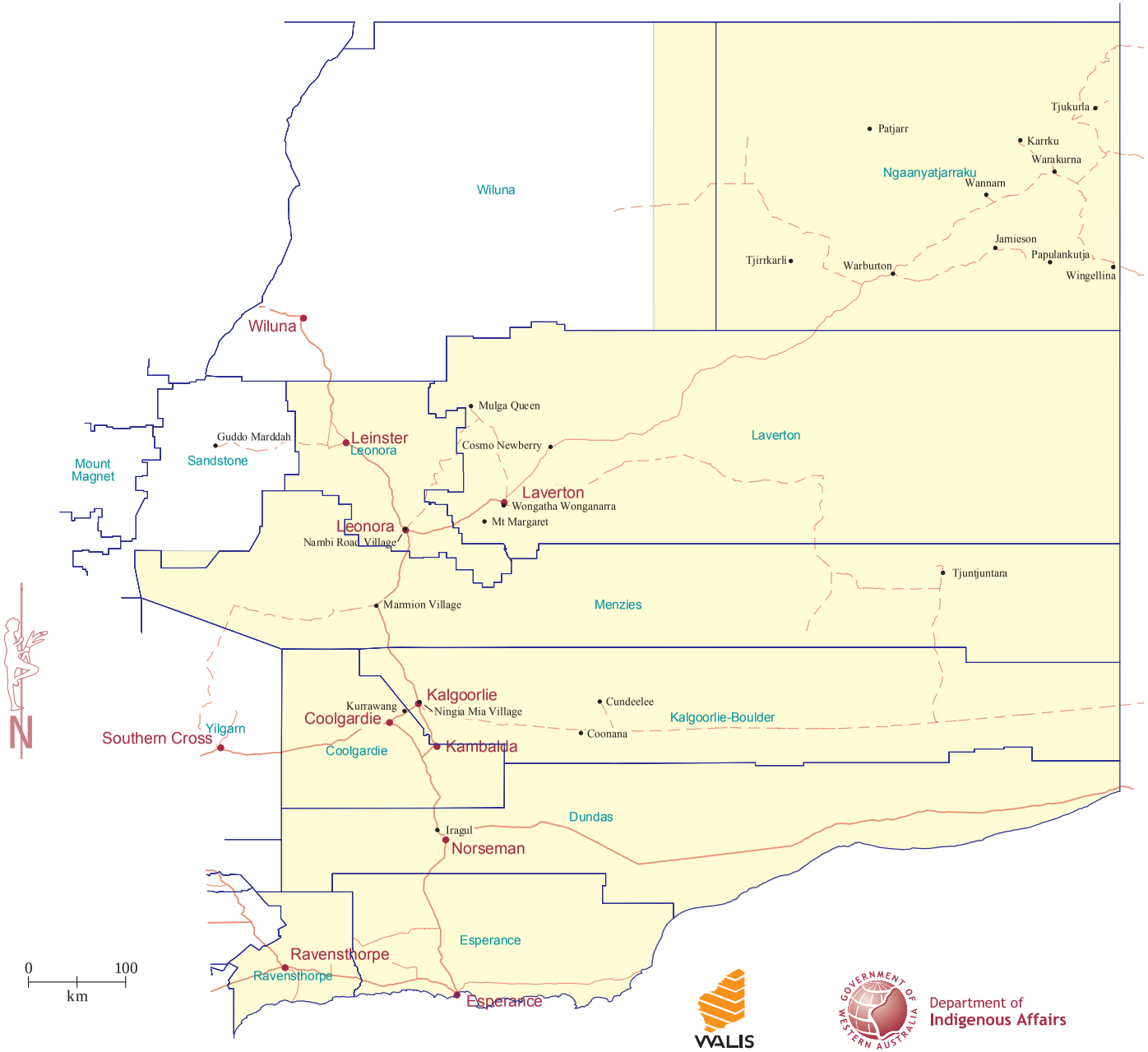
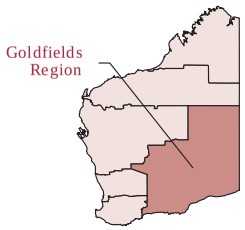
DIA GOLDFIELDS REGION & LGA BOUNDARIES



DIA Region Location



Legend

- Coonana — Community Name
- Yilgarn — Local Government boundary
- Road Network
- Leonora — Town

Last Update : September 2002

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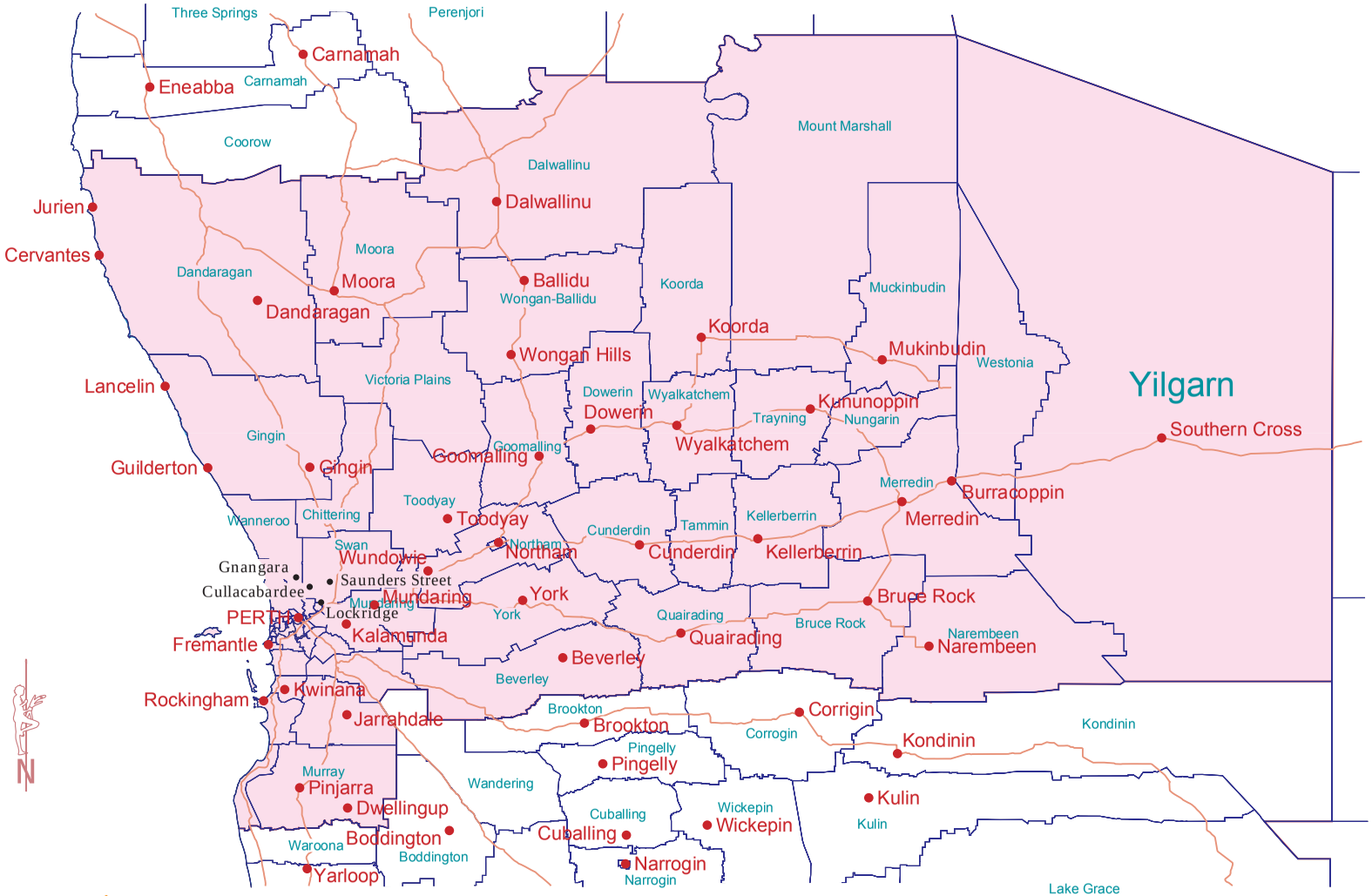
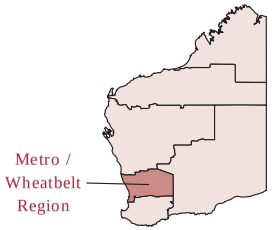
Department of Indigenous Affairs

DIA METRO / WHEATBELT REGION & LGA BOUNDARIES



DIA Region Location



Legend

- Lockridge — Community Name
- Kulin — Local Government boundary
- Major Road
- Pinjarra — Town

Last Update : September 2002

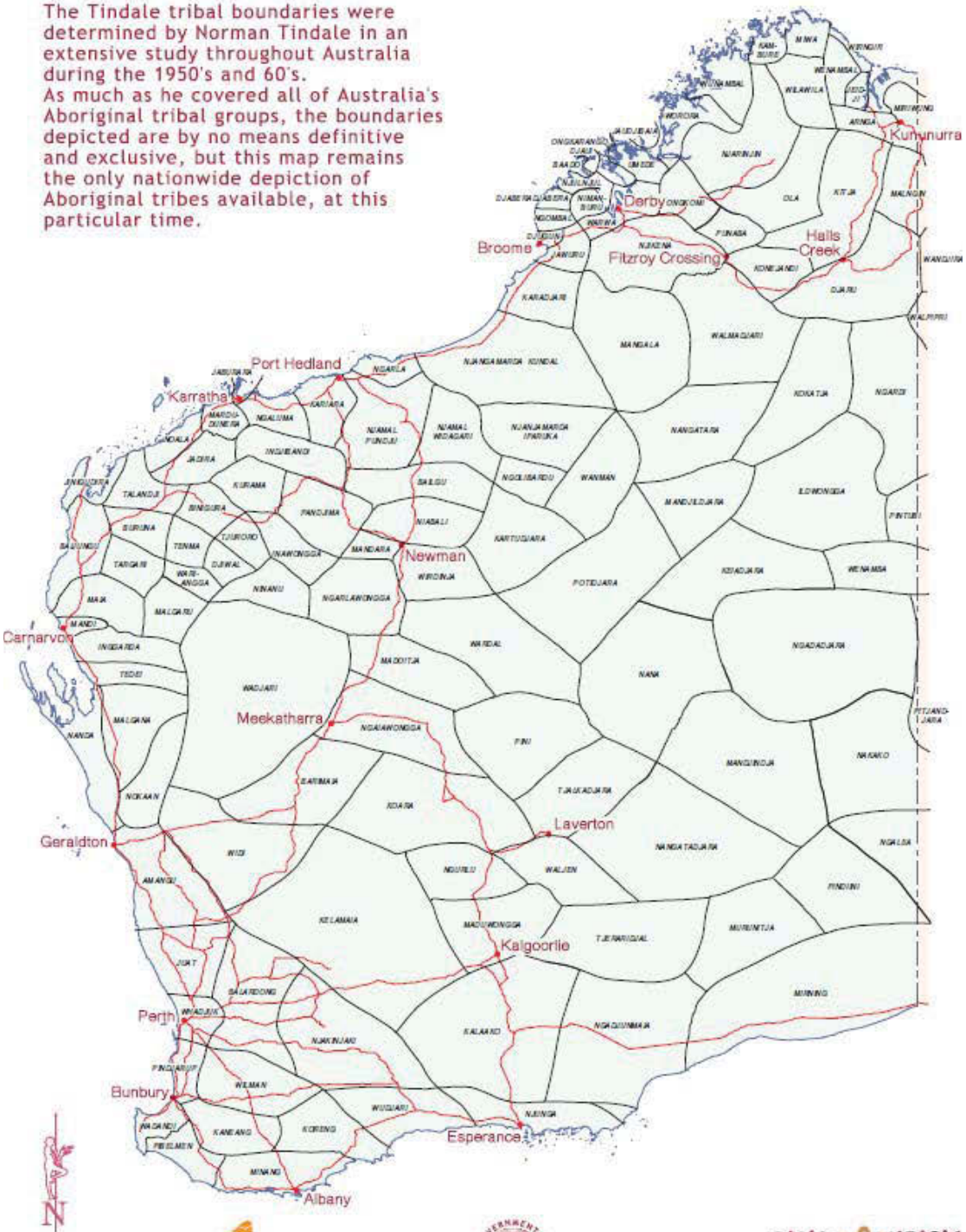
VALIS

Department of Indigenous Affairs

DIA SOUTHERN REGION & LGA BOUNDARIES

WESTERN AUSTRALIA
TINDALE TRIBAL BOUNDARIES

The Tindale tribal boundaries were determined by Norman Tindale in an extensive study throughout Australia during the 1950's and 60's.
As much as he covered all of Australia's Aboriginal tribal groups, the boundaries depicted are by no means definitive and exclusive, but this map remains the only nationwide depiction of Aboriginal tribes available, at this particular time.



Last update: June 2004
www.dia.wa.gov.au
Acknowledgement to The Regents of the University of California

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Appendix G

Published Papers

The following paper was published on the research of this thesis prior to submission.

Stingemore, J. **Meyer**, J. 2009. Surviving the Cure: Life on Bernier and Dorre Island Under the Lock Hospital regime. *The International Journal of Interdisciplinary Social Sciences.* Volume 3, 2009. Issn. 1833-1882. [Available online at] http://www.SocialSciences-Journal.com

The International JOURNAL of INTERDISCIPLINARY SOCIAL SCIENCES

Volume 3, Number 12

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Jade Stingemore and Jan Meyer

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Surviving the Cure: Life on Bernier and Dorre Islands under the Lock Hospital Regime

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Jan Meyer, University of Western Australia, WA, Australia

Abstract: From 1908 to 1918 two islands off the north-west coast of Western Australia, Bernier and Dorre Islands were used to incarcerate Indigenous Australians who were thought to have syphilis in the name of a public health measure designed to limit the spread of the disease. It is clear from historical documentation and oral histories that few of these individuals actually had syphilis, they were forcibly removed from their homelands, experimented upon and forced to live "naturally" in an inhospitable and resource-def cient environment. Little is known of how the Europeans and the Aboriginal people caught up in this scheme lived and survived on the islands. Many questions remain about how two different sets of people with different ideologies and knowledge of the environment used it to obtain food, water, fuel, and medicinal supplies. While historical and oral records describe the place as "a picture of misery, horror unalleviated and the tombs of the living dead" (Daisy Bates 1938), there are signs that the Europeans lived a comfortable lifestyle and that the Aboriginal women and men maintained their cultural beliefs and traditions and some small and occasional measures of independence.

Keywords: Historical Archaeology, Lock Hospital, Syphilis, Island Environment, Indigenous Australians, Public Health Measures

Introduction

JUST AFTER THE turn of the twentieth century, the West Australian government formulated a scheme in which Indigenous people with syphilis and other venereal diseases were collected from their homeland communities across Western Australia and taken to Bernier and Dorre Islands, over 50 km off the coast of Carnarvon. They were taken in the name of a public health measure to limit the spread of disease from Indigenous people to the colonists. Which Aboriginal Australians were judged to be 'syphilitic' and rounded up for this scheme was primarily determined by the European police, pastoralists and medical off cers. Patients were then held on the islands, which effectively functioned as 'Lock Hospitals', until deemed cured by the European doctors or unitl death. However, it is likely that this scheme, like other Lock Hospital schemes across the world, which overtly operated to control stigmatised diseases, such as syphilis and leprosy, had an even greater inf uence upon the health and welfare of the Indigenous populations than the introduced diseases themselves.

Little is known of how either the European doctors, nurses, workers and their families or the Aboriginal patients lived on the islands. Historical documentation indicates that the Aboriginal people taken to the islands were encouraged to live "naturally" (West Australian 1909) on the islands and that Europeans were to live as best they could in this new environment, but many questions remain as to how the Aboriginal patients survived the course of the disease and actually recovered from it and how the Europeans lived in an environment with few familiar resources and so unlike their homes. There are few historical details as to how two different sets of people with different ideologies and knowledge of the island environment drew sustenance from it – how they used it to obtain food, water, fuel, and medicinal treatments and to maintain cultural integrity. This paper addresses the way of life of the people who lived on Bernier and Dorre Island during the Lock Hospital period by taking a multi-disciplinary approach, uniting the analysis of archaeological data and human biological evidence to understand the lives of these two very different sets of people living in the same place at the one time. It also examines the suitability and effectiveness of the treatment in achieving its stated aims and the effect of this health policy on the overall community.

Background – The Lock Hospital Scheme

Around the turn of the twentieth century syphilis in all its forms was considered to be a major problem in many parts of the world, including the north of Western Australia (Prinsep 1899; Gray 1907; Adams 1908). Then, as now, the disease was strongly stigmatised, and referred to as 'evil' and 'a loathsome misery' (Jebb 1987). Europeans with syphilis were reluctant to admit they had it, so it became convenient to blame the morals of the Indigenous people for

its presence. This etiology was given weight by the uncertainty in the differential diagnosis of diseases presenting symptoms similar to syphilis, such as yaws, treponematosis and granuloma which led Europeans to conclude that a large proportion of the Aboriginal community had venereal disease. The fear that these would spread to the European population was used to justify the formulation of the Lock Hospital Scheme.

The changing face of pastoralism and mining in the north of the state at the beginning of the twentieth century also had a role to play in the instigation of the Lock Hospital Scheme. Once fences had been set up and bores sunk fewer Aboriginal men were needed to work as herders and the incentives to maintain them and their families on properties declined (Jebb 1987:26). Fencing itself increasingly affected the traditional Indigenous way of life by restricting and disturbing food sources and the cycle of movements of the people that followed them. They were put under ever greater pressures to survive and maintain their culture. Indigenous people were becoming increasingly dislocated from their lands and drifting towards towns and visibility. The government was under pressure to do something with these people (Prinsep 1899).

Collections

Special expeditions were sent out to bring in Aborigines for examination at coastal ports prior to being sent to the Islands for treatment.

> ..The collection methods were neither humane nor scientif c. A man, unqualif ed except by ruthless and daring and helped by one or two kindred spirits, toured the countryside, raided native camps and by brute force "examined" the natives…..the diseased were seized upon….chained by the neck…. marched through the bush in search of further syphilitics (Watson 1968:54).

'The power to determine the fate of Aboriginal people judged to be suffering from venereal disease, rested primarily with police troopers and pastoralists' (Mulvaney 1989:187). The involvement of police in the collection, transport and treatment of the subjects of the Lock Hospital Scheme led to great distrust of medical inspection by the Indigenous population. Many f ed into the bush when inspections occurred. This is not surprising since any able to walk were chained in the same manner as criminals (Jebb 1984). Police were normally equipped to collect up to f fteen prisoners and it was common for them to walk their captives from place to place until this number was assembled (Mulvaney 1989:188).

Different areas of Western Australia and particular years within this period were targeted for the collection of patients. In 1908 and 1911 two major collections took place (Stingemore 2002). The reasons for the high levels of activity of these two dates are thought to relate to the substantial funding given to the scheme in these two years, as much as £6 000 per year (Mulvaney 1989:189).

People not included in the workforce, women, the chronically diseased and the people already displaced from the pastoral industry were the prime targets under the Lock Hospital Scheme for collection by police and made up the majority of the island populations (Jebb 1984, 1987; Stingemore 2002). In areas where Aboriginal people were still highly valued by employers, segregation and isolation of those affected were less readily accepted by European employers, but the same reluctance did not extend to the dependants of their workforce. Forced removal varied by gender, females being taken f rst.

At the beginning of the scheme females made up almost the entire population collected. The percentages of males and females evened out as more males were selected in the major 1911 collection. In 1917 the last Aboriginal people were collected for the Lock Hospitals. Many of these individuals were not even recorded as 'syphilitic'.

Bernier and Dorre Islands

Bernier and Dorre Islands lie in the Indian Ocean at the northwest extremity of Shark Bay, approximately 50 kilometres directly off the coast from the town of Carnarvon (Mulvaney 1989:184). Located between $24^0 44^{'}$ S and $25^0 17^{'}$ S latitude and at 113^0 East longitude, the islands run parallel to the coast. They are each about 26km long and 3km at their widest point with areas of 44 and 53 km^2, respectively (Ride *et al* 1962:5). The islands were described as resource-def cient and dry by early explorers (Grey 1841) and by Europeans visiting the hospitals at the time of the scheme (Lovegrove 1909).

To modern eyes, informed by the scholarship of indigenous land use, these islands, typical of those of semi-arid environments, offer a number of different resources. Potential foods include small wallabies, reptiles, lizards, birds, edible plant varieties (Ride *et al* 1962) and the numerous marine resources surrounding the islands. The vegetation is low and scrubby on the whole, but suitable for fuel, and the sandalwood bushes offer natural medicinals. Limestone, coral and guano are available for use as building materials. However, these were not necessarily the resources Europeans and Aboriginal people recognized, needed or wanted at the time. Most of the Aboriginal people brought to the islands did not come from coastal communities, were hundreds of

miles from the homes whose resources and ways they understood and were thrown, uninvited, into the territory of people unlikely to share the same languages or ideologies. Few Europeans at the time could read the country in the way that the Indigenes did.

On the Islands

Two groups of people lived on the islands in the years of the Lock Hospital Scheme, the Aboriginal patients and the Europeans. The Aboriginal patients were mainly older females from the Kimberley and Pilbara regions, and some males from the Goldf elds and Pilbara (Stingemore 2002). The Europeans known to be on the islands included doctors and their families, nurses, various visiting disease experts and a visiting ethnographer.

Living conditions on the islands were described as deplorable at times. Sick Aboriginal people were left largely to fend for themselves on an unfamiliar island environment and given little and infrequent rations on which to survive (Bates 1938). Seventy percent of deaths on the islands were unrelated to the condition for which people were incarcerated, many dying from general debility, respiratory disease, heart failure and strokes. Eight and a half percent of people dying did so suddenly when the doctor was absent from the island (Stingemore 2002). No provision was made for repatriation upon 'cure' and 40% of Aboriginal people taken to the islands failed to return to their homelands after being released from the scheme (Stingemore 2002). As harrowing as the descriptions by visitors of life on the islands are, most were written by Europeans blind to the Aboriginal ways of life and sustenance. Many questions remain about how these two groups of people saw and used the islands: how much of the island resources they used, the extent to which they imported the materials they needed, and the extent to which they were able to continue their normal ways of life. Archaeological surveys were able to provide the answers to some of these questions and to highlight the differences between the two groups in terms of their approaches to accommodation, food, water, fuel and medicinal supplies.

In general it was found that the objects associated with Aboriginal sites were limited to animal bones (both domestic and local to the islands), marine shells, highly fragmented bottle glass, traditional tools made from f aked glass, earthenware ceramics and government-supply corrugated iron remnants of temporary and f imsy huts and humpies. This was in stark contrast to remains associated with the European medical staff which yielded evidence of the latest delicate and expensive ceramic ware, imported foodstuffs and personal objects.

Accommodation on the Islands

Like many sites at the time, the European quarters on both islands were positioned in the best geographic vantage points, overlooking the bay with aesthetically pleasing views and cooling breeze from the ocean in the height of summer. The European accommodation on Bernier Island was situated on dunes overlooking the ocean, the hospital ward and the Aboriginal accommodation. On Dorre Island, while not on as high ground as that on Bernier Island, the European accommodation commanded good views of the hospital building and surrounding areas. The buildings were constructed from Western Australian imported materials such as jarrah frames, weatherboard walls, asbestos sheets, corrugated iron roofs and concrete pads. A high degree of permanency to buildings is evident. There was little evidence of the exploitation of natural resources for building on Bernier Island, but on Dorre Island coral and shell mortar boulders, blocks and mortar were used in building construction, in the concrete pads and in garden walls and paths.

On Bernier Island the hospital was supported by good infrastructure including roads, a jetty, horses and carts, water tanks and wells. The layout of the hospital complex on Dorre Island leaves the impression that the site was set up either with great insensitivity to native beliefs and feelings, or as a deliberate attempt to control inmates through intimidation. For example the mortuary on the island was positioned so as to overlook the living areas of sick patients and the hospital and ward were walled in by dunes.

Aboriginal accommodation areas, in contrast, were impermanent and made out of corrugated iron and canvas or locally available resources such as the shrubbery used for 'humpies'. On Bernier Island most Aboriginal sites were located inland, sometimes near quongdong trees and some next to the ward. On Dorre Island all sites were discretely located out of view of the hospitals and mortuary in the sand dunes or near the coast allowing easy access to marine resources.

Subsistence (Food, Water, Fuel)

On both islands evidence, in the form of guttering, downpipes, water tanks, windmills and wells, was found near European sites for the collection of water falling as rain and from underground sources. Water storage was only associated with European sites. The location of the largest underground cisterns in places clearly visible from the European buildings and the presence of a lock on the lid of the cistern suggest that water was a controlled resource. Apart from the assumption of the provision of water rationed by Europeans, the presence of many campsites and middens next to small seasonal stream beds and wa-

ter soaks suggested some independent supply of water for the Aboriginal people, at least in some seasons.

Very little evidence was found of European food remains, but some artefacts associated with the preparing and storage of food were identif ed (bread tin and the remains of a "Coolgardie safe", an early food cooling device). Evidence of provision for the keeping of livestock on the islands suggests that they were probably eaten. It was assumed that vegetables were produced for consumption from the presence of fences and gardens in both archaeological and historical sources, but no particular crop remains could be identif ed. Some tin cans were also found, but they were too degraded to determine the nature of their former contents. There was little evidence of exploitation of natural resources by Europeans for food.

Although the intent of the scheme was to let the Aborigines collect food resources themselves, 'naturally and *al fresco'* (West Australian 1909), many Aboriginal people were either too sick to f nd their own food or came from districts where their food gathering experience was inapplicable to the island environment, so domestic animals were supplied by the Europeans as rations (Lovegrove 1909). Evidence for the consumption of rationed domestic meat was seen in butchery patterns consistent with Anglo-Australian preparation, including the position of straight, sharp saw marks, on bones clearly identif - able as coming from sheep or goats. Since such butchery patterns do not ref ect traditional Aboriginal means of dismemberment of carcasses, it is assumed that the Europeans butchered the animals and gave them to the Aboriginal people. Evidence was found at campsites of the consumption of domesticated animals, native fauna (marsupials) and ocean resources. Both historical and archaeological evidence indicate that turtle eggs, shellf sh, iguanas and wallaby meat were a part of the Aboriginal patients' diets (Chief Protector of Aborigines 1909), though this applied more so to females than to males.

The Aboriginal people used island woods and shrubbery for fuel, ref ected in the presence at a number of hearths of burnt native woods. The Europeans imported fuel to the islands in the form of coke/coal and also, presumably, used any wood left over from construction or any that they could f nd on the islands.

Manufactured Goods

The most up-to-date international and local European goods imported to the islands were found scattered across the islands and in discrete middens out of sight of European living areas. Most of these items were associated with consumption: glass beer/wine bottles, tin cans, condiment containers and kitchenware, such as ceramics and enamelware. Better quality and more intricately designed ceramics including porcelain and imported Asian wares were found around the European accommodation sites. There was evidence of treasured personal and luxury items, such as perfume, heirloom china and hygiene items like combs. Personal items like a writing slate, teddy bears, dolls, sewing machines and clothing irons ref ected the presence of women and children on the islands and the presence of clay pipes in archaeological remains and historical photographs associated with the male doctors suggest that there may have been gender and status specif c activities also.

Aboriginal manufactured goods appeared to be limited to those given to them by Europeans and were usually of poor quality and plain design. However, there was evidence that the Aboriginal people made use of the natural resources to create personal items, such as perforated shells for adornment and f aked bottle glass and limestone for traditional tools. There was evidence in the remnants of their shelters that they blended European building materials and locally available shrubbery into their own way of life on the islands, modifying these elements to suit themselves. The Aboriginal people situated themselves in the best positions to exploit Europeans rations but still far enough away to avoid constant surveillance.

Medical

The presence of medical equipment and remedies (medical and tonic bottles bearing traces of heavy metal chemicals like mercury and arsenic, glass microscope slides, test tubes, f asks, pipettes) on both islands suggests that the people taken to the islands were actually treated for something as was the stated intent of the scheme in the f rst place (Gale 1909). Most medical objects were associated with European sites, indicating their control of their use and distribution. Many reports suggest, however, that the medical treatment on Bernier and Dorre Island did little to 'cure' the disease, at best doing little more than easing some symptoms. Even doctors on the islands commented that the medical treatment and operations were known to be ineffective and painful (Bates 1938:99).

Interestingly, some male Aboriginal campsites were positioned near quondong trees (*Santalum acuminatum*). Pounded quandong leaves were reportedly used by some Aboriginal people to treat diseases introduced by European settlers (Daw *et al* 2007: 52) including, possibly, syphilis. Given that healing using herbs and other remedies of trivial non-spiritual complaints was usually practiced by older women in Aboriginal society the issue arises as to whether the males, isolated from the women on

Bernier Island, knew how to exploit this resource. Other plants on the island also may have been effectively exploited as medicines, though no trace of such use has been preserved in the archaeological record.

Conclusions

Results of this research indicate clearly that both European and Aboriginal people made use of the limited resources available on the islands. The Europeans used them mainly for building materials and the Aboriginal people for subsistence. Both relied heavily on natural sources for water, however. Medical treatment was controlled by Europeans, though some evidence was found for the possible use of native plants as medicines by Aboriginal people.

Evidence was found of differences in aspects of the use of space and natural resources between the two islands. On Bernier Island male patients lived and worked in open areas near the hospital sites and exploited a relatively small range of the natural resources available on the islands. Nevertheless, there is evidence that they continued to practise traditional tool making. On Dorre Island female patients lived in discrete sheltered areas hidden from view of the hospitals and collected a much wider variety of resources. These differences may have ref ected the different knowledge of hunters and of gatherers, or have arisen from economic considerations such as who was needed to work as cheap labour in the European workforce, the time each gender group spent incarcerated on the islands, and the attitude at the time towards those considered the purveyors and the victims of the disease.

While historical and oral records describe Bernier and Dorre Islands at the time of the Lock Hospital Scheme as a picture of 'misery, horror unalleviated and tombs of the living dead' (Bates 1938:96-97), there are signs that the Europeans on the islands lived a moderately comfortable lifestyle and that the Aboriginal women and men were able to retain cultural beliefs and traditions and some small and occasional measures of independence.

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I am a PhD Candidate at the University of Western Australia. My research interest is forensic archaeology and forensic anthropology. My current research focuses on the medical environment of early contact in Western Australia using historical, medical and archaeological research. I have been teaching at the University of Western Australia for 6 years in various f elds and take a multidisciplinary approach to archaeology.

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