The changing form and function of Claisebrook - East Perth

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THE CHANGING FORM AND FUNCTION OF
CLAISEBROOK - EAST PERTH

by

GRAEME R. O'NEILL

A Thesis Submitted in Partial Fulfilment of the
Requirements for the Award of
Bachelor of Arts Honours (Geography)

At the Faculty of Community Services and Social Sciences [Arts], Edith Cowan
University, Mount Lawley Campus

Date of submission: November 30, 1999.
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Claisebrook

Claisebrook (known then as Clause's Brook) 1860's

Stereoscopic pair by A.H. Stone

(Courtesy of Battye Library - 26520P)
Abstract

This study will focus on the changing social function and form of Claisebrook, East Perth, and will show how the area has geographically changed over time. This research will also examine the significance of the area to the Aboriginal people and focus on the settlement and land use patterns from the 1830's to the 1990's. It will then elucidate the characteristics attributable to a sense of place, and link these to the physical and urban environment throughout different periods of time.

Finally, this study will concentrate on the current redevelopment, investigating the current form and function of the area. It will contrast prior views to explain the new, demonstrating what improvisations have taken place so as to accommodate and ensure the retention of the area's integrity for some time to come.

The expected contribution of this study will be to provide a greater understanding of an area, which has been environmentally significant throughout time and continues to be the case, especially as it is in close proximity to the central city area. Claisebrook and East Perth has throughout history been the city’s service centre in differing capacities. Today the redevelopment of Claisebrook reiterates this commitment as people are now largely fulfilling this role.

Claisebrook is also important as a model for future redevelopments, in other inner city areas. It provides the potential to revitalise while understanding and learning from the mistakes made throughout history, like placing industry within these areas. Lastly, it will give geographers and town planners, an understanding to why these changes took place, so they can implement a favourable and balanced setting, so both the ecological and human processes can then coexist by finding and developing acceptable solutions.
Declaration

I certify that this thesis does not incorporate without acknowledgment any material previously submitted for a degree or diploma in any institution of higher education; and that to the best of my knowledge and belief it does not contain any material previously written by another person except where due reference is made in the text.

Signature

Date 8-2-2000
Acknowledgments

This Thesis is dedicated to the mind combination of my Mother and Father, who gave me the willingness and interest to pursue this subject. In addition, it is dedicated towards the minds of my children, hoping they will take their own minds and curiosity to the next level. The large part of this thesis is dedicated to my wife, Deborah, without whom, I would never have finished this dissertation.

I wish to gratefully acknowledge Richard Wilkes Bulmurn Mumunbuilawilak Darbalyung Nyoongar of the Derbal Yerigan - Swan River, for his trust and assistance with the Nyoongar perspective within this thesis.

Also, without the laudable help of Chris Melsom (Planning Manager) from the EPRA, firstly to enable me to pursue my research within their organisation, and secondly to verify many details of this dissertation. Also to Rita Kapusta, Rubin Kooperman for his openness, and other staff members of EPRA, thankyou.

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Finally I would like to gratefully acknowledge, the guidance and assistance of Dr Hugo Bekle, my supervisor.

This thesis has been a brief moment in life to enjoy, ponder, reflect, strive, learn and give while directing me to my next path.
Operational Definitions

EPA  Environmental Protection Agency
EPRA  East Perth Redevelopment Authority
DEP  Department of Environmental Protection
DOLA  Department of Land Administration
MTT  Metropolitan Transport Trust
Nyoongar  this signifies all Aboriginal people: both males and females, although normally applicable to male Aboriginals.
PCC  Perth City Council
WAGR  West Australian Government Railways
WRC  Waters and Rivers Commission
A Brief Chronology

- 1697  Vlamingh names and sails up Swan River to Heirisson Island, near Claisebrook
- 1801  The French, explore up to and past Heirisson Islands mapping Claisebrook, but not naming it
- 1827  The British explore the Swan River under Stirling and Fraser and name Claisebrook as Clauses Creek
- 1829  Foundation and settlement of Perth
- 1830  - First known flood in Perth
         - First recorded burial in East Perth
- 1833  Arrowsmith's map of Perth
- 1840  Claisebrook used to drain the lake chain
- 1840-43 First Causeway built
- 1850  - First industry built at Claisebrook, the abattoirs
         - Convicts introduced to the Swan River Colony
- 1858  Perth City Council first sat
- 1862  The great flood of Perth
- 1871  Saint Bartholomew's Church East Perth first consecrated
- 1874  Claisebrook main drain under construction
- 1879  Dry earth sanitary system introduced
- 1880-81 Perth rail station built
- 1885  WACA formed
- 1887  PCC Health Board established
- 1889  Perth Water Supply Company began (with the Government gaining control by 1893)
- 1890  By now Claisebrook had been altered for the first time
- 1892 Gold discovered in Coolgardie
- 1893 Smallpox epidemic
- 1894 - East Perth Primary School built
  - New Perth rail station built
- 1895 Horse Carriage service
- 1899 - Queens Gardens landscaped
  - Perth Tramway Company established
  - Burials ceased at East Perth Cemetery
  - Brown Street Methodist Chapel completed
- 1903 St Bartholomew's Parishioners Hall built
- 1906 East Perth Football Club named
- 1912 - PCC controlled gas and light
  - Sewerage in Perth
- 1915 First gas-holder erected near Perth
- 1916 East Perth Power Station commenced operation
- 1919 Locomotive depot opens in East Perth
- 1925 Swan River Improvement Act passed
- 1927 Aboriginals are barred from the city
- 1929 - East Perth declared a factory area
  - Tea Tree Lagoon, the last of Perth's lake chain was filled in
- 1954 Aboriginals are allowed back into the city
- 1969 East Perth locomotive depot closed
- 1972 Gas works closes
- 1981 East Perth Power Station closes
- 1992 Work commences in East Perth
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CHAPTER 1

1.0: SIGNIFICANCE OF THIS STUDY

This study is concerned with the changing geographical history of Claisebrook, East Perth, especially within light of the current re-development. Claisebrook experienced enormous social and physical change since the time of European occupation. This can be shown as a sequence of different periods of historical occupation and land-use change. Initially, Aboriginal (Nyoongar) people frequented this area, and this has unfortunately received very little recognition. The European uses of Claisebrook were as follows: settlement, lake drainage, the alteration of the environment, the consequences of industry, the gold rush, forgotten years, and finally the recent revival.

No other inner city area in Perth has experienced the same magnitude of change as Claisebrook in East Perth. This research will attempt to document the series of significant alterations that have affected Claisebrook's physical and social environment.

1.1: Background to the study

This research is concerned with Claisebrook, and its immediate surrounds in East Perth, and will examine the changing social attitudes and responses to the area, from pre-European occupation to the current redevelopment. The approach used in this investigation is specifically geographical, particularly in relation to the physical alteration of the environment, and its treatment throughout time. It will also cover the human impact on the area, through a historical approach in describing spatial changes and patterns through time. This study will take into account the direct and indirect impacts on the area, as well as considering the future implications of such impacts.
1.2: Review of Literature: Claisebrook, East Perth

1.2.1: Introduction

Claisebrook has been described in varying detail throughout history, primarily because of its close proximity to Perth. No studies have focused specifically on the geographical setting of Claisebrook, and most of the available literature has been concerned with the broader social development of East Perth, including Aboriginal and historical events or surrounding areas not directly impinging on Claisebrook.

The most comprehensive study of East Perth is from Meredith Thomas's thesis (1974) on *East Perth 1884-1904*, but substantial detail on the area is also contained in recent reports by the East Perth Redevelopment Authority (EPRA). A major part of Thomas's research covers oral histories of local residents, as well as records of historical changes within the East Perth area as a result of the gold discoveries impacted directly on East Perth during this time. Stannage (1979), Seddon and Ravine (1986), EPRA (1992, 1993), and many colonial newspapers also cover in varying degrees the study area, throughout its settlement.

The physical geography of Perth, (including Claisebrook), has been examined closely by Seddon (1972), Soil and Rock Engineering (1979) Seddon and Ravine (1986), CMPS&F Environmental (1989-1997), Coffey Partners International (1992-1996) and Bekle and Gentilli (1993). The EPRA research has largely been concerned with the contemporary history of Claisebrook, and the current redevelopment.

This literature review will consist of the following six sections:

- Pre-European Settlement, which covers the significance for the Aboriginal (Nyoongar) people to the study area.
- Discovery (of the Swan River and Claisebrook) covers the next period of literature research and review.
- The Geography of the area is important so as to be able to re-construct the human encroachment on the physical geography, and understand Claisebrook's origins.
- Literature covering Settlement will give an urban geographic picture of how the landscape changed over time.
• Lastly, the Redevelopment covers the contemporary situation within East Perth, which focuses primarily around Claisebrook.

1.2.2: Pre-European occupation

The significance of Claisebrook to the Nyoongar people has been underestimated in the literature. Meredith Thomas (1974), was among the first to mention the Aboriginal significance of the area. O’Connor, Bodney, & Little (1985), further supported this claim, as did Lois Tilbrook (1985). O’Connor and Quartermaine (1989) recorded the existence of Aboriginal camps at and near Claisebrook, without explaining their significance.

Richard Wilkes, an Aboriginal Elder, reported (Oct. 1995 and Jan 1996) that Claisebrook was an important site to the Nyoongar people and all along the foreshore was of spiritual significance. Colbung, (cited in Green, 1979) was another Aboriginal Elder who detailed the importance of Claisebrook, Heirisson Island and the Swan River and their association to the Waugal\(^1\), while Wilkes & Goble-Garratt (1998 - June) again reiterated the foreshores spiritual significance to the Nyoongar people.

Kidd (1967), Stannage (1979), and Seddon and Ravine (1986) provide accounts of Aboriginal life in East Perth throughout the early settlement period. These authors describe the many faces of East Perth for Aboriginal people, whether they were places of help or at some times the area represented a place of great hardship. Thomas (1974), Bolton (1981), Tilbrook (1985) and Wilkes (1996) also mention Aboriginal history in minor detail. Furthermore, files from the sites register and Geographical Information Systems search at the Aboriginal Affairs Department revealed several registered sites at or near Claisebrook.

Historically, Fraser came into contact with Aboriginal people near Claisebrook in 1827. Hay (1906), the Historical Records of Australia, (Series III, Vol. VI, 1923), Seddon (1972), and Green (1984) all mention Fraser’s experience as he was the first explorer to make contact with the Perth Nyoongar. The Nyoongar tribe that had
confronted Fraser, were first described by Lyon (*Perth Gazette*) in 1833 who confirmed the importance of the Heirisson Island mud-flat crossing, to the different tribes of the area and cited the boundaries of the Perth Nyoongar people.

1.2.3: Discovery

Several authors have documented the discovery of the Swan River. Vlamingh's exploration of the Swan River in 1697 has been faithfully recorded by Hay (1906), Battye (Battye, 1912-1913; 1985 - faxed edition) Major (1963 - aprox);², Richardson (1970- October), Appleyard and Manford (1979), Seddon and Ravine (1986), Bourke (1987), and Playford (1998) with many others in varying levels of detail.

The French undertook the next significant exploration of the Swan River, which included Claisebrook. A number of authors refer to the French discovery, although the timing of the French arrival is disputed. Kidd (1967) and Green (1984), state exploration took place in 1803 while Calder (1977) opts for 1804.

In the present study, however, it is believed that the most accurate account of the French exploration has been provided by Marchant (1982), who concluded that the exploration took place in 1801. Richardson (1970), and Appleyard and Manford (1979), also briefly but accurately, document the French discovery. Furthermore, Bourke (1987) reiterates Marchant's earlier work.

*The Historical Records of Australia* (1923), Seddon (1972), Cameron and Jaggard (1975), Appleyard and Manford (1979), Stannage (1979), Green (1981), Seddon and Ravine (1986), Bourke (1987) and numerous other sources give a variety of reports of Stirling's exploration of the Swan and upper reaches of the river in 1827, including Claisebrook. However, few authors mention the naming of the brook after Surgeon F.R. Clause, as confirmed in the *Historical Records of Australia* (1923).

¹ Also spelt 'Wagyle'
² NOTE: As per State Library referencing.
1.2.4: Geography

The main geographical features of the area were briefly outlined by Soil and Rock Engineering (1979), Seddon and Ravine (1986), and CMPS&F Environmental (1989-1997), and Coffey Partners International (1992-1997) in detailing the topography, soils, hydrology and vegetation. Seddon and Ravine (1986), also depict the changing urban face of Perth (including East Perth and Claisebrook) through the use of cadastral maps, which relate to different time periods. The Battye Library, as well as Marchant (1982), and Bourke (1987) are useful sources that cover the French exploration, while Pitt-Morison and White (1979) also show two valuable maps for the 1870 to 1880 period, that clarify the course of Claisebrook in this period.

One important link to Claisebrook was the chain of lakes surrounding Perth (now mostly drained and filled in) that provided Claisebrook’s source of water flow. These lakes have been documented in varying levels of detail by Colebatch (1929), Seddon (1972), Pitt-Morison and White (1979), Stannage (1979), Seddon and Ravine (1986), and Bekle and Gentilli (1993). In addition, early flooding problems were covered by the newspapers of the day like *The Inquirer* (1854), *Perth Gazette* (1862), and *The West Australian*, (1926). Perhaps the best coverage of the lake system and its drainage pattern was given by Stannage (1979), and Bekle and Gentilli (1993).

Alan Tingay & Associates (January 1994), Allen (1976, 1981, and 1983) give a brief overview of the hydrological cycle in this area, which relates to the current situation pertaining to contamination levels of the redevelopment site. Kinhill, Riedel and Byrne (1991 - August), and the Swan River Trust (1998 - July) undertook an examination of the surface water and Claisebrook Main Drain water quality.

Pitt-Morison and White (1979), Seddon and Ravine (1986), Coffey Partners International (1992), and Deeble (1994) give an account of infill of the Swan River near Claisebrook, although they do not provide an explanation as to why it was filled in. In addition, Seddon (1972) and Soil and Rock Engineering (1979), provide a basic understanding of the soil profiles found in and around Claisebrook.
The flora of Claisebrook was extensively described by Fraser (Hay, 1906), on his exploratory trip up the Swan River in 1827. Hay (1906) further interprets Fraser's writing on this subject as do Seddon and Ravine (1986). Seddon (1972) reproduced Hay’s account of Fraser’s notes, which covers the botanical description of the site.

1.2.5: Settlement

The Colonial Secretary, Peter Brown (later Broun), received the first allotment of land at Claisebrook, although many history books do not mention Brown's grant of 54 acres. One is ‘The Colony Detailed’ by Berryman (1979). Seddon and Ravine (1986) mention Brown's allotment, although they too confuse some of the land transaction details. An abattoir was the first industry at Claisebrook, as documented in The Inquirer (1854), Stannage (1979), MacIlroy (1985), and Bourke (1987). The Perth Gazette (1854) provided a negative account of this land-use. This land-use represented the start of the contamination of Claisebrook, which extended over the next one hundred and forty years. Various other polluting industries were described by Thomas, (1974), Gordon (1975), and MacIlroy, (1985). Claisebrook even became a sewerage dumping site for the people of Perth, as recorded by Hunt and Bolton (1978), Stannage (1979) and Seddon and Ravine (1986).

Further industrialisation of the area has been reported by several authors including The West Australian (1916), Crowley (1970), Thomas (1974), Stannage (1979), and Collins (1993). Some of these later industries included the Brickworks, gasworks, a power station, building companies, and tanneries. Further pollution and epidemics of typhoid from Claisebrook occurred as a result of the population influx from gold discoveries in the 1890’s. These problems were described in writings by Lawson in 1896 (cited in Cronin, 1987), Thomas (1974), Stannage (1979), Seddon and Ravine (1986) and Whittington (1988).

Thomas (1974) conducted several oral history interviews for her Honours thesis that encompassed interviews of people relating their memories of this population increase, and of the diseased Brook. A favourable account of East Perth's social
environment was provided in these interviews. Recently, the East Perth Redevelopment Authority also conducted some interviews of people (Erica Harvey, 1994) connected to East Perth for a time capsule was buried as part of the redevelopment strategy.

One brief study by Gordon (1975), examined Claisebrook during the mid 1970's, and is the only known work associated within this area during these times. Gordon used a broad selection of photographs of the area in his research showing the site at this time. Gordon's study was followed up by *The West Australian*, (Thomas 1975 - October 2), to expose the degradation of the area.

1.2.6: Redevelopment

The redevelopment of the Claisebrook area by the East Perth Redevelopment Authority generated a large amount of information associated with the area. The for­runners to the EPRA, the East Perth Project Group (1990 - October), and the East Perth Land-use and Landscape Committee (mid 1980's) provided preliminary surveys and reports in regard to recommendations for specific urban improvements. Since then, the EPRA has employed various consultants that have covered a variety of topics. These consultants have addressed standards for contamination of the site (eg: Camp, Scott, Furphy [later CMPS&F] (1990 - December), Kinhill, Riedel & Byrne (August-1991), Alan Tingay and Associates (February-1992), ibid (November-1993), Environmental Protection Authority [EPA] (October 1992, Bulletin 651), EPA - Bulletin 653, (1992 - October) and BSD Consultants (November-1993). In addition, a heritage study (Bodycoat, 1992) and local oral histories (Erica Harvey, 1994), have been completed.

McDonald, Locke and Murphy (1991 - April) and Wilkes (January 1996) describe the Aboriginal significance and use of Claisebrook and its surrounds. The public were given the chance to express their view through public forums, and a Public Environmental Review in the report was produced by Alan Tingay and Associates (1992).

After the Aims and Objectives, the following chapter will address the research techniques used in this study to account for the manner in which this study was carried out.
1.3: Aims & Objectives

1. To reconstruct and document changes in and around Claisebrook associated with different periods of time, taking into account both the physical changes and human settlement patterns. This will be achieved by analysing the available literature and aerial photographs.

2. To identify the significance of Claisebrook to different social groups at different time periods.

3. To examine the underlying reasons for the transformations that were associated with spatial changes in the form and function of Claisebrook.

4. To focus on the redevelopment and clean-up of Claisebrook and its surrounds and the motivation behind the planning process and its future directions.
CHAPTER 2

2.0: METHODS AND RESEARCH TECHNIQUES

This study area encompasses the land surrounding Claisebrook, which is bounded by southern side of Summers Street, then south to Lord Street, along Wittenoom and Nile Streets to the Swan River, and then back to Summers Street (see Figure 2.0). However, the greater part of southern East Perth\(^3\) is included as necessary. The study is broken down chronologically to best understand the changing social pattern of the area, and help define chapter headings. The main part of this research was undertaken over a seven-month period from February to August 1999.

Information for the study has been gathered at various libraries (including EPA, UWA, EPRA, the State and Battye Libraries), and from aerial photographs held at the Department of Land Administration (DOLA). Primary and secondary source materials include: textbooks, old maps, newspapers, reports, faxes, letters, photographs, oral histories and journals. Resources from EPRA have provided a major part of the material provided in this research, with information relating to the gasworks remediation, Claisebrook Cove project and the extensive array of slides, some which have been incorporated into this thesis.

A little known report by John Gordon in 1975 is contained in the Battye library and is of particular interest as it is the only record of Claisebrook during the 1970's. This paper and photographic account won Gordon a Sir Thomas Wardle prize in 1975.

The author's fieldwork observations provided another important primary source of data and were supplemented by photographs taken at areas of interest pertinent to this study.

To substantiate the latest research findings on Claisebrook, various government departments and consultants were approached. (eg: Coffey Partners International,
Gordon Geological, and Egis Consulting were contacted for further discussion of controversial or ill-defined issues) to further refine and understand Claisebrook’s and East Perth’s past. A letter of introduction from the supervisor helped to unlock some doors, otherwise closed.

This research was also concerned with gaining a better understanding of the Aboriginal association with East Perth. The local Nyoongar community was most helpful in providing reports and personal accounts of the areas relevance to their people.

2.1: Aerial Photography

The period from the late 1920’s through to the early 1980’s is a period of history not well documented for Claisebrook. Consequently, aerial photographs provided a useful source of information during this period. These photographs depict the changing land use patterns from industrialisation to the recent redevelopment. These photographs are referenced by the following;

3 South of the rail line.
### AERIAL PHOTOGRAPHIC MAP DETAILS

(Table 1.0)

<table>
<thead>
<tr>
<th>YEAR</th>
<th>DATE</th>
<th>REFERENCE and scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>1948</td>
<td>15 February and</td>
<td>Runs 19a, 20 and 21 ~ 1:10,000</td>
</tr>
<tr>
<td></td>
<td>April 4</td>
<td></td>
</tr>
<tr>
<td>1959 (Map - A)</td>
<td>June</td>
<td>Run 20 ~ 1:10,000</td>
</tr>
<tr>
<td>1959 (map - B)</td>
<td>May 5</td>
<td>Run 19 taken at 3750 feet</td>
</tr>
<tr>
<td>Note: not to scale</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1968 (Map - A)</td>
<td>December 3</td>
<td>Run 16 ~ 1:10,000</td>
</tr>
<tr>
<td>1968 (map - B)</td>
<td>December 3</td>
<td>Run 16 taken at 5500 feet</td>
</tr>
<tr>
<td>Note: not to scale</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1979</td>
<td>August 1</td>
<td>Run 4 ~ 1:10,000</td>
</tr>
<tr>
<td>1989</td>
<td>February 2</td>
<td>Run 10 ~ 1:10,000</td>
</tr>
<tr>
<td>1998</td>
<td>January 4</td>
<td>Run 10 ~ 1:10,000</td>
</tr>
</tbody>
</table>

Information from the East Perth rate books obtained from the Perth City Council (PCC) and the Public Records Office (State Library) provided additional information that was helpful for the interpretation of the urban change shown in the aerial photographs. This method gives a good account of urban change in and around Claisebrook. However, rate books were missing between 1948 through to the mid 1970's, due to the recent relocation of the PCC.

**NOTE:** The help understand the 1948 photograph, a 1946 rate book was substituted for 1948.
These photographs were obtained from the Department of Land Administration (DOLA) in ten yearly intervals, with the earliest photographic record being 1948. The street layout changed considerably over this 50-year period, photocopies of the corresponding road maps were also obtained to show the changing street pattern.

The changing photographic techniques used, including the height of the photograph, the length of camera lens, the run sections (where one photo ends and another begins), contributed to the difficulties experienced. These photographs have also been corrected by the author to the same scale for ease of comparison; one notable year, 1979 is particularly out of focus. To overcome this problem and other photographic irregularities, time was spent at DOLA verifying material from the original photographs.

The study area has been divided up into five coloured zones (Figure 2.0) for ease of identification by the reader and the interpreter. The naming of each zone was determined by a past land-use or a prominent geographical feature. The actual position of the border in relation to the street layout is as follows:

- **Industrial Zone**; (in Red) identified as being an industrial area from 1948 through to 1998, although by this late stage most industry has disappeared. The area covered in this zone includes Brown, Kensington and East Parade, through to Trafalgar Road and Claisebrook on the southern border.

- **Gasworks Zone**; (in yellow) is aptly labelled.

- **The Triangle Zone** (in Orange) is, due to its shape. Brook, Bennett, Wittenoom and Plain Streets and a changing street scene within these boundaries fill the zone, although Royal Street is prominent.

- **Haig Park Zone** (in Green).

- **Victoria Park Zone** (in Grey). This zone includes Nile, Arden, Constitution and Macey Streets, as well as Trafalgar Road. It runs along the river and Claisebrook.
LOCATION DIAGRAM: Showing aerial photograph coloured zones, and the greater study area. (Adapted from LeProvost, Semeniuk and Chalmer, 1989)
The miscellaneous Zone is outside the five zones and has been included in appendix C to identify certain landmarks, to put the years into perspective by giving a greater understanding of the big picture of change in and around Perth during these times. However, not all well known landmarks will be identified.

2.2: Identified Problems

A common problem to historiographical studies is that most written accounts were given by a small-educated elite. Many groups, including the poor had little time to write or were illiterate, and were mainly preoccupied by survival. This research also recognises what little information is available on the Aboriginal and female perspectives of this area. Also, Nyoongar terminology is inconsistently recorded. The main reason for this was that Aborigines had no written language, and therefore different European interpreters have spelt Aboriginal names according to their own translation. In this research, spelling of Aboriginal names will conform to recognised sources as used by the Museum of Western Australia, as well as Nyoongar reports from Richard Wilkes.

Due to budgetary constraints, a comprehensive research and analysis of Claisebrook could not be undertaken. This is especially so with the current primary source material of the EPRA, which could be lost forever when the authority is disbanded. The two-semester time limit is imposing and will require additional commitment and funding, or a future student to further research this area to fill in the gaps this study leaves out.

A new study, within the next ten years could truly evaluate whether the redevelopment of Claisebrook and its surrounds have been a success, while influencing other inner city redevelopments. This would be appropriate to show how the area has performed on an urban and environmental scale in the future. Additionally, this study will not pursue the reasoning behind the inner urban movement, as this has been well documented in other studies. It does however, give recognition to this movement, in that it is a major reason for the redevelopment of East Perth.
Claisebrook's changes have been dramatic, not only from the changes made by the EPRA, but from human encroachment into the valley since 1829. The basis of the next chapter will address Claisebrook’s physical geography as it was during the years before and during European occupation and examine how and why it was first altered.
CHAPTER 3

CLAISEBROOK AND ITS PHYSICAL SETTING

"The opportunities which presented themselves at that day of laying out an ideal garden city, by taking advantage, for ornamental purposes, of the chain of lakes from the eastern end of the City to Monger's Lake in the north-west."5 W. E. Bold, Perth Town Clerk, 1901-1944.

3.0: CLAISEBROOK AND ITS PHYSICAL SETTING

This chapter will describe the physical features of the study area and the responses of early settlers to this unfamiliar landscape. Originally Claisebrook was the most western tributary of the Swan River, and one of the few watercourses that drained eastwards. It served as an outlet for an extensive chain of wetlands (Figure 3.9).

Claisebrook, situated east of the Perth Central Business District, is part of the Swan Coastal Plain6, and is a low-lying, gently undulating area in what is known as the Claisebrook Valley7. Claisebrook is located Hydrologically on the edge of the Gnangara (ground-water) Mound8 forming its southern boundary. In addition, the border also receives ground-water flow from the little known Perth Mound9 (Allen 1983, p. 50) (Figure 3.0). According to Soil and Rock Engineering (1979, p.9), the geological origins of Claisebrook dates back at least 10,00010 years to the Pleistocene11.

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5 (1939, p.30)
6 The Swan Coastal Plain extends from Geraldton in the north to Dunsborough in the south (Pilgrim 1979, p. 82, Fig. 2.12).
7 See the topographic map (Figure 3.4.1) in Section 3.4.
8 "The mound of groundwater which occurs in the superficial formations bounded by the Swan River, Ellenbrook, Gingin Brook, Moore River and the Indian Ocean" (WA WA 1995, p.10)
9 Bounded by Claisebrook, the Swan River and the Gnangara Mound.
10 Known as the third great Ice Age. The two other periods being the Precambrian and Permian.
The first explorers' impressions of Claisebrook, north of Heirisson Isles are all similar in their accounts. A Frenchman Monsieur Bailly commented on the "course sand ... of ancient formation" (Bourke 1987, p. 13) in 1801, while the New South Wales Botanist, Charles Fraser's 1827 written account mentions a sterile tract of land (Hay 1906, p.16). Stirling's impressions (cited in Commonwealth of Australia 1923, p. 556) of the physical setting above Point Fraser, support Bailly's and Fraser's observations, stating:

The Country at Fraser's Point differs in character from that which is nearer the sea; above it, Sandy beaches and precipitous Limestone Cliffs are succeeded by flat rushy Shores, or rising banks of grass, and Woodland, but

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11 The Pleistocene period dates 10,000 to 2.5 million years BP: B.P meaning taken conventionally to be before 1950 A.D. (Allaby 1977, p. 74).
12 Named after Ensign Francois Heirisson, a member of the French party who examined the Swan River in June 1801 (Marchant 1982, p. 164).
the Soil of the Hills is still sandy and the lowlands bear the marks of Fresh Water inundations. The Water at this point also assumed the appearance of a River.

All three mention the changing character of the water from being salty to becoming fresh. They also noted the fresh water of Claisebrook, which suggests that it was a source of water supply.

In later years, Claisebrook's physical shape was altered to suit the needs of the early settlers. The British settlers prided themselves in being able to master the environment, which was later enhanced from Darwinist teachings. Seddon (1972, p. 231) calls this the "power of technology to make its own environment .... [although] technology robs Peter to pay Paul, and the critical factor is Peter's capacity to pay". This environmental manipulation commenced with the draining of the Perth lakes through Claisebrook from the 1840's onwards. These events culminated with the alteration of Claisebrook. The most profound change to Claisebrook occurred during the early 1920's, when it was re-routed to facilitate the expansion of the Gasworks (Tingay 1992 - February, p. 16).

Another major change to the physical appearance of Claisebrook resulted from the reclamation of the river foreshore. Fieldwork conducted for this research suggests that between fifty and one hundred metres of the river were reclaimed between 1921 and 1967. Margaret Pitt-Morison has also mapped the reclaimed area (cited in Seddon and Ravine 1986, p. 79, fig.5:5) Figure 3.1.

The reclaimed area varied between two and six metres in depth, and was achieved with an array of "materials including waste products, clinker, ash, concrete, etc. [sic] sand and rubble." (Cossill & Webley Consulting Engineers 1991 - March, p. 5). Reclamation of the Swan River foreshore in front of the Gasworks had taken place during the late 1960's, as shown by the aerial photograph, in Chapter 5, (Plate's 5.1 & 5.6).
Figure 3.1 - Successive Infilling of Perth Water since 1883
(Seddon and Ravine 1986, p. 79)

Overall, the physical appearance of the Claisebrook area has changed substantially, starting with the draining of the Perth lake chain, between 1830 and the 1920's. These physical changes are detailed in section 3.1

3.1: Wetlands and Water Drainage

The Arrowsmith map of 1833, (Figure 4.3) clearly shows Claisebrook and the extensive lake chain north of the early town site. The layout and shape of the town-site was principally in an east-west direction from Kings Park to the Swan River. This

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13 The immediate chain of lakes north of Perth, as seen with Seddon and Ravine's topographic map of Perth (Figure 3.9).
14 This study primarily uses the term 'Lakes' in describing the water features. However, those water features may also be referred to as 'Swamps' or 'Wetlands'.
15 From documents furnished to the Colonial Office by John Septimus Roe, the Surveyor General.
orientation remained unaltered for twenty-five years (Markey 1979 p. 353) until the northward expansion of the town-site rose over the ridge that separated housing from the chain of lakes.

The fate of several lakes, as shown on Arrowsmith's map, revealed subdivision boundaries encroaching on the lakes. The lakes were regarded as a hindrance to development and health, and therefore they were not considered worthy of conservation, especially as flooding of the town-site was a regular occurrence. The lakes were initially used by colonists for the following purposes: a water supply, to drive a mill, for cattle grazing and for market gardening (eg: Thomas Mews, 1840) (Stannage 1979, p.49).

Lake Kingsford\textsuperscript{16}, the closest lake to town, (Figure 3.9) was the first lake to be subjected to drainage. In 1833, it was drained by means of a 'deep open cut' by Samuel Kingsford for the purpose of operating a water mill\textsuperscript{17}. This mill was erected at the foot of Mill Street (Hasluck and Bray cited in Bekle and Gentilli 1993, p. 445). During the wet winter months these lakes would flood the cultivated land.

Stones Lake was the largest of the lakes within close proximity to Perth, and was directly connected to Tea Tree Lagoon\textsuperscript{18}. This Lagoon was Claisebrook's principal supply of water. Sometimes the lakes would flood and become one during severe winter periods. The first known flood was in 1830.

The Bureau of Meteorology (cited in Bekle and Gentilli 1993, p. 445) have documented the "Massive winter floods ... experienced in May – June 1830, [where] the Causeway Flats and surrounding country were under water for months". It is interesting to note that the flood of 1830 could not have been caused by the removal of vegetation, as relatively little building had occurred at this time in Perth.

By 1837, lake drainage was well under way as permission was sought to drain Lake Sutherland to cultivate the land for food (Bekle and Gentilli 1993, p.445). Drainage was given still more attention in 1842, 1845, and especially again in 1847, when floods were severe enough to "cover the town north of Hay Street with a single

\textsuperscript{16} Lake Kingsford situated on the site of the Perth Railway Station.
\textsuperscript{17} For making Flour.
sheet of water from Lake Kingsford to Claisebrook" (Stannage 1979, p. 60). Flooding was to become the driving argument for the drainage of the lake chain north of the capital. At first, rudimentary drainage was established to appease the townspeople living at the 'back of town' (as it was known). A committee was formed in 1848 to discuss draining the lakes and where the water should be directed. Claisebrook was selected as the outlet for this drainage works (Bekle and Gentilli 1993, p. 446).

An open drain constructed alongside Wellington Street drained water from Lake Kingsford towards Claisebrook. Its initial success saw the building of property and market gardens on the now drained lakebeds, however, by 1853 the drain had fallen into disrepair. One of its main problems was that debris continually fell in and clogged the drain. Heavy rains in 1853 saw more flooding, which resulted in property damage and another public outcry (Bekle and Gentilli 1993, p. 447).

Another committee was set up in 1854 to address the complete removal of all the lakes and swamps from the back of Perth for health and revenue purposes (Lake Drainage Committee cited in Pitt-Morison and White 1979, p. 24). A barrel brick-lined drain was recommended to channel the Lake Kingsford waters to Claisebrook. Next, Lakes Sutherland and Irwin were drained through Lake Kingsford. The capacity of the drain was not enough to cope with the large volume of water contained in these two lakes, and flooding occurred again in 1857 and 1858 (Roe cited in Bekle and Gentilli, 1993, p. 448).

Perth's greatest flood event occurred in the very wet winter of 1862, when numerous buildings and gardens were inundated. The 'back' of Perth became one immense lake and its capacity was so great that “there was a continuous sheet of water from Lake Monger to Claisebrook” (Hunt and Bolton March 1978, p. 2); The flooded area was greater than the 1842 and 1847 floods. Although, “some early settlers asserted that the flood of 1830 was as high if not higher than the [1862] present one” (Perth Gazette – July 11 cited in Le Page 1986, p. 85) but, this claim is difficult to verify due to the lack of records.

Tea Tree is the earlier known name of the Paperbark tree, and derives its name from the colour of the
Convict labour was employed in 1864 to re-establish the drain and to extend it from Lake Irwin to Claisebrook (Bekle and Gentilli 1993, p.448). By 1869, tenders were called to widen and deepen the drain, (Government Gazette, 16 March 1869 cited in Bekle and Gentilli 1993, p.448), but these efforts were not enough as flooding again occurred during the wet winter of 1871. Further drainage was required to alleviate the problem. Many of these drained lakes, such as Lake Poulett (also known as First Swamp), were used for some time as the town's rubbish tip and also served as Chinese market gardens (Bekle and Gentilli 1993, p. 450). Third Swamp, a popular Aboriginal camp ground, was almost totally reclaimed, until it was vested as a reserve in 1877 (Pitt-Morison and White 1979, p. 44), then by 1899, it was given the name of Hyde Park (Stannage 1979, pp. 289-290).

By 1873, letters relating to the floods were a common sight in the local newspapers. There was public debate about the drainage problems and the lack of action by the City Council (Action, 1873) People complained about the inefficient engineering of the design, (Gardens, 1873) and suggested various improvements to the drainage channel. One suggestion recommended the use of the drainage water for fire fighting during the dry summer months (Drain, 1873) It was apparent that something needed to be done about the situation.

Throughout August and September of 1873, the Perth City Council (PCC) debated the best option for alleviating the problem of regular flooding on the northern edge of town. The trunking system was totally inadequate, and a brick barrel drain was seen as the best solution by Richard Jewell, the Government's Clerk of Works to alleviate the problem. The route of the drain was another point of debate, as whether to run the drain eastwards to Claisebrook or down William Street to the Swan River. Eventually the Claisebrook route was approved, and construction began in November 1874 (Stannage 1979, pp.168-169).
Another major concern for the town was sanitation. Underground water movement flushed through cesspits and drinking wells causing an alarming rate of sickness and death. During this time *The Inquirer and Commercial News* (1875) reported:

The deaths in the city last year exceeded 300.... With a population of 5000 in such a city a [sic] Perth ... death rate should not exceed 24 per 1000 per annum.... These... [deaths] are evolved by impure water, and developed by bad air and inefficient drainage.

This remained a problem until 1879, when the dry-earth system was introduced within a three-quarter mile radius of the GPO (Stannage 1979, p. 179).

By August 1875, the costly Claisebrook drain was operational (Stannage 1979, p.170). The drain operated successfully until the late 1890's, when once again the drainage system was near collapse (Stannage 1979, p.280). The main drain was re-built and its capacity increased to keep up with Perth's growing population. At the head of the Claisebrook main drain were “two major arterials of the city open drainage system” (Thomas 1974, p. 20).

The PCC systematically began to upgrade and extend the drain until the Metropolitan Water Supply, Sewerage and Drainage Board took over in 1907. Subsequent floods in 1915, 1917 and 1926 showed the drain was now capable of diverting all of the flood waters away from the town, although it was reported that the 1926 flood came close the 1862 and 1872 flood levels (The Present Flood, 1926) 21. By now there were only remnants of the lake chain left as most were reclaimed for recreation, sport, building, and other purposes. Ironically, in 1929, Tea Tree Lagoon was the last lake to be totally reclaimed (Serventy cited in Bekle and Gentilli 1993, p. 452).

The planned alteration of Claisebrook in 1876, was a further step in the process of reclamation, as the grounds were to be converted to a public park 22. Claisebrook and

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19 Known as 'groundwater'
20 Now known as the Water Authority of Western Australia (WAWA)
21 July 22, 1926 was also the day the Fremantle Train Bridge collapsed (The Present Flood 1926, p. 9).
22 Claisebrook was converted from the Abattoir to a public garden, called Victoria Park (see Chapter 4)
"Tea tree swamp flowing into the brook is to be cleared and its waters to be confined in a narrow channel, so as to form a pretty rivulet" (Public Park and Gardens 1876). However, these plans did not eventuate for some time as the maps of 1877 and 1883 (Figures 3.2 and 3.3) of Perth show Claisebrook unaltered. By 1890, Claisebrook had been straightened (Figure 3.4).

Figure 3.2: 1877 map of Perth (Pitt-Morison and White 1979, p. 44, fig.1.17)
Figure 3.3 - 1883 map of Perth (Pitt-Morison and White 1979, p. 46, fig.1.19)
Figure 3.4: Perth c1890 Showing Mulberry Plantation and Public Gardens and the straightening of Claisebrook. (Courtesy DOLA)
It is estimated, that by 1966 approximately "99 per cent" of the former area of these lakes is now lost to development and infill (Bekle and Gentilli 1993, p.457). The main reasons for the draining lakes were to abate the regular episodes of flooding, acquiring the land to build and grow market produce upon, and from health concerns. Flooding was primarily a condition that was exacerbated by removing the vegetation, which raised the water table although unbeknown to the colonists at the time. As space was needed for the growing township, the logical direction in which expansion could occur was to towards the northern lake chain. Arrowsmith's 1833 map clearly demonstrates through sub-divided lots, its intention to utilise the lake lands for building purposes (Figure 4.3).

Section 3.2 will address Claisebrook's vegetation before the area was developed. It will also depict the fauna found in the area before European occupation, and what the Nyoongar use of flora and fauna was within the research area. This section also documents what the explorers found in and around Claisebrook at the time and more recently what the East Perth Redevelopment Authority is planting in the re-vitalisation of Claisebrook.

3.2: Flora and Fauna

The flora of the Claisebrook area (ie: north of Heirisson Isles) was significant for several reasons (see also Section 3.5). The foreshore was most likely a transitional boundary for those floral species that are dependent on alluvial soils, and other species that occur in various soils between the estuarine environment of the Swan River. Riggert, (1979, pp. 187-188) supports this view stating that "the pattern of vegetation is strongly influenced by the nature of the soil, the exposure, the slope of the river bank, and the salinity of the water".

Wilson and Spencer (cited in Chalmer, Hodgkin & Kendrick, 1976, p. 384) identified an upper and lower estuary, north and south of Heirisson Island. North of Heirisson Island the upper estuary "has the character of a tidal river with a meandering channel of fluvial aspect. The banks are chiefly alluvium, although quartz dune sands
are present in places below [south of] Guildford." The middle estuary (Perth Water south of Heirisson Island) is differentiated by Wilson and Spencer (cited in Chalmcr,
Hodgkin et al. 1976, p. 384) as follows: "The banks are composed of Pleistocene quartz sands of low relief and discontinuous, more elevated deposits of aeolian calcarenite [sic], the so-called 'Coastal Limestone' ".

The importance of the former Heirisson Isles and their surrounding mud flats (estimated to be 7,000 years old23) was due to two distinctive foreshore ecosystems, which occurred next to one another. Heirisson Isles formed a natural barrier, which was occasionally breached by the winter water flow. This barrier would have also disappeared during the higher sea levels of the last inter-glacial period, estimated by Playford (1988, p. 50) to be approximately two to three thousand years before present. Further up the bank, the flora species would have been the same as those known to be associated with the Spearwood dune system.

J. G. Hay's 1906 analysis of Fraser's Swan River exploration in 1827 included a more detailed account of the species of flora described by Fraser. From Heirisson Isles through to Claisebrook, Fraser catalogued several floral species including the Red Gum (Eucalyptus calophylla) [also known as Marri], a Banksia (Banksia grandis), and a Metrosideros "with two other species of the same genus ...[with] flowers of the most brilliant scarlet; the general height ... 6 feet" (Hay 1906, p. 15). Hay describes these as being Melaleuca lateria, Beaufortia squarrosa, or Callistemon speciosus. Another species observed by Fraser, was "a pink-flowered, handsome species of Centaurea, a remarkable dwarf species of Daviesia and Dryandra Armata" (Hay 1906, p. 15) Fraser also recorded a "lagoon clothed with arborescent species of Metrosideros of great beauty (Hay 1906, p. 16). Hay concluded that these were Melaleuca rhaphiophylla " (Hay cited in Seddon 1972, p. 181) known as Common Swamp Paperbarks. This area described by Fraser was later named Tea Tree Lagoon after the Paperbarks24.

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24 Paperbark Trees were originally known as 'Tea Trees' due to the tea coloured water in wetlands with dense stands of Paperbarks.
Next, Fraser wrote that “the banks are covered with the most interesting plants, amongst which I observed two species of *Calytris*, a species of *Acacia* [-diptera as per Hay’s notes], ... and several Papilionaceous plants” (Hay 1906, p. 16). Fraser’s notes also recorded the gigantic *Angophora* [Marri; *Eucalyptus calophylla* - Hay’s notes] on the flats, as well as *Xanthorrhoea arborea*, *Banksias* and the Zamia\(^\text{25}\) (Hay 1906, p.16). It is interesting that Fraser’s described Zamia, and the *Xanthorrhoea arborea* of reaching the heights of 30 feet (9-10m).

The Zamia, a member of the ancient cycad family, once grew prolifically in many parts of the Swan River Colony. “Probably the most magnificent forest was at Burswood ... where zamias thirty feet (9-10m) tall were reported in 1827 by Augustus Gilbert, an officer on the “Success”, and by botanist James [sic] Fraser\(^\text{26}\) (Cunningham 1998, p. 91). Unfortunately, these [Z]amias were cleared for a farm, and they may have been up to 700 years old\(^\text{27}\). Although the fruits of the Zamia were a reputed bush food for the local Nyoongar's\(^\text{28}\), early settlers blamed the Zamia for cattle deaths and campaigned to eradicate it. In 1895, as a consequence of the Land Regulations, clause 105 (Cunningham 1998, p. 95), Zamias were continually removed well into the twentieth century. For this reason, Zamias of such large proportions as described by Fraser are no longer present. (Cunningham 1998, pp. 93-97).

Stirling also gave a generalised and brief account of the flora within the area. He mentioned the change in the ecosystem, “differing in character” (Commonwealth of Australia 1923, p. 556) from the lower reaches of the Swan River (that is north of Fraser’s Point) to the other side of Heirisson Isles. Stirling reported the “flat rushy shores, or rising banks of grass, and Woodland” (cited in Commonwealth of Australia 1923, p. 556).

Stirling’s account can be verified in A.H.Stone’s photograph of Claisebrook in the 1860’s (Plate 3.0) where the reed, *Typha angustifolia* (right bank - foreground) is prominent and “a remnant of *Agonis linearifolia* can be identified on the bank”\(^\text{29}\)

\(^{25}\) *Macrozamia reidii*,

\(^{26}\) They also reported the *Xanthorrhoea* being of equal height (Cunningham 1998, p. 90).

\(^{27}\) Very slow growing at the rate of 1cm – 2cm per annum (Cunningham 1998, p. 90).
(Seddon and Ravine 1986, p. 78). However, the latter’s is “very sensitive to disturbance and ... disappear[s] early with environment change”.

PLATE 3.0 Clause’s Brook 1860’s A.H. Stone photograph
(Courtesy Battye Library 3245b/21

The fauna of the area included the Black Swan from which Vlamingh named the river in 1697 (see Section 4.2). Vlamingh’s first exploratory party shot “various white,

28 The Nyoongar People are those from the South-West of Australia.
green and grey birds" (Playford 1998, p.36) near Heirisson Isles including "'cockatoos and parrots with great curved beaks' " (Vlamingh cited in Playford, 1998, p.36).

The French also comment on the variety of fauna species seen during their visit. For Monsieur Bailly, and his party, their first encounter with a Swan was "near Heirisson isles that we first saw some black swans [sic]" (Bourke 1987, p. 13). Stirling (cited in Commonwealth of Australia 1923, p. 556), also mentions the Swans at this point stating, [the] "[s]wans and [d]ucks, ... at Frazer's Point were numerous"29. Claisebrook, as in other parts of the river, contained numerous species of different fauna which included turtles, Gilgies (fresh water crayfish: *Cherax quinquecarina*), frogs, fish, crabs and other crustaceans, snakes, rats, mice and a variety of bird life now seen only on the few remaining wetlands of the Swan Coastal Plain.

In Fraser's account (Hay 1906, pp. 20-22) of the Swan River in 1827, he confirmed large numbers of birdlife, which are now no longer seen, stating:

> The quantity of black swans, pelicans, ducks and aquatic birds seen on the river was truly astonishing. Without any exaggeration, I have seen a number of black swans30 which could not be estimated at less than 500 rise at once.

Fraser observed that "the animals are the same as in New South Wales – the kangaroo, emu, native dog, etc. Fish were abundant" (Hay 1906, p. 22). Furthermore, Fraser mentioned the "*Psittacus* in large flocks" near Claisebrook, which Hay describes as being Leadbeater's Cockatoo or *Cacatua leadbeateeri* (Hay 1906, p. 15)

Claisebrook provided an abundant supply of food for the Nyoongar people. In addition to the species of fauna already described, there was a wide range of roots, seeds and fruits available to supplement their diet. According to Mr F. Armstrong, the Swan River Colonies Interpreter in 1836, (Manners and Habits of Aborigines 1836) the Aborigines:

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29 According to Aboriginal Elder, Kenneth Colbung. Tea Tree Lagoon was once a nesting site. (see Chapter 4)
30 [*Cygnus atratus*]
Have never pointed out to the Interpreter any herb or plant as being unwholesome, or producing sickness, &c [sic], in themselves; .... [and] There are between thirty and forty distinct roots, nuts, and vegetables eaten by them, and which are to be procured nearly all the year round; and the flowers of three or four trees and shrubs afford them honey either by suction, or steeping in water.

The Nyoongars' intimate knowledge of what the land offered, was derived from an understanding of the timing of different foods, where they grew, and the best soils and conditions for their growth.

3.3: The Soil

By understanding the different soils and where they occurred would have been an essential aspect of life for the Nyoongar long before white occupation. The first European scientific analysis of the soils in this study area was undertaken during the French exploration of the Swan River in 1801. An account of the expedition was given by Monsieur Bailly, (a trained mineralogist) who described the mudflats of Heirisson Isles stating that: the soil was "course sand, which seemed to come from a rock of ancient formation, covered with a bank of thick clay, which is reddish and sticky" (Bourke 1987, p.13). Captain Stirling, in his notes to Governor Darling also reported the soils around the Claisebrook area to be in parts, "...sandy" (cited in Commonwealth of Australia 1923, p. 556).

This is confirmed by Figure 3.5, clearly depicting the soil structure of this study area which is bounded by Spearwood Dunes (as described by Stirling and Bailly) which in turn overlays the Guildford Formation (sandy clay associated with the Swan River). The Spearwood sand descends towards the alluvium deposits on the riverbank and is dissected by the peat base in and around Claisebrook. More recently, the northern bank of Claisebrook the foreshore structure changed dramatically with the reclamation of the river (Plate 5.1).

31 See Section 4.2.
32 Alluvial sediments washed down the river.
Interesting bore site tests conducted by Soil and Rock Engineering (1979, pp. 4-9) and Coffey Partners Geotechnical (1992 - October, Drawing No’s.7-10) research shows the underlying Claisebrook Alluvium to have deep deposits. This information can be used to reconstruct the age of Claisebrook (ie: by the depth of alluvium) and its former size (ie: by extent of alluvium).

Alluvial deposits are recorded to a depth of 10 metres below AHD, indicating the age of the former river (Figure 3.7 and 3.8). A sea level rise later reduced the rivers flow rate, and dune sand, silts, occasional peat material and clay were all deposited along the modern stream course. Additionally, the ancestral Swan River which was geologically associated with the Guildford Formation, and was believed to have been at least four kilometres wide (Soil and Rock Engineering 1979, p.9).

The most interesting aspect of Claisebrook’s alluvial deposit is that it shows that at some recent geological period the course of Claisebrook changed direction (it is possible a sand bar could have altered Claisebrook’s course). This is confirmed in Figures 3.8 and 3.10, which show a layer of organic clay deposits formerly associated with Claisebrook. Paradoxically, recent bore-hole sampling could not confirm the modern course (ie: before the current redevelopment) of Claisebrook as it emptied into the Swan River (Personal communication with Geoffrey Cocks – Coffey Geosciences). It is possible that the excavation of the sediments during the Gasworks extensions in the 1920’s, could be the reason for this.

Today, the soil profile of Claisebrook contain an enormous amount of fill which has altered the riverbank and topography of the area. Some of this fill has come from Claisebrook’s recent redevelopment, although most of the fill occurred from past reclamation of the river and parts of Claisebrook during the industrial years, especially from the 1920’s through to the late 1960’s. This is evident in the aerial photographic difference between 1959 and 1968, (Plates 5.4 & 5.5) and with Figures 3.5 – 3.8, showing a north-south soil transect of Claisebrook in 1992. The oblique aerial photograph taken in Plate 5.1 was taken approximately the same time as the overhead

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33 AHD: Australian Height Datum.
aerial photograph, it clearly shows the reclamation of the river foreshore, the built up river bank and Claisebrook’s boxed drain. The depth of fill from previous reclamation is between two and six metres, which has altered the original topography (Cossill & Webley 1991 - March, p. 5).

Figure 3.5 – North-south transect of Claisebrook, showing soil structures, infill, and ancient outline of Claisebrook near Trafalgar Road. (Coffey 1992 - October, Drawing 8)
Figures 3.6 & 3.7 - Cross sections of Claisebrook's former path showing location of sewerage tanks, reclamation and Haig Park. (Coffey 1992 - October, Drawing No's. 7 & 9)
3.4: Topography

In 1827 the immediate area of Claisebrook Valley lay within the five-metre contour of the Swan River. Bounded to the south by an attenuated sand dune runs from Kings Park through to the East Perth Cemetery and then drops rapidly down to the Swan River. The northern section of the valley once encompassed the chain of lakes situated in a subdued dune system (Soil and Rock Engineering 1979, p.4).

The topographic map (Figure 3.9) (Seddon and Ravine 1986, p.74) also shows some other interesting features. The ten-metre contour line defines the main valley and source of Claisebrook, being Tea Tree Lagoon. This contour is relatively close to the foreshore, indicating a depositional shoreline, which was subjected to regular flooding.
Originally Heirisson Isles blocked the upstream water flow to such an extent that the French exploration of 1801 still needed to negotiate the mudflats during winter before continuing on with their voyage up the Swan. Therefore, it is probable that flooding could have increased the height and width of Claisebrook and the Swan River foreshore during the winter months. With European settlement, the Heirisson Isles were permanently opened to navigation, which then altered the tidal effects of the river. This would have also decreased the likelihood of inundating the Swan and Claisebrook waterways.

In addition, Gibbs (1992, p.18) suggests that the topography shown by A.H. Stone's photo show (Plate 3.0) "the lower reaches of Claisebrook as having a low bank, possibly less than half a metre high". However, he acknowledged the possibility of Claisebrook's bank rising steeply somewhere beyond the view of the scene. A low bank at Claisebrook and along the shoreline support this area to be prone to flooding on a regular basis. Another aspect that supports flooding and higher water levels at Claisebrook and the upper Swan River would have been experienced during Vlamingh's exploration of the West Coast of Australia in 1697. At that time Europe was experiencing a Little Ice Age, and through Vlamingh's reports, it seems likely the West Coast of Australia was wetter and cooler than today (Playford 1988, p.35).

The fifteen-metre contour captures ten former lakes, which are interconnected and drain towards Claisebrook (Figure 3.9). Other lakes although not within the same fifteen-metre contour, are found throughout the adjacent area. This indicates that the ground water levels are at approximately the same depth throughout the area. These lakes captured within the same fifteen metre contour were occasionally joined as one in large floods, as recorded in 1842, 1847 and the great flood of 1862.

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34 The French came to Heirisson Islands on June 18, 1801 (Marchant 1982, p.164)
35 Floodwaters would have originated from the Avon and Helena Rivers and from Claisebrook's sources.
36 The first channel was cut through Heirisson Isles in 1831 (Rigget 1979, p. 192).
37 As did removing the rock bar at the mouth of the Swan when Fremantle harbour was completed in 1897.
38 Gibbs theory could also be based on Stirling's observations in 1827 (previously stated in 3.3)
39 In addition, since the 1880's Perth's rainfall has been slowing receding (WAWA 1995, Figure 9).
40 Including: Lake's Monger, Sutherland, Irwin, Kingsford, Tompson, Poulet, Stones Lake, Tea Tree Lagoon, and another two not named here.
Furthermore, Playford (1988, pp.46-50) and Seddon (1972, pp.72-78) note three inter-glacial periods where the sea is well above the current level. F.R. Gordon (Personal communication, Gordon’s Geological, August 10, 1999) also support Playford’s views that approximately 125,000 years ago the sea-level was 8 to 9 metres above its current level. Further rises occurred around 6,000 and 3,000 years ago which can be substantiated from Oyster shell deposits found in the Swan River and dated around this period\(^{41}\). These high sea levels would have affected the Swan River, Claisebrook and the lake water levels. All lakes within the fifteen-metre contour\(^{42}\) would have been interconnected to form a large inland lake, which emptied into the Swan River through Claisebrook.

\[\text{Figure 3.9 – Claisebrook and Perth lakes with five metre contours, determining Perth’s shape (Seddon and Ravine 1986, p. 74)}\]

\(^{41}\) Oyster shells were deposited between 4000 and 7000 years ago in the Swan and Canning Rivers reaching up to East Guildford and Beekenham respectively according to George W. Kendrick; Department of Earth and Planetary Sciences, W.A.Meuseum (Personal communication, October 5, 1999).

\(^{42}\) This is also taking into account the changing topography of the area during this time.
Both Seddon (Seddon 1972, p.239) and Soil and Rock Engineering (1979, p.6) confirmed the possibility of an embayment being formed, which joined the lakes and Claisebrook with the Swan River during an inter-glacial period of higher sea levels. “The area is a former broad stream valley which has been an embayment of the Swan River [and] is bounded by a major eolian [sic] sand dune to the south, and by minor leached sand dunes to the north” (Soil and Rock Engineering, 1979, p.6). Further evidence that Claisebrook was once an embayment is confirmed in the soil samples of Coffey International (Figure 3.10) which show organic clay deposits. This clay is derived from upper river movement, which suggests that Claisebrook (and possibly further afield) was once a part of the Swan River.

Today the topography of Claisebrook has changed dramatically through infill, reclamation and the redevelopment process. These changes have primarily come about because of the contamination caused by the former gasworks. Reclamation of the river and infill of the wetlands was not seen as destructive, it served a purpose for the expansion of industry. William Ernest Bold, (Town Clerk of Perth, 1901 – 1944) deplored the draining of these lakes, which could have been incorporated into an ideal Garden City plan for Perth (Bold 1939, p. 30).

The Claisebrook Valley has changed substantially since the first European explorers came to the Swan River. The next chapter will examine this change taking into account Aboriginal (Nyoongar) perspective, as well as early exploration and occupation by European settlers.
Figure 3.10 – The topographical features show where Claisebrook emptied into the Swan River, and its ancient path towards the south. (Coffey 1993 - January, Drawing 2)
CHAPTER 4

THE ABORIGINALS, EXPLORATION AND OCCUPATION.

"William Shenton pointed out Aborigines were reacting to the loss of their lands and food resources" 43

4.0: THE EARLY PERIOD

This chapter will describe the early use of Claisebrook by both indigenous and non-indigenous people. The Aboriginal hunters and gathers utilised the area for food, shelter and as a refuge44. On the other hand, European settlers took and exploited the area for its natural resources and superimposed their own land-use patterns to change the land. The first part of this chapter will show how the Nyoongar used this land, and what significance Claisebrook holds for the Nyoongar community. The indigenous significance of Claisebrook is still poorly understood today. The next part of this chapter will then examine European exploration of the Swan River and later the founding of the Swan River Colony.

4.1: Aboriginal Usage of Claisebrook

Aboriginals have been present in the Swan River region for at least 38,000 years, (Flood 1995, p. 106) and they have a remarkable knowledge of the land and how to best use the land in a harmonious way. Claisebrook has been important to the Aboriginal people as an area used for traditional purposes (eg: for camping, food and water) prior to occupation. Decades later, the area became "an urban hell, a sanctuary, a fortress, and the headquarters of the black power movement" (Stannage 1979, p. 268)

43 (Hallam and Tillbrook 1990, p. xiv)
44 When a tribe is pressed by an enemy, they retired to the nearest swamp as it offered concealment. (Armstrong 1836).
At the time of European occupation in 1829, there were several Nyoongar groups within the Perth region that were part of the Mooro tribe, which controlled the land covering central Perth and Claisebrook. In 1833, R. M. Lyon (Mooro Boundaries 1833) recorded the Mooro boundaries as: “bounded by the sea on the West; by Melville water and the Swan, on the South; by Ellen’s brook, on the East; and, by the Gyngoorda [believed to be either Moore River or Gingin Brook], on the North”. Yellagonga was the leader of this tribe at the time of European occupation of this land. It is ironic that the site chosen for the capital of Perth was in fact one of Yellagonga’s main camps, and they were then forced to relocate elsewhere (Hallam and Tillbrook 1990, p. xiv).

There have been several studies carried out on the Perth region in which the Aboriginal significance of Claisebrook is mentioned. There are three registered Nyoongar sites within this research area, and many more outside that are of importance to the overall Claisebrook area. This is acknowledged by Wilkes (1995 - October, p. 8), who states: “The Nyoongar Yungar, the Aboriginal people … had in the past, as they still have now, a very rich association with … Goongoongup, East Perth”. To the Nyoongar people Claisebrook, the Swan River and all waterways are deeply significant because the Nyoongar “water icon”, the Waugal, created them (Personal communication with Richard Wilkes, Aboriginal Elder, June 9, 1999).

The most important site for this study is the Claisebrook Camp45, which has been documented several times. The Claisebrook Camp site extended "from Claise Brook in the north to Nile Street in the south" (O'Connor, Quartermaine & Bodney, 1989, p. 34). Camps were generally tucked into the recesses and nooks along the upper banks of the river (O'Connor, Bodney et al. 1985, p.75). The Claisebrook camp is registered by the Aboriginal Affairs Department (AAD) as an ethnographic site that was used as a water source by the Nyoongar people. This has also been recorded in: Green's (1979) foreword by Colbung, of 'Nyungar - The People'. Claisebrook campsite was known to have been used as recently as 1985 by the Aboriginal people, while

45 AAD site No-S02256.
infrequently visited by European-Australians (O'Connor, Quartermaine et al. 1989, p. 34).

Bodycoat's (1993, np.) East Perth Heritage Study recognised the Nyoongar Camp site at Claisebrook, but concluded that Claisebrook was not significant enough to warrant a thorough investigation as "[n]o archaeological site was located. No sites of mythological, ceremonial and ritual significance in the area. Parts of the area could be considered of ethnohistorical, historical and ethnographic interest and significance".

Tea Tree Lagoon also provided an important food resource to the Nyoongar, being a nesting place for swans and other birds. It allowed them to supplement their diet with birds and bird eggs (Personal communication with Kenneth Colbung, Aboriginal Elder, September 7, 1999). In and around the water margins the area was rich in aquatic and bush foods for the Nyoongar people (as discussed in Chapter 3 - 3.3). Tea Tree Lagoon would have been an ideal nesting site for many bird species due to the dense stands of vegetation in the area. Tillbrook (1985, p. 11), reiterated both Wilkes and Colbung's views by stating that "this was undoubtedly a rich resource area and traditional camping location, as well as continuing to be utilised by the Aboriginals following European Settlement".

Claisebrook has experienced major disturbance and as a consequence it is likely that important material that links the Nyoongar community to the site has been destroyed. Claisebrook could be a far more significant site to the Nyoongar today than is acknowledged. O'Connor and Quartermaine have identified this stating that "the amount of previous disturbance will affect the potential to locate archaeological material" (1989, section 3.0, np.). Previous research indicates "that river, creek, lake and swamp margins are the most likely areas to contain archaeological sites" (O'Connor and Quartermaine 1989, section 2.0 np.).

Another campsite was reported to have been at Haig Park⁴⁶. Registered as an Aboriginal site by the W. A. Museum and the Aboriginal Affairs Department, the Haig Park campsite was also known as the 'Bull Paddock' by the old residents of East Perth.

⁴⁶ AAD site No-802259
and as an Afghan camel teamster’s resting area (O’Connor, Quartermaine et al. 1989, p. 35).

Heirisson Island or ‘Matta Gerup’ (Nyoongar for knee-deep crossing) is of special importance to the Nyoongar people being a mythological site, well used camp, meeting place, food and water resource, hunting ground, and a crossing point for the tribes coming to or going from the Perth area. The ‘Waugal’ is believed to be responsible for creating the Swan River, and the causeway flats at Heirisson Isles. These mud flats were prominent all year round, as early explorers of the Swan River encountered them as a formidable barrier to movement further along the Swan River. Hammond (1933, p. 19) described the flats as follows:

One crossing went from a point near where the Ozone Hotel [now Woodside Petroleum] stands today and followed the shallow water across to a point on the South Perth side just about where Colonel Irwin built his house. Another crossing went from a point just below the East Perth cemetery straight across the river to a point about half a mile from the east end of the Causeway.

Robert Lyon recognised the strategic importance of Heirisson Isles to Yellagonga as a crossing point, and for trade, religious ceremonies, social interaction and economic activity (The crossing point 1833).

Other significant sites near Claisebrook include a White ochre site found just below Mercy Hospital (formerly St Annes), a red and yellow ochre quarry near the current Perth Rail Terminal47, the Bunbury Bridge camp48, Burswood Island camp and burial site49, Millar’s Cave50, and Stones Lake51 (near the present Hyde Park; formerly the ‘Third Swamp’). Claisebrook was part of a broader network of seasonal resources used by the Nyoongar people, and as such had linkages beyond the study area.

47 AAD site No·S02151.
48 AAD site No·S02160
49 AAD site ID No’s· 15915 & 15914 respectively.
50 A site used in the 1960’s, and found “at the Lord Street crossing near Brown and Royal Street’s” (Wilkes, 1995 - October, p. 9).
51 AAD site No·S02378.
European law has contributed to the registering of an historic building as another Aboriginal site, which dates back to April 1931. East Perth's Bennett House and Jack Davis Hostel\(^{52}\), was originally known as the "Native and Half-Caste Girls Home" (Wilkes, 1996 - January, p. 1), is now unused due to the current redevelopment. Bennett House holds testimony to an unpleasant past for some Nyoongar people, and serves as a reminder of the harmful polices of the past. Jack Davis (cited in Wilkes, 1996 - January, p. 1) supporting the demolition of Bennett House and Jack Davis Hostel stated:

> When someone or something of significance dies or a strong occurrence happens or sign of spiritual influence occurs and is considered to be bad or evil, the whole group moves to a new location to develop a new beginning in a new location, to better the health of the people both physically, mentally and spiritually for the future.

Bennett House was a training ground for Nyoongar girls to become domestic servants for the white society. In addition, "it was a holding place for Aboriginal full-blood women pregnant to white men" (Wilkes, 1996 - January, p. 1). A little time after the birth of the babies, they were taken from their mothers and placed into foster homes as thought to be in their best interests (Wilkes, 1996 - January, p. 1). Bennett House was a holding place for children before being sent to another home or a mission (Wilkes, 1996 - January, p. 3).

Over the past 170 years, the Nyoongar people have at different times been associated with the Claisebrook area, and at other times they have been excluded from using this site due to European policies and land-use patterns. European's not only took Nyoongar land, they exploited the food resources of the Nyoongar people, and decimated food stocks through hunting and clearing the land.

William Shenton (cited in Hallam and Tillbrook 1990, p. xv) "pointed out Aborigines were reacting to the loss of their lands and food resources, ... [and] suggested removing them all to Rottnest Island". From the second half of the nineteenth

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\(^{52}\) On the corner of Bennett and Royal Street's, East Perth.
century, during an age of Social Darwinism, the Nyoongar were treated as being on the bottom rung of the social ladder. Shenton’s remarks became part reality by the early-1920’s as the Nyoongar were removed from the metropolitan area to government settlements (Howard 1979, p. 96) mostly due to the Aborigines Act 1905.

However, Claisebrook, continued to be and was used as a camping ground by the Nyoongar people. Thelma Jones, a local resident knew of the campsite: "down near where the Claisebrook is at the foot of Haig Park ... the Aboriginal people, or part Aboriginal people used to congregate there" (Harvey 1994, p. 8). By camping at Claisebrook it was said, "the Nyoongar Yungar still had an impact of living in the East Perth area... and in doing so, they kept the Dreamtime in the body and spirit" (Wilkes, 1996 - January, p. 2).

European exploitation of Claisebrook persisted for many years, until the land was exhausted. To many white people the land was no longer important, and living there was for those who could not afford to live elsewhere as it had become a "slum residential area" (Kidd 1967, p. 4). By the 1960’s, the Nyoongar re-established themselves in East Perth, as they could now afford and were legally allowed to live there.

It was in this time the Nyoongar "began to occupy houses in the poorest streets of East Perth. Thus Perth began to acquire an urban Aboriginal population" (Bolton 1981, p. 161). Nyoongar families were especially prevalent in "Brown, Royal, Wittenoom, Clotilde and Bennett Streets" (Wilkes, 1995 - October, p. 9).

With the Industrialisation of East Perth a blue-collar workforce became established in the area. It provided a cheap area to live in, as pollution deterred those who could afford to live elsewhere. Aborigines found the place a haven, although it was classed as an urban slum. It allowed the Nyoongar to congregate in East Perth.

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[54] Many feel this is still the case today.
[55] Two settlements being Mogumber and Moore River.
[56] Migrants were another group to frequent East Perth.
[57] Restriction from the metropolitan area was lifted in 1954 (Howard 1979, p. 96).
[58] Furthermore, between 1927 and 1954 Aborigines were barred from being in the city without reason after 6pm.
where at least a dozen Aboriginal organisations were established, some of which persist to the present day.

During the early 1990’s, Claisebrook became the focus for redevelopment of the former industrial site. The Nyoongar, now had a political, economic and a social voice, and as the area was developed for inner city living, negotiations were undertaken between developers and the Nyoongar community. This included recognition of the Nyoongar heritage in the area, as seen with the north bank of Claisebrook Cove, named Mardalup Park, (Mardalup is the Nyoongar name for Claisebrook) (Colbung cited in Wilkes, 1996 - January, pp. 5-6).

In addition, various plaques have been erected to commemorate Nyoongar significance within the area. A Dreaming track named ‘Ngango Batta’s Mooditcher’ with twelve granite stones represents the lost lakes between Claisebrook and Lake Monger. Nearby is the sacred Dreaming path ‘Illa Kuri’ which represents the journey of initiates through the Claisebrook valley. Another plaque will be for Windan (Yellagonga’s wife) who was buried near the Bunbury Bridge along the Swan River. In Victoria Park, an Aboriginal mosaic tells the story of an Aboriginal dreaming myth, while an Aboriginal/European mural represents the history of the Nyoongar and European settlers.

The authenticity of a portion of the Nyoongar artwork is being currently debated. Some Nyoongar people are opposed to the fact that it was not a local community member that was approached for the representation of their knowledge. A statement by Richard Wilkes regarding this is found in Appendix E.

The next section will address the contact between black and white people from white exploration to occupation of the Swan River. This will also emphasise the importance of Claisebrook and its surrounds for both people.

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59 Formerly recommended by Kenneth Colbung to the EPRA (Wilkes, 1996 - January, pp.5-6). However, this is questioned by ‘The Easterly’ (EPRA leaflet) who refer to Mardalup as ‘Place of small marsupial’

60 The naming of this area is disputed by Wilkes as an adopted name.

61 This covers a WAWA pump-house.
4.2: European Exploration

The earliest known contact along Western Australia's coastline dates back to 1616. However, the first contact along the south west coast came from the Dutch expedition under Willem de Vlamingh, who named the Swan River (Swane Rivier). An official landing expedition to the mainland was made on January 5, where a party of officers and men traversed the countryside through to the then unnamed Heirisson Isles (Playford 1998, pp.32-36). It was at Heirisson Isles that Vlamingh's party saw the footprints of the Nyoongar people, which were described as being "of an extraordinary large size" (Vlamingh cited in Playford 1998, p. 89).

After camping for the night, exploration groups "split into three parties, each of which followed a different route .... One of the parties ... walked 1 Dutch mile (7.4 kilometres) to the east, while the others went north and south." (Playford 1998, p.36). This then begs the question of further discovery, especially that of the continuation of the Swan River and for this study, of Claisebrook. It is highly likely that the party exploring to the north made contact with Claisebrook. Playford (Personal communication August 9, 1999) stated, it is more than likely that Claisebrook was discovered at this time. This author is perplexed at why Claisebrook and the upper reaches of the Swan River from Heirisson Isles were not noted by Vlamingh. Even if the northern party travelled half the distance covered by the eastern party, then they still would have travelled 3.7 kilometres (half a Dutch mile). This distance would be sufficient for the party to have reached Claisebrook. This was the first of two explorations of the Swan River region by Vlamingh's party.

The next exploration made in boats was led by Vlamingh himself, who would have had the hindsight of the information collected by the first exploratory party. However, Vlamingh did not go beyond the camping location of the first party at Heirisson Isles, and therefore missed the opportunity to discover the continuation of the

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62 In 1616, Dutchmen - Dirk Hartog, then in 1629, the wreck of the Batavia, and in 1656, the Gilt Dragon, was wrecked (Playford 1998, pp. 4-8).
63 This group walking east would have then crossed Heirisson Isles into today's Victoria Park and climbed the ridge there, unveiling signs of the continuance of the Swan River.
64 Author of "Voyage to Terra Australis".
Swan River and Claisebrook. Later, some of his men would complain that they wanted to explore further inland, as they possibly knew of Claisebrook and the continuation of the Swan River. (Playford 1998, pp. 41-42).

It was over one hundred years later that Claisebrook and the Swan River beyond Heirisson Isles was finally mapped and explored. The French expedition in June 1801, was the first to map (Figure 4.0) and mention Claisebrook (among other streams). Monsieur Bailly (a trained mineralogist), examined the effect of rain on the differing soil structures north of the then named Heirisson Isles “the rain water ... [runs] in little streams towards the river, whose waters from that moment, begin to lose something of their saltiness, which till then were as salt as the waters of the sea.” (Bourke 1987, p. 13).

Figure 4.0 - French chart of Swan River, 1801 clearly showing Heirisson Isles and Claisebrook further north. (cited in Bourke 1987, p. 15)
The French chart of the Claisebrook area clearly shows the stream dividing the Claisebrook valley, although the French expedition did not follow the source far enough to discover the chain of lakes. Both the French and Dutch explorers failed to attach names to most locations they visited for reasons now lost. Marchant (1982, p. 164) further supported this conclusion: “[it] was near Heirisson Island that the first fresh water stream, Claise Brook, was found and used but not named”

The most thoroughly documented exploration of the Swan River was Stirling’s visit in 1827. After travelling up the Swan River, Stirling’s party came to the obstacle of Heirisson Isles. Here, Stirling’s party took two and a half days to get over the flats and re-join the upper reaches of the river. (Figure 4.1) This gave Stirling time to explore the surrounding area, although the actual distance he travelled was not recorded. A plaque erected by a tree (near Plain Street) in the East Perth Cemetery recognising Stirling’s journey to Claisebrook: “Dedicated to the memory of Captain Stirling who on 10 March 1827 made a landing at Claisebrook within sight of this tree”

The Colonial Botanist, Charles Fraser noted the importance of this area to the Nyoongar when “visited by three natives, armed; they made signs for me to depart, but offered no violence. On hearing the voices of the party they retired in the woods” (cited in Hay 1906, p. 16). This contact with Aboriginal people at Heirisson Isles confirms a regular pattern of living within this area, as supported by early accounts from the Dutch and French. Stirling and Fraser made many observations of the landscape north of Heirisson Isles. One notable observation was that of Claisebrook. This was named after the Surgeon of H.M.S. Success, F. R. Clause. Originally named Clause Creek, and later Claise Brook then more recently Claisebrook. Today it is known as Claisebrook Cove.

Stirling goes on to record that “Mr. Fraser discovered a Fresh Water Lagoon, and I hit upon a Spring of delicious Water sufficient to supply all our wants” (Stirling cited in Commonwealth of Australia 1923, p. 556). These water bodies are presumed to be Tea Tree Lagoon and Claisebrook. It was fortunate that Fraser and Stirling discovered the waters of Claisebrook, as their water supply “had suffered many inroads”

65 Erected by The Tree Society
(Stirling cited in Commonwealth of Australia 1923, p. 555) from their exertions on the mud flats. If no water had been found, the journey would have needed to be cut short and Stirling would have had to return to his ship to replenish his water supplies. On the afternoon of March 10, Stirling’s party then explored (as did the French before them) further upstream to what is now known as the Upper Swan Region, mapping and describing the land. They encountered the Nyoongar people again near Helena River (at Guildford).

In 1836, the Aboriginal Interpreter Francis Armstrong interviewed the Nyoongar in relation to their recollections of European exploration before the occupation of the Swan River region. Armstrong’s article recalls Stirling’s venture. However, Green (1984, p. 46) suggested this account was that of the Sealer, Randall, and not of Stirling’s party as Armstrong had thought. Armstrong stated the following: “They say they were, at first, exceedingly alarmed ... as they recognised, (as they imagined,) from the bank, in two of the boat party, two individuals of a northern tribe known to be cannibals” (Manners and Habits 1836).
Figure 4.1 - Chart of Captain Stirling’s exploration of the Swan and Canning Rivers.

1827. Note: “Abundance of Fresh Water” (cited in Bourke 1987, p. 27)

4.3: Early Occupation: 1829 - 1900

August 12, 1829, Governor Stirling and several new colonists proclaimed the Perth capital near the site of Perth’s Town Hall. This was the administrative branch of the
Swan River Colony, while Fremantle continued to be the communication link to the world and Guildford became the colony granary. When explaining his reason for the town site, Stirling listed the following reasons for his choice. "The present position of Perth seemed to be so decidedly preferable in building materials, streams of water and facility of communication that I was induced on these grounds to establish the town here" (Stirling cited in Seddon 1972, p.233).

However, there were other possible motives for Stirling's choice for the capital, especially for "a man fascinated by military matters" (Stirling 1991, p. 8). These were based partially on the fear of the French, especially as the Napoleonic and English – United States Wars were not long finished. It is possible that Stirling founded the settlement on strategic grounds such as: protection by the river to the east and south, to the west the high ridge of Mount Eliza served as a lookout, and water supply, with the barrier of the lake chain to the north (also offered a good supply of water). Markey (1979, p. 347) and Stirling (1991, p.8) agreed with this interpretation of the site: "Stirling ... soon realised [the Swan River] to be of political and strategic importance".

The lake chain and Claisebrook were important to the early settlement from having an abundant supply of fresh water. Stirling (Markey 1979, p. 349) wrote of the advantages of his choice for a town in a letter to his brother Walter, stating that the site offered an abundance of freshwater, alluvial soil, and building materials. Markey then goes on to say, "the mud-flats and sand-bars near Fraser Point were a vital factor in his [Stirling's choice for Perth] decision" (Markey 1979, p. 349)

When Perth was first sub-divided, the immediate area surrounding Claisebrook, known as lot – A1 (Figure 4.2) was granted to the Colonial Secretary Peter Nicholas Brown (later changing his name back to Broun). Brown was eligible for a grant of 9626 acres of land in respect to the stock, goods and chattels he had introduced into the colony. Brown's Claisebrook grant consisted of fifty-four acres and was allotted on July 1, 1830. (Bryan and Bray 1935, pp. 16-17). On the 1838 town-site plan of Perth, by A.

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66 Ending in 1815, and 1814 for the England – United States War. In addition, The Swan River Colony was the first major British colonising venture following the Napoleonic Wars (Appleyard and Manford 1979, p. 146).
Hillman (Figure 4.3). The southern bank of Claisebrook was labelled 'Suburban'. These subdivisions were substantial enough to have been used in a rural capacity and were possibly used to supply Perth with fresh produce. Semi rural activity at Claisebrook is evident from Mrs. F. Lochee's reminiscences of Perth between 1830 – 1840:

My grandfather, like many others bought vines... vegetable and strawberry gardens with him from the Cape and planted them in his grounds. [sic] at Claisebrook, and it was the common thing for riding parties of ladies and gentlemen to go there for "strawberry afternoons". (1927, p. 4).

Figure 4.2 - Plan of Perth Town site 1833, from J. Arrowsmith, cartographer of London. (Cited in Seddon and Ravine 1986, p. 100)

Kings Park
Figure 4.3 - Plan of Perth Town site 1838, surveyed by Assistant Surveyor A. Hillman and published by J. Arrowsmith, cartographer of London. (Cited in Seddon and Ravine 1986, p. 100) This survey has been said to be very accurate (Personal Communication with Geoff Cocks, Coffey Geosciences, 11-August, 1999.

Brown did not seem to utilise the Claisebrook land, preferring to build and cultivate other land granted to him in West Guildford\(^6\) (Now Bassendean). Other land grants near Claisebrook were allocated to Alfred Hawes Stone\(^6\), and Richard Roach Jewell\(^7\), to build his Belvedere homestead on Lot A3.

Stirling was directed by the Colonial Secretary to set aside certain lands for government purposes, such as a cemetery site on the ridge overlooking Claisebrook. The location for the cemetery was chosen for the following reasons: being above the

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\(^6\) Brown's other grant was in the Upper Swan region.
\(^7\) Clerk of the Civil Court (Stannage 1979, p. 71).
water table, not far from town and for religious reasons\textsuperscript{71}. The first recorded burial within this area was on January 6, 1830, being a young soldier. In comparison to other colonies Perth was planned in terms of its form and function from the outset.

It was not long before industrial activity came to Claisebrook. After the death of Brown in 1846\textsuperscript{72}, it is not known what became of Lot A1. Yet in 1852, on the same location a large government abattoir\textsuperscript{73} (Figure 4.4) was established on the banks of Claisebrook to stop the slaughtering of animals within a six-mile radius of the capital for health reasons. Two years earlier, convicts were introduced to the struggling Swan River Colony to build much-needed infrastructure, which included the abattoir at Claisebrook. "The Claisebrook site was chosen because it was well away from the town centre and populous districts, yet not so far away to pose delivery problems" (Perth Gazette - April 5, 1852 cited in Stannage 1979, p. 140).

The Abattoir did not operate at full capacity due to people flaunting the law, and continuing to operate slaughterhouses in the centre of town. For Claisebrook and the adjoining Swan River the abattoir represented the first incidence of industrial pollution as untreated by-products were released into aquatic environment. The government abattoir operated for several years before being abandoned, and it was not until the Midland abattoirs opened in 1914, that this problem was finally alleviated (Bourke 1987, p. 282). It appears that having to use the government abattoir increased the price of meat beyond the reach of the poor. By 1854, the safety of the abattoir was in jeopardy from the large body of water flushing through Claisebrook due to the lake drainage. It was reported "that if the Abattoir were either burned down or was washed away by the flood, it would be one of the greatest blessings vouchsafed to the inhabitants of Perth for some years past" (Safety of Abattoir 1854).

The next industry proposed for Claisebrook was a water mill, which would have benefited from the drainage of the lakes. This mill adjoined the "abattoir [and was] leased by Mr Solomon Cook" (A Water Mill, 1854.). However, it can not be established

\textsuperscript{70} Government Clerk of Works, 1853-1884 (Stannage 1979, p. 136).

\textsuperscript{71} That is being closer to heaven on the ridge.

\textsuperscript{72} Peter Brown died November 5, 1846 (Bryan and Bray 1935, p. 29).
whether the mill came into production. Roe (1997, p. 173) is of the opinion that this did not happen, as “3 Perth steam mills commenced 1855-7, [and] this would have made Cook’s mill an uneconomic proposition”.

Figure 4.4 - Perth Town-site c1855 showing abattoir site
(Courtesy DOLA)

It was not long before other industrial activity commenced in and around Claisebrook. One of these was “James Hardwick’s nascent tannery 1860 – [which] polluted the stream of Claisebrook” (Thomas 1974, p. 16- vol 1). The soaking of sheepskins and washing of wool led to the contamination of Claisebrook and it was not long before another tannery was established in the area (Thomas 1974, p. 16- vol 1).

72 Designed by James Austin; Superintendent of Public Works. (Pitt-Morison and White 1979, p. 87)
Bodycoat, (1992, p. 2) also mentions "a brickfield in operation nearby [the abattoir] by 1855".

The influx of convicts boosted the flagging economy of the colony creating a mini boom. This further condemned the remaining lakes north of the town, as food growing areas became a priority. Convicts arrived between 1850 and 1868, and population growth increased nearly fivefold between 1850 and 1884. By the 1870's, Perth was surrounded by market gardens (Stannage 1979, p. 128) which occupied the newly drained lakebeds.

The next notable industrial activity, a mulberry plantation was stimulated by the failing silk industry in the Old World, which was affected by disease (Silk Supply 1871). The Australian colonies sought to establish their own silk industry, and Claisebrook was the site chosen for the Swan River Colony in 1871(Figure 3.4). The government was reported to have around 17,000 mulberry trees at Claisebrook at this time (Silk Supply 1871), and offered prize incentives to colonists to produce silk. By 1875, The Inquirer reported that a Mr. Dale had successfully transplanted and grafted "no less than 13 acres of trees" at Claisebrook (Mulberry transplanting and grafting 1875). In conjunction with the mulberry plantation was a silk factory near the bank of Claisebrook to "house the silkworms" (Seddon 1970, p. 7). The silk worm factory lasted several years, but did not turn out to be a huge success. The mulberry plantation like the abattoir eventually disappeared.

By 1876, the site of the abattoir became a public garden, known as Victoria Park74. The Legislative Council voted on this issue in February "for conversion of the grounds ... for the use of citizens .... [with] a light bridge over Claisebrook" (Public Park and Gardens 1876). Jewell also designed a caretaker's lodge, which was built at the entrance to the park. The area was one of the earliest parks in Perth, and was redeveloped with exotic trees, shrubs and fish. This redevelopment included alteration to Tea Tree Lagoon and Claisebrook75 and also incorporated a band rotunda and gravel paths (Gienister 1990). Seddon (1970, p. 7) believed that the Claisebrook site through to

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74 This name was given before the present suburb of Victoria Park was used.
Walter's Brook (to the north) was even more appropriate for a botanical garden than Kings Park, as "European trees grow well along these streams". While Claisebrook developed a public garden, industry continued to prevail in the area.

Two industrial disasters occurred in the East Perth area during the 1880's. The first of these was the division of the rail line, to split East Perth, which created a psychological, socio-economic and geographic barrier that still exits today (Figure 4.5). The Fremantle to Guildford rail line opened in 1881 [76] and for some time did not impinge directly on the East Perth area[77]. This later changed with the opening of the East Perth Locomotive Depot (see Chapter 5).

The next (and later most costly) industry to set up near Claisebrook, in Trafalgar Road, was the Perth Gas Company. Formed in 1883, it won a PPC contract to provide the city with coal gas. (Stannage 1979, pp. 282-286). With the increasing industrial activity of East Perth more working class people moved into the area to seek employment.

In 1892 gold was discovered in Coolgardie, and then later in East Coolgardie (now Kalgoorlie - 1893). This sparked a major gold rush, especially facilitated by the depression in the eastern colonies. Claisebrook, East Perth became a tent city during this time, as hundreds camped on the old mulberry plantation. Within four years the population of East Perth more than doubled from 1347 in 1894 to 3943 by 1898 (Thomas 1974, p. 78), placing a strain on services in and around Perth. The PCC Health Department set up several reserves around the town and rent was collected and this was used to offset the cost of providing a sanitary service.

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75 Refer to Chapter 3 section 3.2.
76 Officially opening on Tuesday, 1st March 1881. (Minchin and Higham 1981, p. v)
77 Although helping to lessen the use of river transport.
Figure 4.5 - Plan of Perth 1906, showing railway division, differing religious cemeteries and continual existence of Tea Tree Lagoon.

(Courtesy of Battye Library: 629c/2)
East Perth was the largest tent town in Perth and became "just a mess of tents ... and a few hessian houses" (Whittington 1988, p. 356). One notable camper was Henry Lawson, who travelled to Perth with his wife en route to the diggings. Lawson's account of the Claisebrook camp was as follows:

"Our camp was in West [sic] Perth, on a sandy slope, with the cemetery on the ridge, and an alleged stream - called officially "the Brook" - Along the bottom of the slope... We were ... in the street facing "the Brook". The health inspector rode down one day, and casually mentioned that he wouldn't use the brook water for drinking or cooking - it was only fit for washing cloths or dishes" (Lawson (1896) cited in Cronin 1987, pp. 174 - 175). 78

During the mid-1890's, Perth's sanitation became a serious problem in Perth. Cesspits were commonly used to dispose of human sewerage, but when these grew in number they leached into nearby water sources, such as the Claisebrook drain. The infamous Claisebrook drain produced a noxious stench and was regarded as a source of disease. In the 1880's, the drain "was clean enough to harbour 'Gilgies' " (Mrs Bowan cited in Thomas 1974, p. 21). However, in 1895, pollution contaminated the drain to such an extent that Henry Lawson described it as "one of the city's natural sewers" (Cronin 1987, p. 175). Its original use as a water supply, originally by the Nyoongar, and then later the European settlers, had truly ended by the 1890's.

In 1895, there were 566 cases of typhoid and 70 deaths in Perth. Two years later there were 1408 cases reported and 134 deaths (Hunt and Bolton March 1978, p. 11). It is highly likely that other cases went unreported, but it still prompted the government to take action, and by 1906 work commenced on a sewerage system for Perth. Unfortunately Claisebrook was chosen as the sewerage outlet in preference to an ocean outfall at North Cottesloe. Another site under consideration was near the University of Western Australia at Crawley (Hunt and Bolton March 1978, p. 14).

78 A well nearby Claisebrook's former northern alignment was the tent city water supply.
By 1900, a double pan system replaced the cesspit, which in turn was eventually replaced by deep sewerage.\(^{79}\) This was piped to septic tanks at Claisebrook, and then under the river to the Burswood Island filter beds (Le Page 1986, p. 356). Plate 5.3, 1948, Chapter 5, clearly shows the filter beds and signs of the under river pipe). Sewerage was pumped from as far as Cottesloe\(^{80}\) (Wilson 1929, p. 17). "Claise Brook, for instance, became a drain for discharging industrial waste into the river, which, with sewerage effluent from filter beds on Burswood Island, created a problem of river pollution in later years" (Pitt-Morison and White 1979, p. 58).

By now pollution from Claisebrook had been flowing into the Swan River for about 50 years. The sewerage treatment filter beds at Burswood accelerated this problem within the Swan River and resulted in a public outcry. Before the sewerage came to Claisebrook and Burswood, this part of the Swan River contained productive crab grounds; crabs could be caught easily in clear water with a sandy bottom. Fred Cunningham (1982, p. 38) saw the downfall of the area and described the growing waste land:

For it was not long after the establishment of the sewerage works, with the effluent from the filter beds being discharged into the river, that algae began to grow with great rapidity, and in this time this growth completely destroyed these sandy stretches; and to add to this nuisance, at low tides the algae was exposed to the sun and the resulting stench was unbearable. The situation grew worse ... despite the claims of the engineers that the effluent was not the cause of the marine growth.

Throughout the 1890’s, Claisebrook steadily lost its opportunity to become a desirable residential address. The wealthiest people in East Perth lived between Adelaide Terrace and the cemetery. Down the ridge, on lower ground, homes became less ornate and smaller. Blue-collar workers lived near their place of work that they could easily walk to work each day. Many speculators cashed in on the gold rush population and the subsequent building boom, especially as planning regulations were

\(^{79}\) Operating by 1912 (Hunt and Bolton March 1978, p. 15)
non-existent. In Royal Street, some houses “consisted of 7 continuous houses under one roof ... with total space reserved for each house being one twenty-sixth of an acre” (Thomas 1974, p. 34). An important reason for the low values and status of Claisebrook was the uncovered drain, which was unsightly and emanated foul odours. Claisebrook, whose residents demanded that the drain be covered (Statham cited in Thomas 1974, p. 21). Claisebrook became a refuge for many industries, including a soap factory, laundry\(^1\), tanneries, "four brickworks" (W.A. Statistical Register 1901, cited in Stannage 1979, p. 245) (one being Bunning Brothers in Trafalgar Road\(^2\)), stables, saddlaries, dairy paddocks, various shops and homes.

River transport was still popular during this time, especially for brick and timber transport. A canal built in 1839 along the western side of Heirisson Isles was improved in 1895 to help these industries transport their produce. Known as the Claisebrook Canal, it was dredged between Claisebrook in the north and Fraser’s Point in the south (Le Page 1986, p. 212).

By 1900, there were also two breweries, tobacconists, brothels, bake houses, hotels, wine saloons, wood yards, a confectionery and Hunts Biscuit factory, some butchers, a boot factory (both considered noxious), at least six workshops, Chinese market gardens, two hotels; a skating rink and several shops in East Perth (Bodycoat 1992, p. 2). In addition, the PCC open, \(^3\) a nursery and rubbish tip in East Perth during the late 1890’s, with the latter further devaluing the status of the area (Thomas 1974, pp. 17-99, passim).

Gold was a major turning point in Claisebrook’s fortunes, transferring the area from one of large public open spaces in Perth. Claisebrook attracted a large transient population preparing for the gold fields. To get to the gold fields they had to rely on Perth for supplies, contacts, transport, and most importantly information about the gold discovered. In one example, the transient nature of the population is illustrated by the

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\(^1\) Some laundries were identified as being places of ill repute.
\(^2\) (Moore 1987, p. 40)
\(^3\) In later years this would be reversed
1897 and 1898 rate books where between 43 per-cent of ratepayers changed address (Thomas 1974, p. 39).

As the Claisebrook community was highly mobile and transient, there was little opportunity for residents to have a collective voice in social and political issues. As a consequence the government met with little resistance from the community on issues of development. Change was now common in East Perth with a growing industrial base, (reliant on rail, road and river transport) that would cement the fortune of this area for another eighty years. This period will form the basis of the next chapter to document these changes further until the late 1980's.
CHAPTER 5

INDUSTRY AND THE DESTRUCTION OF CLAISEBROOK

"It's like, you know in the early days they just used to pump raw sewerage straight into the river. They never gave it a thought ... you can't do that sort of thing now."83

5.0: THE INDUSTRIAL YEARS AND DESTRUCTION OF CLAISEBROOK: 1900 – 1990's

The turn of the century meant further industrialisation for the Claisebrook area, as well as associated environmental and social problems. The bulk of the East Perth population was represented by recent immigrants84 (Stannage 1979, p. 248), who lacked finances and required cheap accommodation close to their place of work.85 By 1904, East Perth, (also known politically as Perth's East-Ward) was 90 per-cent developed, with 45 percent of the area being industrial (Stannage 1979, p. 243). Thomas (1974, p. 13) recognised a decline in upper status residents recorded in the rate books, and an increased number of "working and middle class ratepayers; also commercial premises".

East Perth proved to be popular for Clay Manufacturing industries, due to the nearby clay deposits. The Monier Patent Propriety Company Limited opened their concrete pipe plant in Claisebrook Road by 1911 (Moore 1987, pp. 47-48) while the Mills and Company and the Stoneware Pottery Company also began operations in the

83 (Harvey 1994, p. 69)
84 Most coming from Australia's eastern states or Britain.
85 Most walked to work, although a tram line ran through East Perth in 1899 (Seddon and Ravine 1986, p. 149).
early 1900's. A prominent landmark, the five story Boronia Flour Mill (Plate 5.0) on the corner of Brown and Jewell Streets also opened in 1916 (Roe 1997, p. 181).

The growth of large-scale industrial activity in East Perth was facilitated by the commencement of the East Perth Power Station in 1914 (East Perth Power Station 1916). This was followed by the construction of the Gasworks at Trafalgar Road, with the first gas storage tank being erected near Claisebrook in 1915. It was not long after this time that Claisebrook “was re-routed from the north to its current [now: pre-cove] current discharge point into the Swan” (Tingay 1992 - February, p. 16). This allowed the erection of further gasholders and enabled the plant to operate at full capacity by 1924 (Tingay 1992 - February, p. 16).

The use of coal for the production of gas required extracting the gas from the coal through by means of a baking process. The by-products of this process were a range of chemicals including coal tars and coke; both of these contaminated the surrounding landscape either intentionally or accidentally. The abundance of the by-products from the powerhouse and gasworks was used deliberately to modify the river foreshore on both sides of the Swan River near Claisebrook. This use of coke for this reclamation was permitted through the Swan River Improvement Act 1925 (Riggert 1979, p. 195), and is confirmed by a former gasworks employee:

A lot of their coke that they couldn’t sell they filled in ... not a lot, but a section of the river. You know, they kept tipping it and tipping it and tipping it. I suppose there’s probably several acres of the river that is all coke and clinkers and so forth (Harvey 1994, p. 69).

For example, a local resident Mrs Brotherton, also recalled the river reclamation as a child and remembered seeing the infill while having a walk after Sunday School. (Thomas 1974, pp. 330-332).

The next industry of substance was the railway locomotive depot (Plate 5.5) (and marshalling yards extending to the Mount Lawley subway) at East Perth Station (now known as Claisebrook Station) further contributing to the connection of industries
in the area. Commissioned in 1919 (Minchin and Higham 1981, p. 28), the locomotive depot attracted vast numbers of railway workers to East Perth.

Coal was the principle resource that maintained the three big industries (rail, electricity and gas). Coal was needed for the production of gas, electricity and to fuel the locomotives and it was bought to East Perth in large quantities. A highly polluted fuel, coal was widely used by many other industries throughout East Perth. However, the gasworks were to prove the most destructive as John Deeble (Harvey 1994, p. 69) a former gas-worker stated:

There was an enormous amount of pollution because of the by-products which in many cases were just poured down the drain, sort of business, and soaked up by the earth.... The pollution was enormous.... The gasworks

Plate 5.0 - Aerial view of the Perth Mint with the East Perth Gas Works, Boronia Flour Mill and East Perth Power Station to the rear - 1924
(Courtesy of Perth Mint Photographic Collection)
was there for a long time, you know ... I don’t think [people realised it was a problem]. It’s like, you know in the early days they just used to pump raw sewerage straight into the river. They never gave it a thought that it would back up on them or be a polluting influence.

Government utilities were particularly attracted to East Perth in the early to mid 1900’s; one of these, the Public Works Department (PWD) was set up in East Perth in 1928 (SROWA, PWD plan 1928) and expanded over the years. Some years later, maintenance workshops for the Metropolitan Transport Trust (MTT) and West Australian Government Railways (WAGR) were also established near Claisebrook.

During the Second World War industrial growth expanded in East Perth to assist with the war effort. Rationing was widespread, and cars were forced to rely on gas. The Speedy Gas Producer Company was one such industry to convert vehicles from petrol to gas, and resided at No’s. 144-146 Brown Street in 1941 (Commonwealth of Australia 1941. p. 38).

By the 1950’s “over 46% of all metropolitan industrial employees were concentrated in the two oldest developed areas of East Perth and West Perth” (Crowley 1960, p. 311). The 1950’s represented the height of industrial activity in the Claisebrook area and was the period most responsible for large-scale pollution of the local environment. Cheap land prices in outer suburbs and the greater affordability of motor cars resulted in people moving away from the unpleasant surrounding of Claisebrook. Industrial activity continued to grow during this time (see Plate 5.4) as the residential portions of East Perth became degraded and depopulated. However, some residential pockets survived this industrial expansion in the area, and were maintained for living.

The Nyoongar resumed legal access to the city from 1954 onwards, although their numbers were relatively low until there was a downturn in rural employment during the early 1960’s. After this period, Aboriginals “began to occupy houses in the poorest streets of East Perth. Thus, Perth began to acquire an urban Aboriginal population” (Bolton 1981, p. 161). With the re-establishment of the Nyoongar people
in Perth, welfare and other services were set-up especially in East Perth, to help with their special needs. This growth saw over twelve Aboriginal services East of the Central Business District by 1998.

5.2: Claisebrook, East Perth 1948 to 1968

Background

The 1948 (Plate 5.3) and 1959 (Plates 5.4 and 5.5) photographs have been taken during the winter months, while the 1968 (Plates 5.6 and 5.7) photograph is a summer scene. The 1968 aerial photograph was overlaid with a transparency of A. Hillman’s (the Colonial Draftsman) 1838 map of Perth, in order to reveal the extent of river reclamation during this period.

Industrial Zone

One of the first distinguishing features of this zone in 1948 is the chimneystacks from the Stoneware Pipe and Pottery Co. Ltd, and the Brisbane and Wunderlich factory, on 42 Brown Street. Wunderlich, before amalgamating with Brisbane in 1938, bought out its competitor Mills and Company Ltd in 1928 (Moore 1987, pp. 50-66). The Stoneware Pipe and Pottery Company commenced operations on this site in 1913 making clay sewerage pipes until 1976, when the cheaper PCV piping made clay piping redundant (Gibbs 1992, p. 39). Between the 1948 and 1959 photographs, there was an expansion in this industry as indicated by an additional chimney (the fourth on the south side of Brown Street).

To the rear of Brown Street, a service road, known by local residents as ‘Pottery Lane’ separates the Clay Manufacturing industry from Claisebrook. From Pottery Lane there was a low lying vegetated area (called Claisebrook Common) as shown in the 1948 photograph (Personal communication with Neil McArthur, 19-8-99). Claisebrook Common contains a few trees and small shrubs, and is darker in colour in comparison to other vegetated areas. This possibly indicates the presence of a high water table which
allows lush vegetation to thrive in what once was part of Tea Tree Lagoon (Serventy cited in Bekle and Gentilli 1993, p. 452). However, this industry had extended over the south side of Pottery Lane to Claisebrook's north bank.

Housing is featured within the first part of Brown Street (from No's. 3 to 7) until 1959. A row of houses along Trafalgar Road includes a shop on the corner of Kensington Street and Trafalgar Road\(^\text{86}\) and a house and stable on the Pottery Lane - Trafalgar Road corner. A paddock occupies land on the other corner adjacent to Claisebrook (Personal communication with Neil McArthur, 19-8-99 and rate book information 1946) until 1958\(^\text{87}\), where a new pollutant industry the Readymix Concrete plant opened. This plant, which is boarded by Claisebrook and Pottery Lane, was refurnished by 1968 (Personal communication with Branko Lopicich CSR-Readymix Production Manager, 26-10-99).

On the north side of Brown Street, the Boronia Milling Company, a roller flourmill had operated since (circa) 1916. The mill was a five-storey building situated on the corner of Brown and Jewell Streets. (Roe 1997, p. 181). (Plates 5.0, 5.3 and 5.12) By 1968, the mill had expanded its operations to include an overhead conveyer, and the site then covered nearly half of Brown Street (Plate5.6). Further along the road, the Australian Glass Manufacturers (AGM) factory resided and protruded through to Kensington Street taking up No's. 17 to 21. Kensington Street also had a mix of industry and housing like Brown Street. In 1948, the AGM office was located at No. 37 Kensington Street\(^\text{88}\), with the manager's residence at No. 17 Kensington Street adjoining the factory (Commonwealth of Australia 1941, p. 14).

In 1948, approximately ten buildings on the north side of Kensington Street were dispersed around a largely vacant area, which was dissected by either livestock or human tracks. Through to 1959, the area remained unchanged, and then was built upon by 1968. In the 1968 photograph the MTT and WAGR maintenance workshops appeared.

\(^{86}\) This is one of the 37 shops around East Perth in 1904 (Thomas 1974, p. 24).


\(^{88}\) By 1964, the office had moved to 99 Kensington Street (Commonwealth of Australia 1964, p. 84).
Gasworks Zone

The gasworks were one of East Perth's predominant landmarks, as well as an important industry to the people of Perth. Although the Gasworks appear to be in full production in the 1948 photograph, they still expanded operations north towards the Bunbury Bridge by 1959. Two storage tanks, a large storage shed and a jetty feature were part of this expansion. This trend was largely reversed by 1968 as evidenced by the dismantling of the number one Retort building. (Personal observation of commemorative photograph found on former shoreline marking pole Mardalup Park, East Perth). Nevertheless, between 1959 and 1968 two new buildings are found in the south-western corner of the site near Trafalgar Road.

Both the 1959 and the 1968 photographs clearly show infill of the Swan River, which was not evident in 1948. In the 1959 photograph, the shoreline is shown as reclaimed from Claisebrook to the jetty. Between 1959 and 1968, further reclamation occurred, and this is evidenced by a recently levelled riverbank. Newly planted saplings near the river's edge are the only vegetation in this area. Further proof of this can be examined in Plate 5.1. These changes are more clearly distinguished in the undated oblique aerial photograph, which is believed to coincide with this period.
PLATE 5.1- Aerial photograph of East Perth Gas Works circa mid 1960’s showing recent river reclamation and Claisebrook down one side
(Courtesy of EPRA)

Claisebrook’s mouth also experienced change between 1948 to 1968. In 1948, the outlet is shown as emptying in a north-easterly direction, but the size of the outlet has been reduced by reclamation in 1959. Further changes occurred by 1968 due to reclamation, resulting in Claisebrook’s mouth now being diverted to flow in an easterly direction; a sand bar has appeared on its northern tip. The vegetation around the gasworks had changed little between 1948 to 1968, only the trees along Trafalgar Road have increased their proportions. The south-western section of the gasworks contained a
considerable amount of vegetation in 1948, which had subsequently been cleared and built upon by 1968. The vegetated banks of Claisebrook shown in the 1948 photograph were thinned of vegetation by 1968.

**Triangle Zone**

Between 1948 and 1968, the triangle zone experienced substantial change as vacant land was replaced with factories. One of the two dominant factories in the centre of the 1948 photograph, which faced Royal Street, had expanded considerably by 1959. The rooftop shows evidence of additional extensions in comparison to its neighbour. A fence extends from the corner of Brook and Jewell Streets, which encircles this factory area. To the east of these factories, was a house and stable at number 34 Royal Street which are shown in the 1948 photograph and had disappeared by 1959; the land being left vacant through to 1968. However, a number of new factories on the north side of Royal Street have appeared by 1959. Near the south-western border of Royal Street (and through to Wittenoom Street) one factory had expanded between 1959 and 1968, as indicated by the different roof colour on each diagonal corner.

Several vacant blocks cover a large portion of the south side of Royal Street in 1948, but in 1959 factories have been established on the western side of this zone, while houses made up a small section near Plain Street. The north side of Wittenoom Street also experienced change. In 1948, No.’s. 2-26 contained houses, followed by a factory at No.’s. 28-32; with further housing and some vacant blocks taking up the remainder of the street. By 1959, No.’s. 28 onwards to Bennett Street were all new factories. This growth continued into 1968, as the remainder of Wittenoom Street (north) became exclusively a factory area. Over half the southern side of Wittenoom Street became devoted to industry by 1968, where as in 1948 it was mainly housing and a Hebrew Cemetery (Plate 5.6 and Figure 4.5). Industrial development change took place between 1959 and 1968.
The trees that lined Wittenoom Street in 1948 were mostly removed or lopped by 1959. In addition, factories on the corner of Wittenoom and Plain Streets replaced several large trees evident in the 1948 and 1959 photographs by 1968.

Haig Park Zone

In 1948, the dominant feature of this zone was the newly grassed area of Haig Park. From the tree line near Claisebrook, a grassed border defines the transition between the level surface of the Park and the base of the steep ridge adjacent to Wittenoom Street. Grass laying was being established in the direction of Trafalgar Road.

Haig Park "was originally" a big sand excavation for building ... in Perth and that. Then when they got too close to the cemetery ... they had to cut it out ... and they turned it into a big park" (Harvey 1994, p. 50). By 1959, Haig Park was entirely grassed.

While the level surface of Haig Park was grassed, the slopes on the southern and eastern borders of Haig Park were covered with sand in 1948. In 1959 a ground cover of Pig Face, *Misenbryan phemum*, had appeared on the eastern slope. These steep slopes were covered by vegetation by 1968 except for a track in the south-eastern corner. The expansion of the change rooms in 1959 to incorporate a hall provided evidence of the sport being played in the Park. In the 1959 and 1968 photographs two turf cricket pitches, are clearly visible.

Another feature of the 1948 photograph of Haig Park was the pine trees along Trafalgar Road and Wittenoom Street. They appear to be of the same age and approximately four metres high. In 1959, many of these trees had increased in size, while some had been removed. By 1968, many of these trees have been lopped or

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89 Haig Park was also the site of the old Mulberry Plantation.
90 This also became a death trap to unsuspecting children who hollowed out the slope, where it sometimes fatally caved in (Personal interview with Ken O'Neill, September 14, 1999 and Norma Miles, August 17, 1999).
91 The WACA ground also shows the darkened turf pitches in the centre of the ground.
92 Both 1959 pitches are found just below the letter 'A' in both words.
93 This is also taking into account the shadow of the tree.
removed. Only two trees remained from a total of eight trees near the north-western corner of the Park. The south side of Claisebrook Common had also been reclaimed and levelled between 1959 and 1968.

Another clump of trees, situated near the north-east corner of Haig Park in 1948, showed evidence of disturbance and thinning in 1959. Some of trees these could be mulberry trees dating back to the 1870's. Seddon (1970, p. 114) observed that: trees “still line its [Claisebrook’s] banks”, during his research on the book, *Swan River Landscapes*.

**Victoria Park Zone**

On the northern side of this zone trees still standing today are remnants from Victoria Park. These include a Hoop Pine, *Araucaria cunninghamii*, Norfolk Island Pine, *Araucaria heterophylla*, several types of Eucalypts, and some Cotton Palms, *Washingtonia robusta*. Surrounding these trees were the sewerage works and municipal garden depot. By 1968 these land uses had disappeared except for the pump house building.

In 1948, the residential sector east of Haig Park, bounded by Macey, Arden, Nile and Trafalgar Road (including Constitution Street), showed houses with large back yards and small front setbacks. Out of character within the rest of the housing was a shed at No. 8, Constitution Street. The largely vacant land between Arden Street and the river was being used as a rubbish tip, “where you had to pick your way down [the hill] to swim” (Personal communication Norma Miles 17-8-99). In 1959 and 1968, a walk trail from Nile Street to the river is still visible. However the old tip site nearby had been covered.

In 1968, a number of houses along Trafalgar Road (just north of Macey Street) and east of Arden Street had been demolished. This could be in preparation for reclamation associated with the Burswood Bridge Project\(^\text{94}\) by the Main Roads

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\(^{94}\) Originating from the Stephenson-Hepburn Plan of 1955.
Department (MRD)\(^95\) (Figure 5.4). Trees along the north-eastern side of Trafalgar Road were removed by 1959.

Two significant trees, one a pine tree located near the corner of Constitution Street and Trafalgar Road and a Black Mulberry tree\(^96\) at 32 Trafalgar Road, (third house south of Constitution St), have grown steadily throughout the period, 1948 to 1968. The Mulberry tree may have heritage value as it is possibly linked with a former plantation on Haig Park (Plate 5.2)

![Plate 5.2 - Mulberry Tree in the backyard of No. 32 Trafalgar Road. The tree shows growth and is possibly over 100 years old. (Taken by G. O'Neill, 15-9-99)](image)

\(^{95}\) Houses within the Burswood Bridge reserve were put under notice of reclamation by the MRD in 1968.

\(^{96}\) *Morus nigra.*
Plate 5.3: 1948 Aerial Photograph of Perth

(Scoped at 1:10,000)

(Aerial Photograph 1948 (15 - February to 11 - May))

Figure 5.0: (Imperial Maps 1948-1949)
Plate 5.4: 1959 aerial photograph (No. A)
(Scaled at 1:10,000)
(Aerial Photograph 1959 (June))

Figure 5.1: (Department of Lands and Surveys - Mapping Branch 1959)
Plate 5.5: 1959 aerial photograph (No. B(Aerial Photograph 1959 (14 - May))
(Not to scale)
Plate 5.6: 1968 Aerial photograph (No. A)  
(Scaled at 1:10,000)  
(Aerial Photograph 1968 (December 3))

Figure 5.3: (Universal Business Directories 1968-1969)
Plate 5.7: 1968 aerial photograph (No. B)
(Aerial Photograph 1968 (December 3))
(Not to scale)
5.2.1: Other Significant Changes to 1968

The closure of the East Perth Locomotive Depot in 1968 (Minchin and Higham 1981, p. 28) represent a significant industrial turnaround for the East Perth area, which had previously experienced industrial growth (see Plate 5.6). However, a diesel railcar depot opened next to Claisebrook (formerly East Perth) Station, which was substantially less polluting, quieter, and cleaner than its predecessor. This also resulted in a loss of employment to the local community as the Western Australian Government Railways moved its marshalling yards to Forrestfield.

The main reason for the gradual closure of industry in East Perth was the State Government plan for a new bridge and a city bypass. During the late 1960's, the government placed caveats on several houses around Claisebrook in order to acquire land for the proposed Burswood Bridge (Figure 5.4).

![Figure 5.4 - Proposed Burswood Bridge and Freeway through Haig Park and Claisebrook (Wainwright 1983, p. 5)](image)

The need to develop East Perth was initially recognised by Professor Gordon Stephenson, who spoke at the new trans-contiental train station to be built on the
locomotive depot. Professor Stephenson stated that: “there will have to be a plan to modify and improve East Perth so that large scale redevelopment can take place in a functional and orderly way” (Ritter 1968 - 1973). This is the first reference to what was to become the recurrent re-vitalisation of East Perth and Claisebrook.

5.3: Claisebrook, East Perth 1969 to 1989

Background

Information for this section was obtained for 1979, (Plate 5.12) winter photograph and a 1989 summer scene (Plate 5.13).

Industrial Zone

Between 1969 and 1979, substantial changes had taken place in this zone. The first of these changes was the loss of manufacturing industry, estimated to be over 70 per-cent from Kensington Street through to Brown Street. Commercial industry had now moved into the vacant buildings that still remained. In Brown Street, the Brisbane and Wunderlich and the Stoneware Pottery Companies were no longer in the area and their factories had been demolished. Brisbane and Wunderlich closed in 1974 due to increasing availability of local refractory clay. (Moore 1987, p. 220). The Stoneware Pottery Company closed for similar reasons in 1976, but also when PVC piping became invariably popular as an alternative product. In 1989 Homeswest owned nearly all of this land which had been earlier fenced and left vacant. This allowed vegetation to become established by 1989 (Rate Book 1989 - 1990). One small building built between the 1948 and 1959, near the previously mentioned store area, is still standing, although it is not known if it was still in use between 1969 through to 1989.

In 1969, the Boronia Flour Mill was one of the first to close its doors, although it remained standing for over a decade before being demolished in 1983 (The West Australian cited in Roe 1997, p. 181). Its neighbour, AGM closed in 1978 and the site became a warehouse. Between 1979 and 1989 new buildings revitalised the area as
commerce became the new activity for the area. This is evident by the Home Building Society and Shanghai Trading Company in Brown Street. The rest of Brown and Kensington Streets included warehouses, offices, showrooms and small factories (Rate Book 1989 - 1990).

On the same side, Rate Books (1977 - 1980) confirm that two houses (No's 20 and 22) survived East Perth's industrial years. However, between 1979 and 1989 they were replaced by a warehouse and factory. Housing along Trafalgar Road had also changed by 1989 where No's. 75, 89-91, and 99, became offices, warehouses and a store (Rate Book 1989 - 1990).

The extent of pollution at the Readymix Concrete plant can be gauged by the stunted tree line shown in the 1979 photograph. Gordon (1975, p. 13) confirmed that these trees struggled to survive in this hostile environment (Plate 5.8). With the plants closure in 1988 the surrounding vegetation recovered (Personal communication with Branko Lopicich, 26-10-99).

Plate 5.8 - Silver Birch Trees between Claisebrook and the Cement works- struggling to survive (Gordon 1975, p. 7)
Gasworks Zone

Between 1969 and 1989, the gasworks ceased operating and was demolished with only the foundations to serve as a reminder of the former land use. As gas was available from the north-west shelf, the gasworks were decommissioned in 1972. The four gas-holders were progressively removed by 1989. The nearby buildings that surrounded the gas-holders were the last structures to remain, while other parts of the site had already been occupied by new industry. Vegetation, including a maturing tree line and a walk trail cover the reclaimed foreshore.

97 Located west of Dampier, WA
Plate 5.10 - The mouth of Claisebrook emptying into the Swan River
(Gordon 1975, p. 13)

Triangle Zone

Between 1969 and 1979, this area experienced little disturbance. Offices, warehouses, a showroom and a factory took up most of the south side of Royal Street. Land leased from the MRD occupied one half of the north side of Royal Street\(^9\), shows some minor additions to the large factory. Next door, the Metropolitan Regional Planning Authority (MRPA) owned the rest of the street so as to accommodate the Burswood Bridge and highway (Figures 5.4 and 5.5). Some of these industries include a print-works, Investment Company, a Sportswear Company, Ahern's warehouse, and the Dobbie Dico (water) Meter Company.

Little transpired in Wittenoom Street between 1969 and 1989, with only one house being replaced by a factory. Houses took up a portion of the street, between No's. 17 and 21, which then adjoined a textile factory that was formerly an auto service shop. The remainder of Wittenoom Street consisted of warehouses, offices, a house at No. 43

\(^9\) Note the fence down the length of Brook Street.
and a shop at No. 57. Throughout the last 20 years, the street trees had grown and flourished along Royal and Wittenoom Streets.

**Haig Park Zone**

Several pine trees along the perimeter of Haig Park were lopped or removed between 1969 and 1989, especially along Wittenoom Street. In contrast the Pine trees on the Trafalgar Road and Wittenoom Street corners have grown steadily with little interference. Diagonally across Haig Park, in the north-western corner, the last remaining pine tree continued to flourish between 1979 and 1989.

A walk track in the south-eastern corner of Haig Park that started at Trafalgar Road into the Park is distinguishable on the 1968 photograph. It was still present in 1979, but by 1989 the track had been overgrown by vegetation. The oval appeared to be well watered in comparison to the adjoining cemetery. The outline of the cricket pitch (in line with Constitution Street) is vaguely visible in the 1989 photograph due to its dark appearance.

**Victoria Park Zone**

In 1949, the vegetation near Claisebrook and Trafalgar Road appears vigorous, as does the ground cover along the river and near the old refuse site behind Arden Street. Sand tracks led from the centre of Arden Street over the old tip site and down towards the river.

The square of residential streets on the southern border of this zone displayed two unusual features. The first of these was a yard at No. 50, Macey Street, which belonged to the State Electricity Commission of Western Australia (SECWA). The second point of interest was a horse stable at No. 22 Nile Street. Another horse stable and a store were located down at No. 77 Trafalgar Road, while the remainder of the Road from No’s 20 – 85 were houses (PPC Rate Book 1977 - 1980). Verge trees in this area have matured considerably since 1969.
By 1989, considerable changes had taken place in Victoria Park due to the Burswood Bridge Project. The first of these changes was the demolition of houses along Trafalgar Road, both sides of Macey Street (excepting one house) and the north side of Constitution Street; only the verge trees remained on these streets. To take advantage of the expected flow of traffic from the proposed Burswood Bridge, a 58 unit lodge with restaurant and office was built between Constitution and Nile Streets (PCC Rate Book 1989 - 1990). Unfortunately, the large pine tree on the corner of Constitution Street and Trafalgar Road was cut down to accommodate this lodge. In addition, five units were built at No. 6 Nile Street (on the corner with Arden Street) between 1979 and 1989 (PCC Rate Book 1989 - 1990). In Trafalgar Road, Nos. 22 to 32 remained as houses, excepting No. 24, which became a flat in 1989.

5.3.1: Other Significant Changes to 1989

From the 1960's through to the 1970's, Claisebrook was generally forgotten, except when the occasional newspaper article covered historical aspects of Perth (eg: J. Walkerden, July 7, 1962; C.F.H. Jenkins, February 6, 1969). Claisebrook appeared overgrown with bamboo and other various exotic shrubs and grasses (Plate 5.11), and was only frequented by local residents walking their dogs around Haig Park. Haig Park was also widely used for sporting purposes, including football and cricket.

99 In a similar vein to Sydney's first water supply, the Tank Stream.
100 The West Australian, p. 14.
A student’s game of cricket at Haig Park in the early 1970’s saw Claisebrook regain some attention, through his Sir Thomas Wardle prize-winning entry. This essay entitled ‘Claisebrook, The Lost River of Perth’, mentioned the problems of continued water pollution (showing the existence of pathogenic organisms), in *The West Australian* (Wednesday, October 2, 1975). This paper was then lodged with the Battye Library, but its underlying message became lost over the years, and Claisebrook faded back into oblivion.

This was to be the case until the early 1980’s where a new interest was generated into reviving the area surrounding the lost river. The East Perth Land Use and Landscape Committee was initiated by the State Government to look into ways of revitalising the Claisebrook area. These further industrial closures had taken place by the end of 1981, as the last of the big three industries (the power station) ceased operating. The Burswood Bridge Project gathered momentum during the mid – 1980’s, along with the East Perth redevelopment.
The next Chapter will examine the clean up and redevelopment of East Perth, along with the resurrection of Claisebrook. The last aerial photograph (1998) is used in conjunction with the overlay of A. Hillman's 1838 map of Perth, (Figure 4.4) to show the extent of this change that has occurred to foreshore from Claisebrook to Perth.

\[\text{102 This being John Gordon.}\]
Figure 5.5
(Universal Business Directories 1978-1979)
Figure 5.6

(Universal Business Directories 1989)
CHAPTER 6

CLAISEBROOK'S RESURRECTION?

"Environmentally, the loss of Perth's lakes and brook has been a disaster, but with careful planning, Perth's lost river may be yet found again. The question is of course - "DOES ANYBODY KNOW - OR CARE?" (Gordon 1975, p.14)

6.0: CLAISEBROOK'S RESURRECTION?

During the early 1980's, the then Labour Government set up the East Perth Land Use and Landscape Committee, with a view of redeveloping East Perth and Claisebrook. The first plans showed low-rise residential homes, and a cul-de-sac subdivision (Parry and Rosenthal Architects 1989, n.p), focused around the proposed Burswood Bridge (Figure 5.4). Initially, the location of the bridge caused disagreement between the government and the PCC. As a means of resolving this conflict, the PCC commissioned an independent planning report in 1981, where it was proposed to move the bridge further upstream (to its present location). However, the MRPA initially rejected the idea (Wainwright 1983, p. 34).

In 1990, the Labor Government introduced the East Perth Redevelopment Act, in 1991. This lead to the creation of the ERPA, which received joint State and Commonwealth funding under the Better Cities Program. These funds were principally intended for cleaning up past industrial contamination at the old gas-work site, as well as in the Swan River and Claisebrook. Since its conception, the East Perth Redevelopment of 146 hectares became the largest urban renewal project undertaken in Australia at the outset. (EPRA 1997, p. 1).

103 Under the Premier Brian Burke.
104 Owned by the State Energy Commission of Western Australia (SECWA) until February 1994, where the EPRA took over (Minister for the Environment 1994, Letter).
In essence, Claisebrook and the surrounding area was resurrected through the redevelopment, and the conclusion to Gordon’s paper (1975, p. 14); “does anybody know - or care?” had essentially been answered. However, it can be speculated that without a former brook at this site, the new redevelopment would be little different than any other canal development in Australia or overseas.

6.1: The Clean up of the Gasworks and Swan River

The major problem confronting the EPRA was liquid and solid contamination at the gasworks site, which was leaking into Claisebrook, and ultimately flowing into the Swan River. As previously mentioned, contaminants such as coke and ash were used for landfill, while other contaminants leached into the ground from storage containers, or were discharged on site. For approximately 50 years pollution leached into the land and surrounding waterways. This waste included a number of chemical compounds, many of which were considered to be carcinogenic:

- Polynuclear aromatic hydrocarbons (PAH's)
- Heavy metals
- Cyanides
- Pesticides
- Ammoniacal liquor
- Sulphur
- Petroleum hydrocarbons
- Phenols and cresols

(SECWA and EPRA c1993, p. 1) and (Axis Environmental 1996, p. 5)

A "100,000 gallon (approximately 460,000 litres) progressive oil spill had occurred some years earlier ... due to leaking tanks" (SECWA 1994, Minutes- point 10.3). The depth of contamination, (especially some of the PAHs) was surveyed at sixteen metres below the ground surface prior to redevelopment, which made "remediation by removal totally impractical" (Mander-Jones 1994, Memo to EPRA).
Approximately, 69,000 tonnes of material containing various levels of contamination was relocated during the excavation of the Gasworks site (CMPS&F 1996, p. 18). These soils were classified according to their contaminant levels, so they could be disposed of at appropriate landfill sites (see Appendix D). The most highly contaminated soils, graded 'Type F', had chemical concentrations exceeding safety criteria of most disposal sites, except a Class Five secure landfill or an incineration facility (CMPS&F 1996, p. 18). Disposal of these soils presented numerous problems as a number of landfill sites refused to accept even the less-contaminated soils.

The worst contaminated soils were sent to the Redhill tip, after they were subjected to a Bioremediation process in a special containment pit (CMPS&F 1996, p. 15). The in situ Bioremediation process reduced contamination levels in the soil to acceptable levels for disposal at Redhill. This process involved the treatment of soil by the "injection of bacterial cultures, oxygen and nutrients" where the bacteria digests the PAH's (Environmental Protection Authority 1992, p. 34). The main contaminants, "polycyclic aromatic hydrocarbons were reduced by 80 per-cent as a result of treatment ... [while the remaining 20 per-cent in the soil was] resistant to further breakdown" (EPRA Fax 1995). A "total of 18,500 tonnes were treated and disposed at Redhill landfill site" (CMPS&F 1996, p. 18).

The clean up of the gasworks site was completed towards the end of November 1995, while the Bioremediation process finished on 9 February, 1996 (CMPS&F Environmental Division 1996, letter) Not all of the contaminated soils were removed from the gasworks, due to the extent and depth of contamination. Certain measures had to then be put in place by the EPRA to prevent migration of these soils at the redeveloped site, which included disrupting the ground water flow. One of these measures involved the installation of a cut-off wall. This prohibits contaminants from leaching into the cove and acted as a retaining barrier during the excavation of the cove. The cut-off wall was installed down to one metre below AHD (Axis Environmental 1996, p. 3) at the former gasworks (Plate 6 5 and Figure 6.0), and starts east of the

This also includes benzo(a)pyrene and dibenzo(ah)anthracene.
Trafalgar Footbridge, then finishes at the Swan River foreshore near the rounded wall. Contamination from the gasworks is further contained by a plastic cut-off curtain along the foreshore (Figure 6.0).

The gasworks site was ‘capped’ by an impervious layer which served to neutralise the contamination so that problems did not arise in the future. After excavation of contaminated soils to an acceptable depth, has been completed, the site was backfilled with a combination of less contaminated soils and clean fill to a level acceptable to the DEP (East Perth Redevelopment Authority 1995, November 2). It was then capped with a 'Saponite' layer and covered with soils of varying depths (eg: 3 to 1.5 metres) (Axis Environmental 1996, p. 5). The Saponite layer reduces water infiltration, and is installed on a down-slope gradient running west to east (CMPS&F 1996, p. 30).

Another method to control water movement is the use of an interception drain near the western boundary of the public open space. This drain was placed at the ‘mean’ river level (zero metres AHD) amongst small granular material that directs the groundwater into the drain before it could reach the gasworks site (Figure 6.1). A potential problem could result if this trench became clogged with foreign material, forcing the groundwater to penetrate the contamination.

A series of slotted conduits were used to stop surface water infiltration from penetrating the capping layer. These were laid directly under the surface of the land to accommodate rainfall and surface run-off. This method was designed to cope with vertical infiltration of 0.5mm and 1.0 mm per day, or horizontal discharge "of 0.2mm per day when the ground is at saturation point" (ERPA 1995, January 11, Letter January 11, 1995).

106 Smectitic clay that swells on contact with moisture to form a gelatinous mass of extremely low permeability, and is popular in waterproofing dams (CMPS&F 1996, p. 30).
Figure 6.0 - Plan showing cut off wall and cut off curtain on old East Perth Gas Work site among different planning zones.

(CMPS&F 1996 - March, Figure 2.1)
Stormwater drains also serve as water interceptors for the hard surfaces within the area. These discharge directly into the Swan River, although the installation of a pollutant trap as required by the Swan River Trust (1996, Letter). Designed "to collect all run-off and paved area run-off for a one in two year storm" (BSD Consultants 1993 - November, Section 6.1 - Drainage) which could present a problem during a wet winter.

This occurred during the winters of 1996 and 1997, when contamination (PAHs and Ammonia) reached the river as "the groundwater height during the winter months exceeded the level of the interception trench" (CMPS&F Environmental 1996, p. 9). If wet winters prevail, the "greater than expected" (CMPS&F 1997, P. 10) winter run-off could become a problem.

The entire area was landscaped or prepared for residential building, including landmarks such as the waste-water pumping station, which was partially covered and landscaped. The land-use activities (residential to public open space) on the former gasworks site, prohibit groundwater extraction, and uncontrolled excavations. A
potential problem in the future could be presented by maturing trees in this area. Some
tree root systems could eventually penetrate the layer of capping (ie: Saponite) which
overly the contaminants. This may result in damage to the trees themselves, and the
possible release of the contaminants into the adjacent clean soils or nearby waterways.
The sheet pile wall separating Claisebrook Cove from the contaminated soils will also
eventually breakdown, having an estimated life span of 50 years. After this time, new
sheets will need to be installed to prevent the movement of contaminants into the cove.
Continual monitoring and sampling of soils and water is essential to ensure that the
quality of this area is protected.

6.1.1: Clean-up of the Swan River

A hydrographic survey was undertaken of the contaminants within the Swan
River. This survey identified six hectares of sediments that required remediation
(Environmental Protection Authority 1992, p. 8). This contaminated site was resistant to
natural breakdown as "the high molecular weight ... is likely to take a considerable time
and dilution throughout the river by dispersion is unlikely, as the area favours
deposition of sediments most of the year" (Environmental Protection Authority 1992, p.
8). A dredging barge excavated the riverbed to a depth of one metre and cleaned these
sediments before returning most of the soil to the riverbed. The remediation of the Swan
River removed approximately 13,000m$^3$ of sediment (CMPS&F Environmental 1996, p.
3).

Contaminated sediments were cleaned within the worst affected areas. (Figure
6.2) However, the spatial extent of this contamination extended further down river
beyond the limits of redevelopment\(^\text{107}\). Plate 6.0, taken approximately 300 metres from
the Claisebrook Main Drain shows visible tar concentrations to be of risk to river users
today. Further monitoring of the area is being carried out to discover the extent of re-
colonisation of benthic fauna within the aquatic environment, to measure and evaluate
the success of the remediation process (Bouckaert 1996, P. 1).

\(^{107}\) From Figure 6.2, it is impossible to track the contamination to its final point.
6.2: The Claisebrook Cove

Claisebrook Cove was partially constructed on the contaminated soils of the former gasworks site. The contaminated coves' soils were excavated to a depth of one metre below the determined cove bed. Approximately 95 per-cent of the coves contaminated soil was removed by this process. (CMPS&F Environmental 1996, p. 3).

The shape of the cove was engineered to reflect the ancient geological path of Claisebrook 10,000 years bp (EPRA 1997, p. 3). The position of several large trees prevented the precise reconstruction of each meander in the channel. Excavating the cove meant modifying Trafalgar Road, which originally crossed Claisebrook. This was terminated near the southern bank of the Cove where a footbridge was constructed for aesthetic reasons and to hide the service infrastructure\textsuperscript{108}. Claisebrook Cove was

\textsuperscript{108} EG: Waste water pipes and electrical cables.
officially connected to the waters of the Swan River in December 1994 (EPRA 1997, p. 7)

From the Swan River, the cove was connected to the artificial East-Brook Lake (end-plate-6.6 and Plate Appendix F.1) which in turn is connected to the main Claisebrook water channel. This channel circulates water between East Brook Lake and a fountain at the head of the channel, while also providing reticulated water for the surrounding parklands. Water quality and algal blooms associated in East Brook Lake and the channel highlight the need for regular monitoring of nutrient levels and cleaning of the channel (Plate 6.1). This was outlined by CMPS&F (1995) in a letter to EPRA: "water quality sampling in the East Perth lakes indicates nutrient levels to be excessive". The main body of water in the Cove is replaced "about every three days" (Tingay 1992 - February, p. 37) and is assisted by tidal and wind generated water movement.

Claisebrook Cove is only permissible for "secondary contact recreation" (boating and fishing) and with the exclusion of swimming suggests that the water quality maybe deemed to be unsafe for human contact. The Claisebrook Main Drain (Plate 6.5) was initially moved during the construction of the cove (Plate 6.2), and is built further down-river from the cove, and has a low flow capacity. Contamination from this source is unlikely to have any impact on the Cove. Claisebrook's Main Drain extends beyond Morley Drive and into Nollamara in the north. It then drains towards the city in a north-south direction (while still controlling most of the former lakes water-flow) before emptying into Claisebrook Figure 6.3). This drain shows signs of algal activity (Plate 6.3) and it takes approximately 250 metres for the water discharged in the drain to completely mix with the river water. However, when the capacity of the drain is exceeded storm water flows through the Claisebrook cove.

The following section focuses on the 1998 aerial photograph, which is also compared with the 1989 photograph to show recent changes in the area.

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109 Primary contact recreation includes frequent direct contact either as an activity or accidentally (CMPS&F Environmental 1996, p. 9).
110 Including a sight odour noticed during this survey (15-9-1999).
Plate 6.1: Claisebrook water channel showing fountain to the rear. (Taken by G. O'Neill 15-9-1999)

Figure 6.2 – Extent of main contaminants within the Swan River (EPA 1992, p. 5, Fig. 3)
Plate 6.2: Re-aligning the Claisebrook Main Drain. C early 1990's (Courtesy of EPRA)
Figure 6.3: The Claisebrook Main Drain catchment area today. (Courtesy of the Swan River Trust)
Plate 6.3: The Claisebrook Main Drain waters mixing with the Swan River and emanating signs of eutrophication (Taken by G. O'Neil 15-9-99).

Plate 6.4: Trafalgar Road – Plain Tree relocation. C early 1990’s (Courtesy of EPRA)
6.3: Claisebrook, East Perth 1998

Background

This colour photograph\(^{111}\) shows a former industrial area that has reverted to a sub-divided urban area, and is modelled on the mixed-used notion of an urban village. It was the EPRA's intended planning policy to stipulate a land use category of either a 'preferred' use or a 'contemplated' use (EPRA 1996, p. E1).

Industrial Zone

A new cove has replaced what was left of the Claisebrook, and in memory of the former Tea Tree Lagoon a small lake has been created, called East Brook Lake (Plate Appendix F.1). The position of Claisebrook, that is as it appeared after modification in the 1920's, coincides with the southern side of the cove (Transparency FIG 6.?). In memory of Claisebrook a memorial water channel\(^{112}\) starts at Claisebrook Road and runs through to East Brook Lake. This channel ranges from fifty centimetres to one metre at its widest point, and for much of the way is only centimetres deep. It is encased in limestone base and by retaining walls as it follows the direction of the adjoining footpath to the lake.

An entirely new street layout has been created north of the cove. Within the redevelopment new street names reflect historical events associated with the area. The first of these is Henry Lawson Walk, built over the former 'Pottery Lane' service road, and was one of the first areas to accommodate new housing. Only No's. 2 and 6 are still vacant blocks, while No's. 8 to 58 have established housing.

To the rear is Brown Street, where the north side of the street is dedicated to commercial use, including warehouses, showrooms, and light or service industry as shown in the 1989 photograph. The present field study (30-10-1999) revealed the following business activities: gym, dance studio, linen service company, smash repairs, and an elevator company. EPRA guidelines specify that the southern side of Brown

\(^{111}\) Taken on Sunday, January 4.
\(^{112}\) With a European look.
Street is 'preferred residential' (EPRA 1996, p. E.4), as recently evidenced by the number of new homes now erected (30-10-99). The rest of the area consists of residential and commercial land-uses and has an R80 to R100 density code\textsuperscript{113} (EPRA 1996, p. E.4).

In Kensington Street, additional buildings have been erected and mainly consist of service industries, along with warehouses and showrooms, which include two computer companies, several printeries and flower wholesalers. The northern end of Trafalgar Road, has been renamed Henry Lawson Walk, and still further along it becomes Victory Terrace (Figure 6, road map behind photo). This area is preserved entirely for residential purposes due to the breathtaking river views (EPRA 1996, p. E.4). Street beautification is under-way with newly planted trees of approximately two metres in height.

Gasworks Zone

By 1998 the only structure to remain of the gasworks was the jetty. The area has been transformed to public open space centred on Mardalup Park. Lithographic photographs on wooden pole's mark the original foreshore, and two sculptures in the northern circle of the Park are reminders of the area's tautology.

Along the foreshore a number of eucalypt and exotic trees have been established as part of the redevelopment, while the dark green patches, shown on the colour photograph within the park signify planted gardens (see Appendix E). A child's playground has also been constructed near the basketball courts at the entrance of the park in the now extended Brown Street.

Triangle Zone

The most notable features are Brook and Plain Streets, which extend from a roundabout (featuring a triangle sculpture) then joins East Parade. East Parade is planned as a major exit for the future Northern Bypass Freeway. Inside this zone a

\textsuperscript{113}'R Codes' or Residential Planning Codes indicate the number of houses per hectare.
number of changes have occurred. East Brook Lake and the Claisebrook channel (leading up to the fountain on the corner of Royal Street and Claisebrook Road) have replaced former government and private industrial utilities, and are now surrounded by a park on one side and residential housing on the other. Retail, residential and commercial buildings have replaced all industrial buildings along the now re-aligned Royal Street and throughout the Triangle Zone, (residential density of ‘R100’) (EPRA 1996, p. E.2). Regal Place, formerly part of Royal Street, services the few remaining industrial and commercial land-use.

According to the 1998 Rate Book, the Dobbie Dico Metre Company was the last manufacturing industry in this area which was to become commercial and retail. On the north-west side between Wittenoom and Royal Streets, a large vacant block surrounds EPRA’s main office (at 184 Bennett Street), which at this stage is the first and only vacant block between Wittenoom and Royal Streets. Commercial buildings occupy the opposite end of the Triangle Zone along Plain Street.

**Haig Park Zone**

With the redevelopment of Claisebrook, Haig Park has become a primarily residential area. A new road, Haig Park Circle, defines this zone, and was awaiting the construction of new homes in the 1998 photograph. The former mulberry plantation is recognised in the naming of ‘Mulberry Way’. This zone now comprises mix use-residential variations of single, multiple and group dwellings, interlaced with a small amount of open space. Five pine trees, in the south-west corner have survived from 1948, and now have reached approximately 18 metres. To the north of this zone, Trafalgar Bridge has replaced the old Trafalgar Road wooden bridge and some of the road.
Victoria Park Zone

Victoria Gardens (named in memory of the old public gardens) have become a focus of the redevelopment. Reconstruction and landscaping of the WAWA pump-house is one feature of the Park, while the Claisebrook Main Drain has been diverted to the south (note: small inlet), and surrounded on one side by two metre tall Melaleuca trees.

The trees near Trafalgar Bridge are now a prominent feature of the landscape. Their heights vary between 27 and 36 metres for the old pine trees, 15 metres for the two Cotton Palms, up to 18 metres for the eucalypts, and some newly planted exotics from 10 metres. Three large eucalypts also impose on the river foreshore, and stand approximately 10 metres tall. During the construction of Claisebrook Cove, a 30 metre high Plane tree was removed and replanted along the foreshore as part of the redevelopment (EPRA 1997, p. 4) (Plate 6.4).

Towards the top of the hill, Arden Street now encircles and cuts off Macey Street from Trafalgar Road. Constitution Street and Nile Street have an historical and contemporary mixture of residential housing styles, as shown by No's. 12, 14 and 26 Nile Street. These homes pre-date the 1948 photograph, as do No's. 7, 11' and·13 in' Constitution Street. The Metro Inn Apartments and restaurant have moved their offices from Constitution Street (which would have capitalised on the former position of the Burswood Bridge and highway) to Nile Street, where the facade has been noticeably refurbished.

The only other house to pre-date 1948 is found at No. 32 Trafalgar Road, where an old Mulberry tree (refer section 5.2 - 1968 photograph) with a probable historical significance continues to grow (Plate 5.2). All other houses shown in the 1989 photograph have now been demolished and replaced by a mixture of dwellings zoned between 'R100' and 'R60'. Housing in this area still retains its residential character despite the presence of high-density department dwellings.(EPRA 1996, p. E.2) The
1998 aerial photograph depicts enormous aesthetic change in the area. There are many reasons for revitalising an inner city area, including environmental, political, economic, social and psychological. The next chapter will examine future directions for Claisebrook in light of the past and present development.

\textsuperscript{114} The resident, Mrs Brosnan believes this tree to be more than one hundred years (possibly an old plantation tree?). It seems likely this tree will be later removed.
CHAPTER 7

SUMMARY

"Bringing it all Together"^{15}

This summary will now 'bring together' and consider why the form and function of Claisebrook and East Perth changed in the way it did. It will examine the broader picture that relates directly to the City of Perth, as in most cases, the history of Claisebrook and East Perth is a consequence of Perth. These changes and events reflect some of the broader influences from the greater Perth district as a whole. Claisebrook is intimately linked to Perth being on the river, a natural drain, and east of the capital, which has always been close enough to serve Perth's needs. This chapter will also speculate on the future direction of the area, as well as posing some additional questions for future studies.

As the most western tributary of the Swan River, Claisebrook was created approximately 10,000 years ago, and served as an outlet for a number of former lakes. The Physical setting of Claisebrook has been altered significantly over geological time; once a steep sided valley, it became a gently undulating depositional site with a mixture of alluvium, peats and Spearwood sands along its course, to extensive modification of the hydrology and physical appearance from human activity.

It is suggested that Claisebrook was most likely the mouth of a large embayment during an inter-glacial period, as indicated by the topography of the region; most of the wetlands from Herdsman Lake through to Claisebrook are encompassed by a 15-metre contour line. Recorded floods since 1830 also add further support to this notion. Additionally, Heirisson Isles also acted as a barrier between Perth water and the upper Swan River. This barrier was substantial enough to prevent the free intermixing of
water during the early winter period, and would have contributed to higher water levels at Claisebrook.

The reclamation or alteration of the lakes for market gardening, to reduce flooding, or for building, provided a major engineering challenge to the earlier residents living near Perth’s lakes between 1830 and the late 1920's. Claisebrook and Tea Tree Lagoon were the last to undergo this change. Flooding was also exacerbated by the removal of native vegetation and this also impacted upon the Gnangara Water Mound. The removal of vegetation meant the removal of fauna habitats, which destruction reduced the Nyoongar food supply.

Claisebrook was on the doorstep of a major fording place (Heirisson Isles) for the Nyoongar tribes, and was used as a water source (created by the Waugal), food supply, and a camping ground. Claisebrook was well utilised by the Nyoongar people prior to, and later during European occupation. However, the Nyoongar connection with Claisebrook has been weakened by past land clearing, industrialisation, and reclamation of the area. Despite being banned from: Claisebrook and the Perth settlement, Aboriginal people have and still continue to maintain an association with the area.

Today, the Nyoongar have been economically forced out of the Claisebrook area as the socio-economic situation of people prohibits them from living in the redevelopment due to the high land prices and cost of living. East Perth has always been "an area of significance according to the Nyungah Circle of Elders and therefore comes under 'Section 5' of the Aboriginal Heritage Act" (Wilkes, 1995 - October, p. 7). So although the Nyoongar people are unable to physically remain in the area, their spiritual connection is still strong.

It could be argued that, Claisebrook provided one of the significant attractions for settlement, as Stirling documented the "abundance of water" (Figure 4.1), Claisebrook’s water supply was clearly marked out on the map. It also allowed his party, as the French years before, to explore further afield as their water supply was reduced during the delay at Heirisson Isles.

This being EPRA’s theme.
Since European occupation, Claisebrook has provided the following services to Perth, a water supply, a drain, a clay-pit for brick making, city garden, residential area, a holding pen for people during the gold rush, a dumping ground\textsuperscript{116}, and an industrial location. As an industrial area it catered for the town’s supply of meat, gas, electricity, sewerage outlet, clay pipes and then a multitude of small businesses. More recently, this area now provides accommodation for professional people who require a location in close proximity to their business requirement in the City of Perth.

Known as the city’s back-yard, especially from the early 1900’s with the establishment of three large industries, the area has been treated as being ‘out of sight out of mind’. Pollution, (and before that, disease) were part of the landscape for many experienced by many residents during the first half of the century. Many of these people had little chance to move elsewhere as they were socially and economically disadvantaged.

Post war industrialism was a time when ‘Fordism\textsuperscript{117}’ was ingrained into the employment sector. Workers and their employers were concerned with building a nation irrespective of the environmental consequences, which were largely unknown in the Government and planning post war period. This period emphasised the need to populate or perish. The significance of this philosophy on Claisebrook was largely in the development of industry, which in turn attracted workers in a range of services to the area.

EPRA’s redevelopment of East Perth shows an equal resolve and commitment to serve the needs of the city and local community. Today, the main resource of the city is the people. Successive Governments have recognised the need for urban infill and consolidation as the economies of urban sprawl are slowly crippling in terms of environmental and infrastructural costs to society. The growth in white collar employment also needs to be catered for by the precincts, like East Perth, close to the Central Business District.

\textsuperscript{116} Both land, Claisebrook and the river.
\textsuperscript{117} Mass production.
Plans were devised to find an equal balance between sprawl and the city, including the Stephenson-Hepburn Plan\(^{118}\) (1955), and the Corridor Plan (1970). Both were products of their time, encouraging urban sprawl and private transport use, until Metroplan (1990) devised strategies for urban consolidation. Now, owning a quarter acre block is no longer a priority for many Australian's. The East Perth Redevelopment caters for the professional and business people without large families.

A major test for Claisebrook will come inevitably in the future, as the contaminated areas and waterways will require an ongoing maintenance program. If this maintenance is not undertaken and the environmental quality is not preserved to an acceptable standard, then the area may face another period decline as wealthy residents and businesses abandon the area. The present contamination of the site has been contained but it remains to be seen whether these structures will endure the test of time. Despite careful planning and efforts to minimize the effects of past contamination of the site, there is also a need to be constantly vigilant to ensure that the present development does not lead to any unforeseen environmental damage. This can be illustrated by the recent collapse of a sewage pipe that led to a spill of 340,000 litres of untreated sewage in the Swan River at Claisebrook Cove (Quekett and Callaghan 1999 - November 27, p. 3).

The East Perth Redevelopment Authority has breathed new life into the formally degraded area. However, “returning this forgotten part [Claisebrook] of the river to the people of East Perth” (EPRA 1995 - Issue 5, p. 1) can only be claimed in spirit as it architecturally fits a vogue conception of contemporary living. Firstly, with the cove serving as a recreational water canal\(^{119}\), and secondly, a water channel and fountain symbolising Claisebrook, not as it was, but as we perceive European water channels to look, and then just adding the former name.

The main focus of Claisebrook has principally been centred on the attraction of water. This encompasses the areas utilisation as drinking water, initially for the Nyoongar people, then the explorers and later the settlers. Water was also the main

\(^{118}\) Known officially as the ‘Plan for the Metropolitan Region - Perth and Fremantle.
resource of early industry and today remains the attraction of the current redevelopment of Claisebrook.

In conclusion the history of Claisebrook was determined by people’s changing perceptions of what they thought to be the best for their community at the time. Sometimes the visions of Government and Developers were at the expense of Claisebrook, while on other occasions transformations to the area were more beneficial. (eg: Victoria Park and the current redevelopment) Therefore, it is difficult to judge whether many decisions over the past 140 years were either right or wrong. People respond and are conditioned to their surrounding environment. This is still the case today, where yesterday’s solutions have in some cases become today’s problems, and when resolved, could in turn become tomorrow’s problems.

119 For the rich, and only for secondary contact recreation.
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End Plate: 1998 oblique aerial photograph of the East Perth Redevelopment, showing Claisebrook Cove, Mardalup Park, Eastbrook Lake and Perth to the rear.
(Courtesy EPRA)
Appendix A

People Interviewed for this Thesis

- Tony Allen Rock Water Consulting
- Kingsley Arnold Former Readymix Driver and Salesman 1962-1998
- Scott Bird Egis Consulting Australia (formerly CMPS&F - [Environmental Branch] Consulting)
- Geoffrey Cocks Coffey Geosciences (formerly Coffey Partners International Pty Ltd) – Geological Consulting Engineers
- Kenneth Colbung (Aboriginal Elder) Nundjin Djirikin of the Bibulmun Tribal Group – Senior Clan Leader
- Dr Wally Cox EPRA - CEO
- John Gordon Author of ‘Claisebrook – The Lost River of Perth’ (1975)
- Ray Gordon Gordon Geological Consultancy
- George W Kendrick Department of Earth and Planetary Sciences – WA Museum
- Ruebin Kooperman EPRA
- Neil McArthur Former resident of the East Perth area (1940’s)
- Chris Melsom EPRA – Planning Manager
- Norma Miles Former resident of the East Perth area (1940’s)
- Ken O’Neill Former resident of East Perth area (1940’s)
- Phillip Playford Author of ‘Voyage of Discovery Terra Australis’ (1998) and ‘Guidebook to the Geology of Rottnest Island’ (1988)
## Appendix B

### Register of Aboriginal Sites in and around Claisebrook

**Register of Aboriginal Sites**

<table>
<thead>
<tr>
<th>Reference No.</th>
<th>AL-PWS/1/AM14</th>
</tr>
</thead>
<tbody>
<tr>
<td>Report run on:</td>
<td>October 11, 1998 2:28 PM</td>
</tr>
<tr>
<td>Site Selection Criteria</td>
<td>Legend</td>
</tr>
<tr>
<td>Coordinate Type: ANG Zone 50</td>
<td>Status</td>
</tr>
<tr>
<td>Coordinates: Easting 500000 Northing 5440000</td>
<td>Current Register</td>
</tr>
<tr>
<td>Easting 500000 Northing 5450000</td>
<td>Permanent Register</td>
</tr>
<tr>
<td>Easting 500000 Northing 5460000</td>
<td>Spatial Data</td>
</tr>
<tr>
<td>Easting 500000 Northing 5470000</td>
<td>Reliability</td>
</tr>
<tr>
<td>6 Site Records Found</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Consider the same, ensure the authenticity of the location and may not necessarily represent the true extent of sites, especially if access is specific site information is protected as an "archeological champions". The table grid on the selected area is for a specific ANG zone, and each grid cell by ANG coordinate for a different ANG zone.

<table>
<thead>
<tr>
<th>Site No.</th>
<th>Status</th>
<th>Access</th>
<th>Site Types</th>
</tr>
</thead>
<tbody>
<tr>
<td>3460 I O N</td>
<td>R</td>
<td>M</td>
<td>SWAN RIVER</td>
</tr>
<tr>
<td>3458 P C N</td>
<td>R</td>
<td>M</td>
<td>CLAUSEBROOK CAMP</td>
</tr>
<tr>
<td>3464 I O N</td>
<td>R</td>
<td>M</td>
<td>PERTH</td>
</tr>
<tr>
<td>3469 I O N</td>
<td>R</td>
<td>M</td>
<td>PERTH RAILWAY TERMINAL</td>
</tr>
<tr>
<td>3473 I O N</td>
<td>R</td>
<td>M</td>
<td>BURWOOD ISLAND BURIAL</td>
</tr>
<tr>
<td>3473 I O N</td>
<td>R</td>
<td>M</td>
<td>BURWOOD ISLAND CAMP</td>
</tr>
</tbody>
</table>

Data: 1998/1999

Primary: **Contact details have been suppressed**

**Contact details have been suppressed**
Appendix C

An overview of Aerial Photographic details outside study area between 1948 and 1998.

Zone Six - 1948: Outside

- The Burswood Island filter beds are clearly visible (refer Chapter 4) with the sewerage pipe from Claisebrook to Burswood visible as it emerges on the eastern bank of the river.
- Notable ash dumping on Burswood Island during this period.
- The channel cut in the 1839 on the western side of Heirisson Isles is evident, as are the remnants of the flats.
- Very few cars can be seen, with an absence of traffic signals, however the tram yard surrounding the southern part of the WACA ground is full.
- East Perth locomotive depot is established.
- There is no bridge over the Armadale/Bunbury rail line.
- Two large Moreton Bay Fig Trees are seen just outside of the Triangle zone in the north-west corner, between Brook and Brown Streets.
- East of the Church of England Cemetery is clearly seen other cemeteries and their divisions. These include the Wesleyan, Roman Catholic, Congregational, Presbyterian, Chinese and Hebrew cemeteries. To understand the outlay of the cemetery boundaries see Figure 4.5

Zone Six - 1959: Outside (Map 'A' and map 'B')

- A new roundabout stopping the Causeway road has been installed between this period.
- Large-scale river reclamation has occurred (note also the canal) and dredging of the Causeway flats since the 1948 photograph has taken place.
- A significant increase in traffic is apparent, especially on the Causeway and new Fraser Point car park.
• The cemeteries along the west side of Plain Street have been recently reclaimed for another use, seen by their light colour and between Wickham and Bronte Streets.

• The filter beds are still visible on Burswood Island, although the pipe from Claisebrook is no longer observable.

• A number of new buildings have been erected along and near Adelaide Terrace.

• A steam train en-route across Bunbury Bridge.

• Large Moreton Bay Fig Tree, also seen in the 1948 photo, is just north-west of the triangle.

• Power house coal storage area, west of building.

Zone Six - 1968: Outside (Map ‘A’ and map ‘B’)

• CBC (Christian Brothers Boys School, later Trinity) is now operational on the reclaimed river.

• The photograph has been taken on a working day from the amount of cars parked outside many factory areas, and from the number of cars on the roads, and in the city.

• The Main Roads Department is under construction during this photograph, as seen with the lift shaft.

• Nelson Avenue now circumnavigates Gloucester Park.

• The former cemeteries on Plain Street have been built on, with one part becoming a car park.

• Remnants of the Burswood Filter beds are still visible, although being structurally removed.

Zone Six - 1979: Outside

• Heirisson Island has been modified, now having a small inlet.

• The Police Headquarters have been built.

• Two new grandstands now line the WACA ground.

• Expansion to Gloucester Park buildings.
The MRD building is now complete.

The remnants of the sewerage filter beds are no longer seen on Burswood Island.

Claisebrook rail car depot is now operational, along with the new Westrail Centre (top edge of photograph) and the East Perth locomotive depot and marshalling yards have disappeared.
Zone Six – 1989: Outside

- Burswood Island Casino is now open, as is the adjoining golf course, which now landscapes the once barren Island, excepting for the area dedicated to the Burswood Bridge.

- The Lillee-Marsh grandstand and lighting towers area new additions to the now revamped WACA ground.

- The Education Department now resides in Wittenoom Street.

- Gloucester Park has a new, albeit small track, inside the main trotting track.

- Wellington Square has a path around its perimeter.

- Traffic has noticeably increased from previous photographs, even with this possibly being a weekend photograph.

Zone Six – 1998: Outside

- A new TAFE college has opened on the corner of Claisebrook Road and Royal Street, East Perth.

- A weekend photograph as shown by vehicles parked at the casino and other recreational car parks, while not parked in the city car parks.

- Northern Bypass (Graham Farmer Freeway) seen under initial construction.

- Langley Park shows signs of the Rally Australia leg being not long over.

- East Perth Oval is currently set up to house Perth Glory (Soccer) games.

- MTT depot in Hay Street now derelict.

- New trees in Wellington Square.

- Peninsula Golf Course (Maylands) is now open.

- Tennis West and Burswood Golf Clubrooms now are open.
## Appendix D

**Soil Contamination Classification Levels.**

<table>
<thead>
<tr>
<th>Soil Classification</th>
<th>Degree of Contamination</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type A</strong></td>
<td>Soils with contamination levels below those developed for residential areas.</td>
</tr>
<tr>
<td><strong>Type D</strong></td>
<td>Soils with contamination levels above residential criteria and below open space criteria for the gasworks site.</td>
</tr>
<tr>
<td><strong>Type E</strong></td>
<td>Soils which do not meet open space criteria onsite but have concentrations of chemicals sufficiently low enough to allow acceptance at Class IV local landfill.</td>
</tr>
<tr>
<td><strong>Type F</strong></td>
<td>Soils which have chemical concentrations which exceed all site criteria and those chemical concentrations that are not accepted by local Class IV secure landfill.</td>
</tr>
</tbody>
</table>

(Kinhill 1993 (May 27), Fax)
Appendix E

Statement concerning the redevelopment of East Perth, from Richard Wilkes
Bulmurn Mumunbullawilak Darbalyung Nyoongar of the Derbal Yerigan - Swan River

Richard Wilkes, who negotiated the consulting communication between the EPRA and the Nyoongar people to get a equal or better deal for the Nyoongar people, and who lived in the East Perth area, is very disappointed that the EPRA has not recognised the significance of Aboriginal occupation of the spiritual well being and ownership of the land which we consider still viable today, and that Nyoongar people still own this land.

Wilkes, also goes on to say, that EPRA has not been fair with the Nyoongar people by not making accommodation possible in the prime area of the redevelopment.

Wilkes thinks that the government should turn this around by allowing Nyoongar people to have access to live in this area. He feels if they do not do this, then they have spoken with a forked tongue (Darr Warra) because we have not received compensation and equal opportunities.

(9 November, 1999)
Appendix F

Current Plant Species in the East Perth Redevelopment Area

Today the redevelopment of Claisebrook by the EPRA has identified a number of former species of flora applicable to the area and has undertaken to plant specimens of these species to give some understanding of what previously existed. At the same time they have planted several exotic species to give an aesthetic attraction along major view corridors in the area and to retain the former character of the historical planting structure. The species intended for planting in the redevelopment area included the following trees, shrubs, plants, ground covers and native grasses: (Unknown Author August 8 - 1994, taken from EPRA file No. MS11403, Vol.5, p. 5)

Plane Tree – *Platanus orientalis*

Claret Ash – *Fraxinus 'Raywoodii'*,

Camphor Laurels – *Cinnamomum camphora*.

Jacaranda – *Jacaranda mimosaeefolia*.

Sugar Gum – *Liquidamber styraciflua*.

Golden Locust – *Robinia pseudoacaci*.

Chinese Tallow – *Sapium sebiferum*.

Peppermint Tree – *Agonis flexuosa*.

She oak – *Casuarina fraseriana*.

Swamp she oak – *Casuarina obesa*.

Tuart Tree – *Eucalyptus gomphocephala*.

Red flowering gum – *Eucalyptus ficifolia*.

Flooded Gum – *Eucalyptus rudis*

Swamp Paperbark – *Melaleuca leucadendron*

Cut-leaf Paperbark – *Melaleuca preissii*.

Saltwater Paperbark – *Melaleuca cuticularis*.
Broad-leaf Paperbark – *Melaleuca quinquenervia*.

Wattle – *Acacia sp.*

Kangaroo Paw – *Aenigozanthos sp.*

Dwarf Peppermint – *Agonis flexuosa*.

Native Clematis – *Clematis microphylla*.

Native Wisteria – *Hardenbergia comptoniana*.

Cycad – *Macrozamia sp.*

Coastal Daisy – *Olearia axillaris*.

Grass Tree – *Xanthorrhoea preissii*.

Native Grass – *Juncus sp.*

Kangaroo Grass – *Themeda australis*.

Within East Brook Lake, there has been growth of wetland reeds that have been seeds deposited from another area. These reeds were not intentionally grown, yet now is ironically re-establishing itself, as it once was (Plate Appendix F.1).

Appendix F, PLATE 1: *Eastbrook Lake showing reed growth deposited through natural means*  
*(Taken by G. O'Neill 15-10-99)*