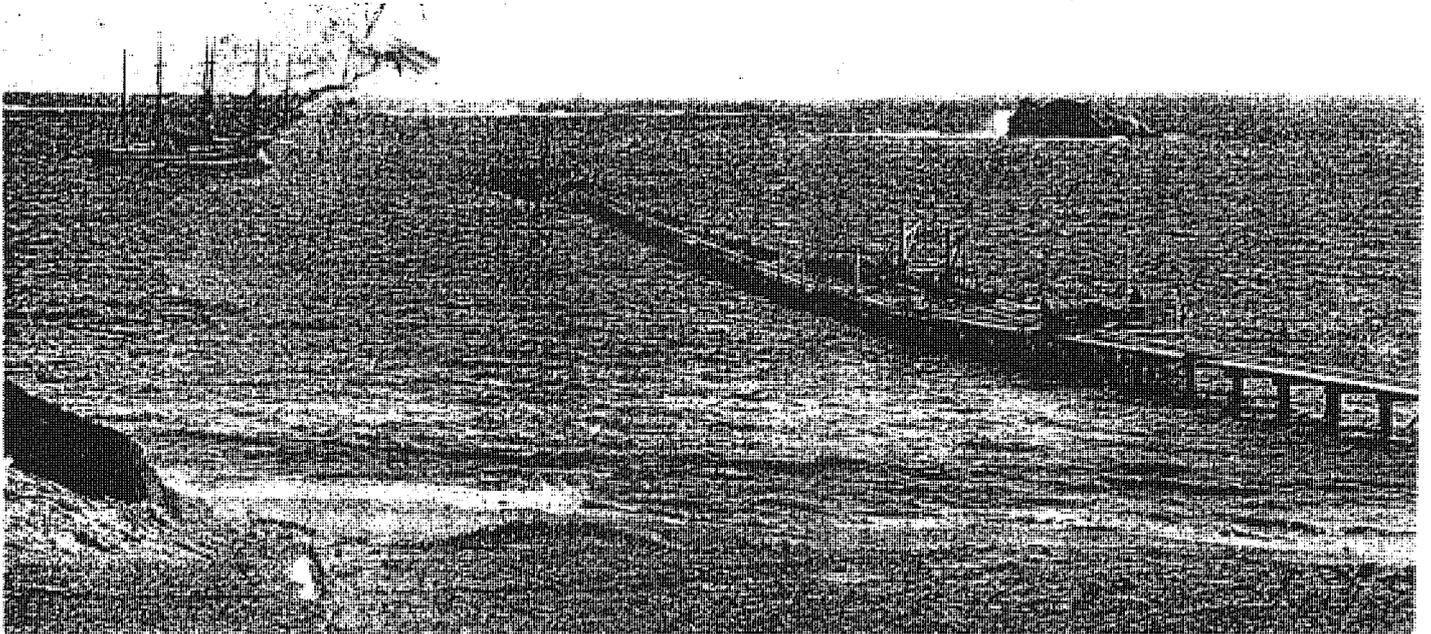


Port Related Structures on the Coast of Western Australia

*Book Review
Maritime Archaeology Dept.
W.A. Maritime Museum
Off. S. Fremantle 1995*



By: D.A. Cumming, D. Garratt, M. McCarthy, A. Wolfe

With contributions from Albany Senior High School, M. Anderson, R. Howard, C.A. Miller and P. Worsley

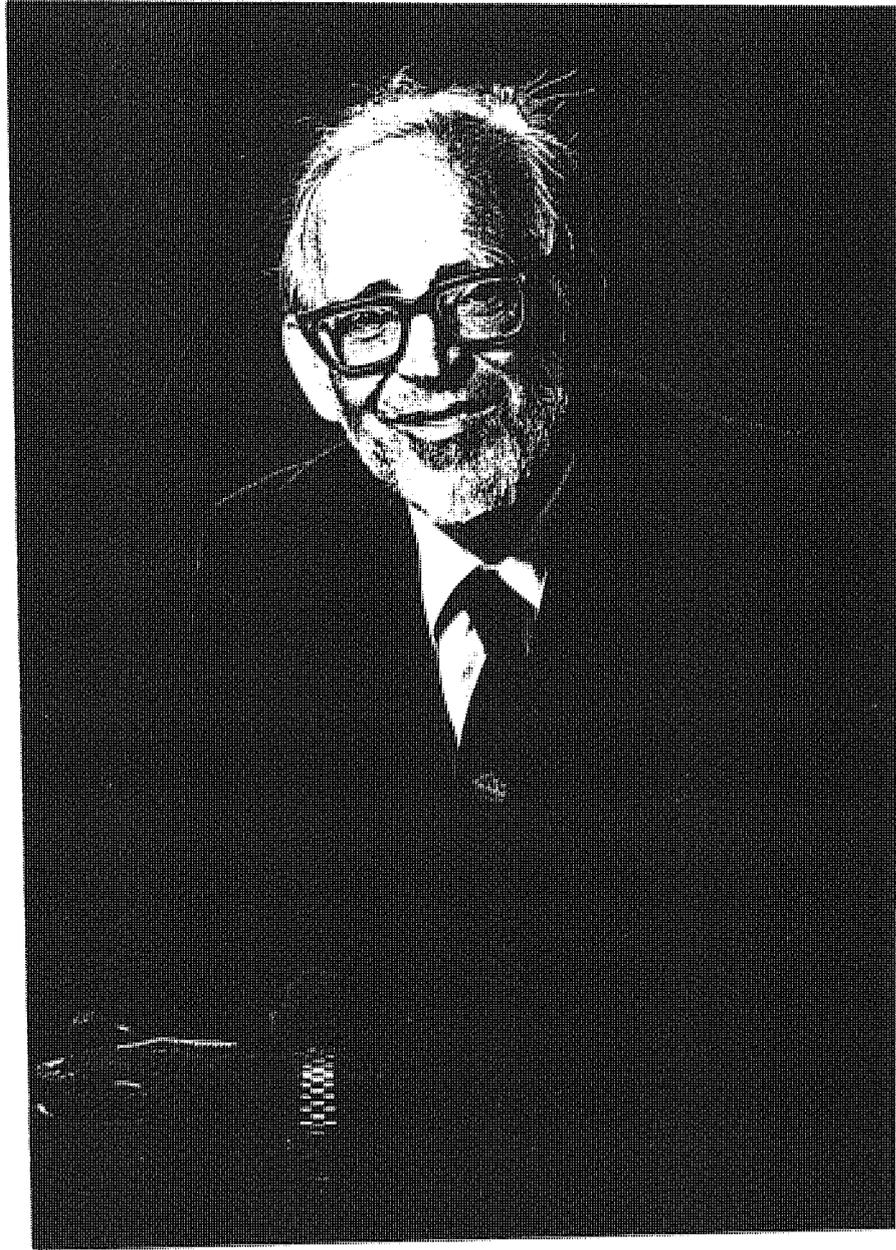
October 1995

© W.A. MUSEUM

Report: Department of Maritime Archaeology, Western Australian Maritime Museum. No. 98.

Cover photograph: A view of Hamelin Bay in its heyday as a timber port. (WA Maritime Museum)

This study is dedicated to the memory of
Denis Arthur Cumming
1923-1995



This project was funded under the National Estate Program, a Commonwealth-financed grants scheme administered by the Australian Heritage Commission (Federal Government) and the Heritage Council of Western Australia. (State Government).

ACKNOWLEDGEMENTS

The Heritage Council of Western Australia

Mr Ian Baxter (Director)
Mr Gerry MacGill
Ms Jenni Williams
Ms Sharon McKerrow

Dr Lenore Layman

The Institution of Engineers, Australia

Mr Max Anderson
Mr Richard Hartley
Mr Bruce James
Mr Tony Moulds

Mrs Dorothy Austen-Smith

The State Archive of Western Australia

Mr David Whitford
The Esperance Bay Historical Society
Mrs Olive Tamlin
Mr Merv Andre

Mr Peter Anderson of Esperance
Mr Peter Hudson of Esperance

The Augusta Historical Society

Mr Steve Marshall of Augusta
The Busselton Historical Society
Mrs Elizabeth Nelson

Mr Alfred Reynolds of Dunsborough
Mr Philip Overton of Busselton

Mr Rupert Gerritsen

The Bunbury Timber Jetty Preservation Society inc.

Mrs B. Manea
The Bunbury Historical Society
The Rockingham Historical Society
The Geraldton Historical Society

Mrs J Trautman
Mrs D Benzie
Mrs Glenis Thomas
Mr Peter Worsley of Geraldton
The Onslow Goods Shed Museum

Mr Ian Blair
Mr Les Butcher
Ms Gaye Nayton
The Roebourne Historical Society.
Mr Alan Clark
The Port Hedland Historical Society
Mr Kerry Thom
The Broome Historical Society.

Mr Kevin Male
Mrs Val Burton
Mrs Rae Howard
The Wyndham Historical Society
Mr Errol Snow

CONTENTS

BACKGROUND TO THE PORT RELATED STRUCTURES STUDY	(i)
EXECUTIVE SUMMARY	(ii-vi)
STUDY FORMAT	(vii)
APPENDICES	(viii)
THE STUDY (PARTS 1-4)	
Places expected to contain significant or historic port related structures on the coast of Western Australia ...	1
1) Early Western Australian marine facilities examined.....	4
2): The system for establishing the relative significance of the port-related structures and sites examined.....	6
3) An historical background to port related structures on the coast of Western Australia. In geographic regions.....	8
<u>The South-east coast</u>	8
Eucla	
Israelite Bay	
Esperance	
<u>The South coast</u>	12
Hopetoun	
Albany	
<u>The South-west coast</u>	18
Flinders Bay	
Hamelin Bay	
Busselton	
Quindalup	
Wonnerup	
Bunbury	
<u>The Metropolitan coast</u>	23
Rockingham	
Careening Bay	
Jervoise Bay	
Owen Anchorage	
Fremantle	
<u>The Midlands coast</u>	30
Dongara	
Geraldton	
Port Gregory	
<u>The North-west</u>	34
Gladstone	
Denham	
Carnarvon	
Maud Landing	
Point Cloates	
Exmouth Gulf	
Old Onslow	
New Onslow	
Fortescue Landing	
<u>The Pilbara</u>	42
Dampier	
Cossack	
Point Samson	
Balla Balla	
Port Hedland	
Boodarie Landing	
Condon	
<u>The Kimberley</u>	48
Broome	
Derby	
Wyndham	
 Bibliography and references to the Port Related Structures Study.....	 53
 4) Nominations and Appendices	

BACKGROUND TO THE PORT RELATED STRUCTURES STUDY

In March 1992 the Western Australian Maritime Museum, applied under the *National Estate Grants Program*, for a grant to enable it to employ staff and a number of qualified external consultants to undertake a survey of Port Related Structures on the coast of Western Australia.

A sum of \$28000 was sought, to be supplemented by a contribution of \$22000 from the Maritime Museum and its ancillaries, bringing the total budget for the survey to a sum of \$50000.

The Director of the Heritage Council of Western Australia presented the grant in January 1993 and it was accepted in March with a target date of the end of August 1994 set as part of the conditions.

The original project manager and grant applicant, Mr G. J. Henderson, of the Department of Maritime Archaeology at the Museum, left to become the Interim Director of the Maritime Museum however. As a result, a colleague, Mr M. McCarthy, who had assisted him in formulating the original grant and project strategy, was appointed the new project manager.

As originally intended, the Museum then obtained the services of consultant, Mr Denis Cumming in order to conduct the technical aspects of the study and to conduct the required historical research under the supervision of the project manager.

Mr Cumming was eminently suitable for the task. He was a retired engineer, university lecturer, author, founding Chair, (in 1975), of the Heritage Committee of the South Australian Division of the Institution of Engineers Australia, Chair of the National Panel for Engineering Heritage of the Institution of Engineers, Australia, a member of ICOMOS, a former Member and consultant of the National Trust of South Australia, a member of the Heritage Panel of the WA Division of the Institution of Engineers Australia and a specialist in industrial heritage.

Given the distances involved and the maritime focus of the project, it was agreed that consultant maritime archaeologists, Ms Dena Garratt, of Shaw International and Mr Adam Wolfe, of Wolfe and Associates would assist Mr Cumming in the process of the survey.

Wolfe, a qualified maritime archaeologist, experienced heritage consultant and social worker with experience in the production of interpretive material, was to research, inspect and report on sites in the Albany area, his place of residence. Garratt a qualified maritime archaeologist, experienced heritage consultant, and librarian was to assist Cumming with research and in-water work on structures on the south-east and south-west coasts. Volunteers, other museum staff and school groups were to be involved where possible. The project manager was to ensure continuity, to provide guidance and advice and to assist in bringing the program to a satisfactory close, utilising the facilities and expertise of the Museum in order to do so.

A new target date of March 1995 was sought of the Heritage Council in view of the developments listed above. This was kindly granted and sites as far afield as Wyndham and Eucla were then examined by Cumming, and his assistants over the ensuing months.

From these site inspections, draft reports were filed in readiness for their compilation into the final report. The project was proceeding satisfactorily towards the target date, with much of the fieldwork and research completed and in draft report form, when on 28 January 1995, Mr Cumming died of a heart attack while engaged in a yacht race off Fremantle.

Apart from the personal loss to family, friends and his peers, it was a tremendous blow to a project then in its final stages but with much of what remained still in draft, handwritten, or conceptual form.

There was a further delay while Mr Cummings' copious notes, records, discs and files were processed by Mrs Austen-Smith, with assistance from Mr Bruce James, a friend and engineering heritage colleague. When these were finally collated in April, the extent of the loss of what was in conceptual form, became apparent. The Heritage Council suggested another extension of the project to the end of July 1995 and this was gladly accepted by the Museum.

Ms Garratt agreed to finalise the nominations then in draft form and to conduct more fieldwork in the metropolitan region, the area left by Mr Cumming until the final months of the study.

The project manager conducted further fieldwork in the Midlands, North-west, Pilbara and Kimberley regions and obtained supplementary historical and analytical material from the work of Mr Max Anderson, the Secretary of the Engineering Heritage Panel, Mr Peter Anderson formerly of Esperance, Mrs B. Manea of the Bunbury Timber Jetty Preservation Society, Mrs Cecily Miller of the Gascoyne Historical Society, Mr Kerry Thom of the Port Hedland Historical Society, Mrs Rae Howard of the Broome Historical Society, and Mr Peter Worsley, a Geraldton based historian.

The project manager then prepared this final report and produced it in its current form, based on the draft notes and material supplied from the sources nominated above.

In dedicating this work to the memory of Denis Cumming, the Maritime Museum and the Heritage Council acknowledge his contribution to the Engineering Heritage Movement in Australia and to the preservation of Western Australian industrial heritage generally.

EXECUTIVE SUMMARY

A survey of port related structures on the coast of Western Australia has been undertaken by the Western Australian Maritime Museum assisted by a number of specialists, notably a retired engineer and author, the late Denis Cumming. They in turn were assisted by many others, including consultants, local historical societies, volunteers and schoolchildren.

The study began in March 1993, was completed in October 1995 and aimed to complete the following tasks:

- 1) *To develop an historic framework for port related structures in Western Australia*
- 2) *To develop a system for establishing the relative significance of these structures and sites*
- 3) *To assess the structures and sites through physical survey with regard to 1. and 2. above*
- 4) *Publish results and make nominations to the Register(s) of The National Estate, the Heritage Council of Western Australia and Municipal Heritage Inventories*

The short European history of Western Australia and its relatively small population, especially in some of the remote areas studied, required that a loose definition of the term 'port' be applied for the purposes of this study i.e., a place for the loading and unloading of vessels.

The internationally recognised definition of the term port, on the other hand, reads thus:

PORT: a place for the loading and unloading of vessels recognized and supervised for maritime purposes by the public authorities. The term includes a city or borough for the reception of mariners and merchants and therefore denotes something more than a harbor or havre.

A port may possess a harbor but a harbor is not necessarily a port. Any natural creek or inlet on the sea shore with adequate depth of water and sufficient shelter for ships fulfills the essential conditions of a harbor. To make it a port, in the accepted sense of the word, there must be in addition accommodation and facilities for landing passengers and goods and some amount of overseas trade.¹

As many of the structures identified by this study would have difficulty being accepted as part of a recognised port under that internationally recognised definition, the application of a more general terminology was clearly required.

Given also that the original structures in many cases were lightly built, containing little that could be considered durable material such as stone, bricks and mortar, in many cases there is little remaining, the term 'structure' was applied in this instance to facilities for landing passengers and goods.

¹deKerchove, R., *International Maritime Dictionary*, 2nd Ed., Van Nostrand, New York, 1948, p. 598.

Most of the sites that have been identified are jetties or landings and many, given the changes that have occurred in transportation since the 1950s, are abandoned or serve little other than as platforms for recreational fishing. Appearing today as degrading structures or ruins, they appear to the uninitiated as mundane, unimpressive, even unsightly remnants of an unsophisticated era.

To many, especially to port authorities they represent an unnecessary drain on resources and a danger to shipping and the public in general.

On the other hand, their importance and former place within the economic and social structure of the region and in some cases to Australian society generally is undeniable and is best encapsulated in the following words.

A jetty is a maritime colonnade - the humble equivalent of Bernini's great St Peter's colonnades...The construction is self-evident, employing a trestle arrangement similar to that used in light railway bridges...The engineering is so direct and explicit that we fail to see that it has a lot more to tell us.

The jetty is an illustration of economic externalism -one among many such markers in the Australian economic record. It is a physical reminder of the paramount role of trade in the economy...Their scale and simplicity was a response to limited means...They are a more reliable guide to working Australian than the high-style architecture of the day decked out in its borrowed period finery...Few structures speak so poignantly or with such forceful directness about the outwardness of Australian life.

Whilst the jetty is a manifestly utilitarian structure, it clearly signals the main orientation of Australia: the extent of Australia's dependence on outside contacts in the economic sphere; our role in supplying raw materials and a history of involvement in other peoples wars...The jetty, railway, and the roads radiating north and south and inland were a diagram of intermeshing extractive activities, a convergence of economic forces and trade directed away from Australia.¹

Though it is accepted that navigational aids such as lighthouses, railways, goods-yards, storehouses, water supply facilities, official residences, roads, and even ships themselves are port related structures, many of these structures have already been nominated or are the subject of concomitant studies. With the exception of the data prepared in the appendices for the Ports of Albany and Carnarvon, the focus in this instance is on those modifications to the shoreline and its immediate surrounds which were designed specifically to cater for the movement of people, materials and goods to and from the vessels which served the ports and harbours under scrutiny.

¹ Drew, P., *The coast dwellers: Australians living on the edge*, Penguin, Maryborough, Victoria, 1994, pp. 42-46.

Results of the Survey

Summary of the remains found

There are port-related structures in the form of large jetties still remaining in use at Busselton (begun in 1860), Carnarvon (begun 1896), and Bunbury (begun 1864). Because they are very expensive to secure against storms and litigation they are at threat from Statutory Authorities keen to divest themselves of such burdensome responsibilities. The jetty at Bunbury, (under threat of demolition), the Tanker Jetty at Esperance and the smaller Albany Town Jetty, (about to be shortened), are in a similar context.

Notwithstanding those understandable concerns, the remains are of local and regional importance and are of significance to some members of the communities involved. The heritage value of the Albany Town Jetty, the Busselton Jetty, the Bunbury Jetty and Streeter's Jetty in Broome are broadly recognised, for example and they are perceived as assets to the community at large, rather than purely as drains on the public purse. Some of these structures, as indicated could seriously be considered for acceptance to the Register of the National Estate

Many jetties, such the Deep Water Jetty at Albany, the Durlacher Street Jetty at Geraldton, the original Broome Jetty, the Derby Jetty, the Wyndham jetty (Anthon's Landing) and others, while once substantial structures, have since been destroyed or demolished (some in recent years). These exist today only as a barely discernible line of former jetty piles on the sea-floor. There are some whose ruins or fragments of their structure still exist. Most of those remaining present no real or imagined threat to those charged with their responsibility or to the community and shipping at large. For this reason or because they lie in sheltered, remote locations, some have escaped complete demolition or have been allowed to degrade from natural forces. Visible remains include jetties at Eucla (begun 1885), Israelite Bay (begun c.1896), Castletown in Esperance Bay (begun c.1896), Hopetoun (begun 1901), Hamelin Bay (begun 1880), Barrack Point in Flinders Bay (begun c.1884), Quindalup, (first begun in the 1870s), Wonnerup/Lockeville (begun 1870), The Long Jetty at Fremantle (begun 1873), Port Denison (begun 1867), Old Onslow (begun 1896), New Onslow (begun 1923), Fortescue Landing (begun 1894), Condon (begun 1898) and Anthon's Landing at Wyndham (begun 1887).

Gladstone Landing, in the north-west is the best preserved of all the 'lightering' jetties (or jetties used to load small vessels for transporting cargoes to ships lying offshore in deeper water). It was begun around 1910. Another, similar, but without the stonework and with little timber remaining, lies at Maud Landing further north (begun 1897).

Other port-related structures examined within the framework of this study are the whaling stations at Norwegian Bay, near Point Cloates, the Norwegian Whaling Station in Frenchman Bay in Albany, and the Barker's Bay Station, also in Albany.

Those port related structures which had been placed in the databases of the Heritage Council of Western Australia as a result of this and previous studies are as follows. Where they are the result of previous studies or where they were lodged with the Heritage Council in advance of this final report, their catalogue number is given alongside.

Eucla, Jetty
 Israelite Bay, Jetty
 Esperance, Tanker Jetty, Esperance, HCWA 0831; AHC 15132
 Esperance, (Castletown) Jetty
 Hopetoun, Jetty, Hopetoun, HCWA 2323
 Albany, Deep Water Jetty, Albany HCWA 3238 (now demolished)
 Albany, Town Jetty
 Albany, Norwegian Whaling Station
 Albany, Barker Bay Whaling site, HCWA 0025
 Flinders Bay, Jetty, Flinders Bay, HCWA 0117
 Hamelin Bay, Jetty
 Busselton, Jetty, Queen St, HCWA 0423; AHC 09483.
 Quindalup, Jetty, Yelverton Tramway, Quindalup, HCWA 2951
 Lockeville/Wonnerup, Jetty, HCWA 2945
 Bunbury Jetty
 Fremantle, Long Jetty
 Dongara/Port Denison, Jetty, Port Denison, HCWA 1241; AHC 09645
 Dongara/Port Denison, Obelisk, Leander Point, HCWA 1242; AHC 09663
 Gladstone, Jetty
 Carnarvon, Jetty, HCWA 0467
 Maud Landing, Jetty
 Point Cloates, Whaling Station
 Onslow, Jetty, goods shed and tanks
 Old Onslow, Wharf, tramway and Bridge
 Cossack, Wharf, HCWA 3231; AHC 09663
 Point Samson, Jetty ruins, yards.
 Balla Balla, Jetty ruins, tramway
 Condon, Jetty and goods shed ruins
 Broome, Streeter's Jetty and Town Jetty, AHC 18074

In utilising accepted definitions of cultural significance e.g., 'aesthetic, historic, scientific, or social value for past, present or future generations' (Guidelines to the Burra Charter, 1988: 2.1) and in applying the various criteria used to assist in that judgement, it is evident that many of the sites mentioned in these pages are of regional significance or of importance to at least one section of the local community.

Though prepared to the standard Site Particulars Form of the Heritage Council of Western Australia, some of the sites recognised, notably the Busselton, Carnarvon and Gladstone and Streeter's (Broome) jetties could be considered under the following excerpts from the criteria for the Register of the National Estate (Australian Heritage Commission, 1990):

a) Its importance in the course or pattern of Australia's cultural history... [a place] of importance for association with events, developments or cultural phases which have had a significant role in the human occupation and evolution of the State, region or community

c) Its potential to yield information that will contribute to an understanding of Australia's...cultural history...[a] place identified as [a] significant type within the discipline and within the context of similar sites.

g) Its strong or special associations with a particular community or cultural group for cultural reasons... [a] place held in high esteem by the Australian community or a segment of it, that esteem being demonstrated and special.

It is recommended accordingly that the details of these particular sites be forwarded on to the Australian Heritage Commission and that the remaining sites be entered into the Register of Heritage Places, the Heritage Council's data base and to Municipal Registers.

Michael McCarthy
Port Related Structures Study, Project Manager
Curator of Maritime Archaeology
Western Australian Maritime Museum,
31/7/1995

STUDY FORMAT

The format generally follows the four main aims of the study as outlined in the introductory chapters:

1) To develop an historic framework for port related structures in Western Australia:

Following is a short piece from Mr Max Anderson, Secretary of the Engineering Heritage Panel, putting jetties, the main form of port-related structure identified in this study, into a Western Australian maritime context.

2) To develop a system for establishing the relative significance of these structures and sites

The strategy used to assess and identify those remains considered historic is examined in a section following Mr Anderson's precis.

3) To assess the structures and sites through physical survey with regard to 1. and 2. above

Then follows the list of those places on the shores of Western Australia where there was movement of people and material in sufficient quantity to produce a modification to the shoreline or the erection of a structure to facilitate that movement.

A brief historical analysis of each region will then be presented with the aim of giving a site-specific background to the places and the structures examined and later nominated.

Given the size of the coast of Western Australia, its presentation will reflect a regionalised approach to the survey along the lines of the geographically based headings below. A bibliography for each region then follows.

4) Publish results and make nominations to the Register(s) of The National Estate, the Heritage Council of Western Australia and Municipal Heritage Inventories

The nominations made to the Heritage Council of Western Australia appear on their stationary in Appendix (1), together with supplementary data appended to each nomination. This includes references within text. Appearing also are details to the Maritime Museum's standard reporting format, the majority of which (excepting those for Albany) have been compiled by Ms Garratt as an integral part of this study.

APPENDICES

Appendix (1) is part of section 4) above. It is a compilation of data on heritage sites on the coast of Western Australia, with supporting historical background. These are presented on a regional basis, beginning with the south-east coast. A bibliography is included and references are within text to Mr Cumming's preferred format. Included are site reports to the Maritime Museum's standard site inspection format. This format complements the technical data appearing in the standard Heritage Council format, being effectively the same material presented in a manner designed to assist and inform a wider audience. This, as yet incomplete, offering will be combined with similar data from the Lighthouses study, which is due for completion in mid-November. It will then be available in its entirety for use, both collectively and individually, by scholars and the general public in accordance with the Maritime Museum's public education and information brief.

Appendix (2a) is a report of an archaeological excavation undertaken at a port related structure, the *Fremantle Long Jetty*. Conducted by the project manager, assisted by Ms Garratt, this excavation gave a real indication of the extent of the submerged artefactual material now known to be associated with the majority of port related structures generally. The late 1994 excavation of the Albany Town Jetty conducted by the project manager again assisted by Ms Garratt and Mr Wolfe (Garratt, McCarthy, Richards and Wolfe, 1995), has confirmed those original impressions.

These two excavations are also significant in that they highlight the fact that the total archaeological assemblage at port-related structures must be considered. The later report also contains a pre-disturbance survey conducted by diving conservators (Ms Vicki Richards and Mr Jon Carpenter) from the Department of Conservation at the Western Australian Museum. Their report represents the first instance of the recording of the physical and chemical status of a jetty as an archaeological site. It forms a base against which to monitor the site in future and on which to build a scientifically based management program.

Appendix (2b) is a report of a previously nominated whaling site in the Albany region which was originally believed to have had a landing or jetty constructed to facilitate bay whaling activities. Prepared at the request of the Maritime Museum by students and staff of the Albany Senior High School, assisted by the project manager and Mr Wolfe, the work presented highlights not only the importance of the site in question, but also the significant contribution that can be made by suitably supervised school and other local groups to heritage studies. It also illustrates both the need and importance of passing on an appreciation of the cultural heritage and the value and need to involve both local-interest groups and the youth of the region in such studies for them to have a lasting effect. This is an integral part of the Maritime Museum's 'Outreach Program.'

Appendix 2c are the site particulars and history of port-related structures recognised within the confines of the Port of Albany. Produced by Mr Wolfe as part of this study, it includes lighthouses, residences, riverine structures and watering facilities. Though outside the scope of this particular study, the collection is presented *in toto* as an example of the complexity and variety of the remains found at a port such as Albany.

Of the sites examined by Mr Wolfe, the Albany Deepwater Jetty was the subject of a previous nomination, but has since been demolished and the Albany Town Jetty has been nominated under the terms of this study. Other recognised sites, such as the Kalgan River Jetty and the Fishponds will be nominated under a separate cover.

Appendix 2d is of a similar theme, being a history of the 'Carnarvon Maritime Precinct', prepared in July 1994 for the purposes of this study by Mrs Cecily A. Miller of the Gascoyne Historical Society. This analysis fills one of the gaps left by Mr Cumming's death, being an assessment that he had left till the final months of the study.

Like Wolfe's study, it helps illustrate the inter-relationships that exist between a port and related buildings, rails, roads and the like, one of Mr Cumming's chief themes. It is also relevant as an example of a community based heritage presentation and the importance of involving such groups in these studies.

Appendix (3a) is a chronological list of significant engineering works in the Colony and other useful data, some prepared by Mr Cumming. This helps place the construction of the various port related structures nominated into a broader context and provides a data base for scholars.

Appendix (3b) contains definitions of tonnage and other technical data.

**PLACES EXPECTED TO CONTAIN SIGNIFICANT OR HISTORIC
PORT RELATED STRUCTURES AND LIGHTHOUSES ON THE COAST
OF WESTERN AUSTRALIA¹**

In location sequence from south to north

(with new nominations in bold type)

The following places were expected to contain structures built to facilitate the movement of people and goods to and from vessels. Some could be considered for nomination to the Register of Heritage Places or to the Statutory Data Bases and Municipal Inventories. Structures placed on the registers as a result of this study are outlined in bold.

Gladstone Jetty and Streeter's Jetty in Broome are also submitted to the Register of the National Estate. These join existing National Estate nominations for the Carnarvon and Busselton Jetties.

The South-east coast

Eucla (**Jetty**)
Israelite Bay (**Jetty**)
Esperance, (**Castletown Jetty**)
Hopetoun (**Jetty**)

The South coast

Breaksea Island lighthouse
Eclipse Island lighthouse
Cave Point lighthouse
Albany, (**Town Jetty, whaling site**)
Point D' Entrecasteaux Lighthouse

The South-west coast

Barack Point, Flinders Bay (**Jetty**)
Cape Leeuwin Lighthouse
Foul Bay Lighthouse
Hamelin Island Lighthouse
Hamelin Bay (**Jetty**)
Cape Naturalist Lighthouse
Quindalup (**Jetty/tramway site**)
Busselton
Lockeville/Wonnerup (**Jetty/tramway**)
Bunbury

The Metropolitan coast

Mandurah
Rockingham
Careening Bay
Cockburn Sound
Jervoise Bay
Owen Anchorage
Fremantle, (**Jetty**)
Swan and Canning River
Rottnest Island
Bathurst Point Lighthouses

¹Excluding clearly modern ports, fishing villages or towns such as Lancelin, Cervantes, Horrocks. Mission settlements such as Lombardina, La Grange and Kalumburu were not visited.

The Midlands coast

Guilderton Lighthouse
 Jurien, Escape Island Light house
 Dongara, Port Irwin or Port Denison
 Geraldton
 Port Gregory

The North-West coast

Gladstone/Wooramel (Jetty)
 Steep Point Lighthouse
 Denham
 Wilyah Miah
 Peron Point lighthouse and landing
 Carnarvon
 Quobba Light house
 Maud Landing (Jetty)
 Point Cloates Lighthouse.
 Fraser Island light tower
 Norwegian Bay (Whaling Station ruins)
 Vlaming Head, North-West Cape Lighthouse
 Learmonth
 Old Onslow, (Wharf, tramway bridge)
 New Onslow, Beadon Point (Jetty ruin)

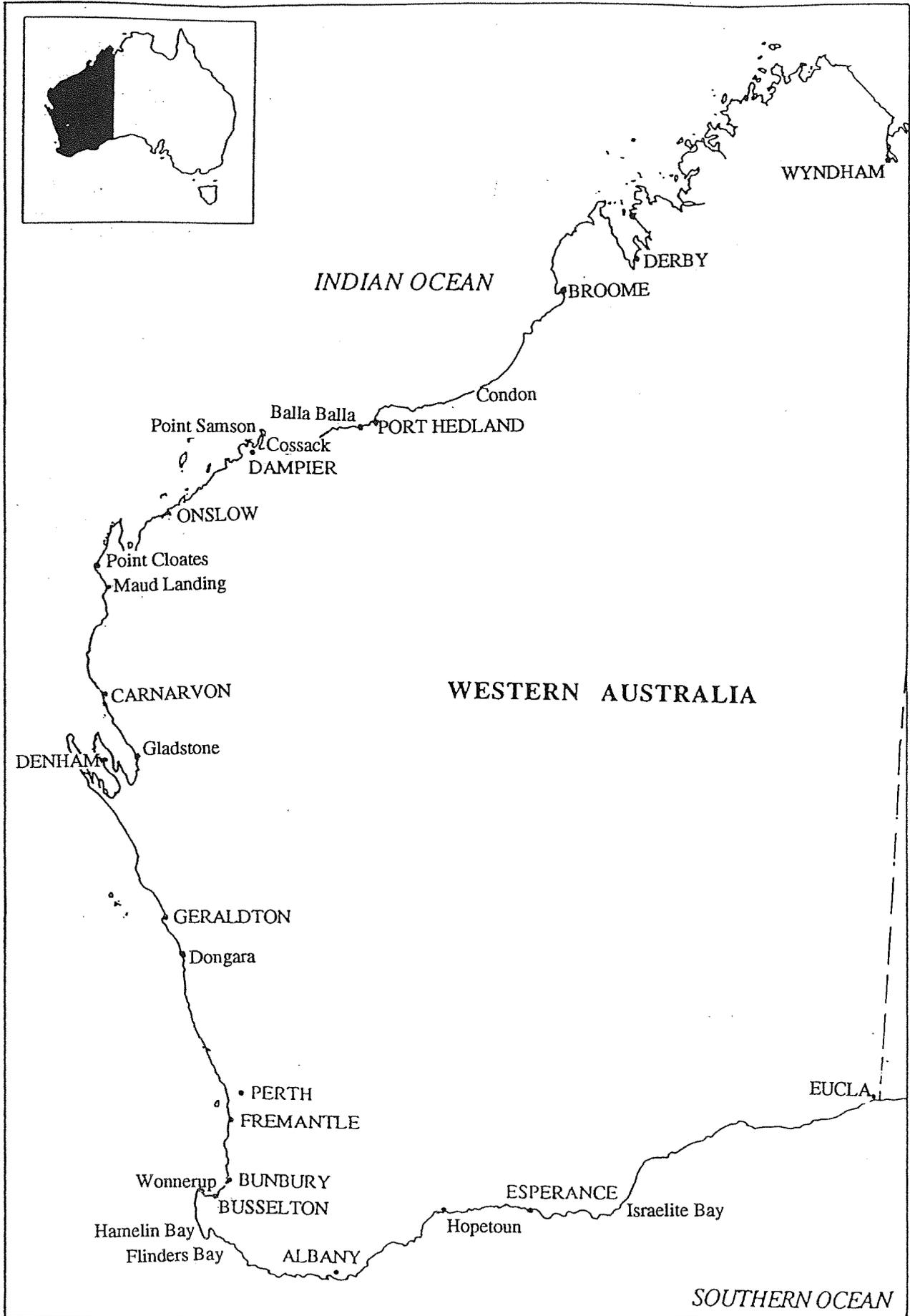
The Pilbara coast

Fortescue River
 Dampier
 Nickol Bay
 Port Robinson
 Cossack
 Point Samson (Jetty ruins and goods yard)
 Balla Balla, (Jetty ruins, tramway)
 Port Hedland
 Condon, Shellborough, (Jetty and goods shed ruins)
 Mount Blaze, Bannangara Light

The Kimberley coast

Cape Bossut lighthouse
 La Grange mission
 Gantheaume Point Lighthouse
 Broome, Roebuck Bay (Streeter's Jetty)
 Red Bluff Lighthouse
 Lombardina Mission
 Cape Leveque Lighthouse
 Derby
 Camden harbour
 Kalumburu Mission
 Wyndham

Figure 1.
The Western Australian coast



Port Related Structures on the coast of Western Australia

1) Early Western Australian marine facilities

An analysis of Jetties by Mr Max Anderson

Possibly the most active period in the provision of marine facilities in the history of Western Australia took place between 1880 and 1910. During this period new jetties or landings were constructed or existing facilities were extended at Albany, Balla Balla, Broome, Bunbury, Busselton, Carnarvon, Cossack, Derby, Dongara, Esperance, Eucla, Flinders Bay, Fremantle, Geraldton, Hamelin Bay, Hopetoun, Israelite Bay, Mandurah, Maud's Landing, Onslow, Point Samson, Port Hedland, Quindalup, Rockingham, Wonnerup and Wyndham.

All these structures were of a basic design, generally using Western Australian hardwoods for all the components of the jetty. The basic jetty was a timber piled structure with two adzed or sawn timber half caps at each pier, with the pier centres being in the order of 12 feet. The jetty super-structure comprised transverse 9 inch by 4 inch decking, spiked to longitudinal 12 inch by 6 inch beams, generally staggered over the piers so that each beam was supported on three sets of half caps. In some cases short lengths of timbers, known as corbels supported the beams over the half caps to reduce the free span of the beams and so improve the loading capacity of the deck.

The lower part of the structure was braced using horizontal waling timbers bolted to the piles near low water mark and cross bracing timbers bolted to the piles just above the walings and just below the half caps. Most jetties carried a light railway for transporting goods between the shore and the berthing head of the jetty. Unloading and loading of goods on shore was normally carried out manually although light fixed one ton capacity hand cranes were sometimes used in the goods yards on shore. Loading or unloading of cargo at the berthing head was generally carried out using ship's gear.

Jetties were designed mainly for the vertical loads imposed on them by cargo loading and deck traffic, with some allowance for transverse loads imposed by weather and shipping. In order to reduce berthing loads a separate fender system was sometimes used which was supported by piles and timbers independent of the jetty structure. Although this reduced the transverse loading from shipping it had the opposite effect on the jetty when it come to adverse sea conditions. Many a fender system under severe storm conditions became a gigantic battering ram to the jetty itself, resulting in the loss of all or part of the jetty.

The height of the jetty deck above high water also created a problem. If the deck was too high it was sometimes too difficult to work a vessel at other than high tides. If the deck was too low it was prone to uplift, (by wave action underneath), during storms. This was particularly a problem in the north-west ports of the State where a high tidal range dictated a lower deck level, which made the structure more vulnerable to storm or cyclone damage, particularly if the storm or cyclone struck at high tide.

Jetties or landings were located primarily from a land use aspect, which meant that many structures were not necessarily built in the best location with respect to shelter and depth of water.

Up to 1897 all cargo in the State was handled over timber jetties, similar to the type described above. These structures were continually being extended and strengthened to meet shipping requirements both in draft and size. In 1897 the first facility of this type was replaced with land backed wharves, in the development of the inner harbour at Fremantle. However, apart from Fremantle all other ports in the State continued to use jetties for loading and unloading cargo. The first regional port to replace its jetty with a land backed facility was Geraldton when the first of three land backed wharves was commissioned in 1930. This was followed by Albany, when the first land backed berth was constructed in 1954.

It was not until the 1960s that the next expansion of port facilities took place, brought about by the increase in the mining, pastoral and agricultural industries. At the same time there was also an upturn in the fisheries which resulted in new or upgraded facilities for the fishing industry being provided at Esperance, Hopetoun, Albany, Augusta, Bunbury, Mandurah, Fremantle, Lancelin, Cervantes, Jurien Bay, Leeman, Port Denison, Geraldton, Port Gregory, Denham (shark Bay), Carnarvon and Point Samson.

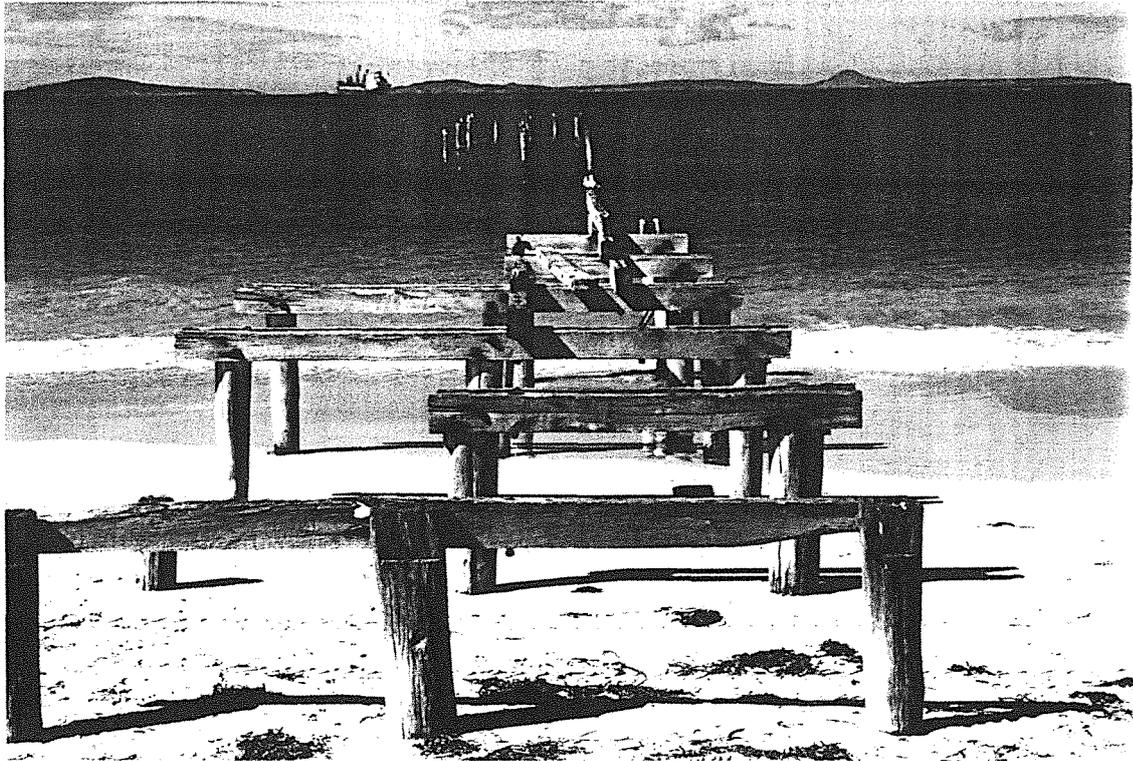
As always, the design of all the structures was dictated by the type of vessel which would be using the facility with respect to draft, loaded displacement, shape, length and beam, the type of cargo being carried by the ship, the handling facility on the ship and that required on the structure.

This covered conventional merchant ships, bulk carriers, container ships, specialised ships used for the carrying of live stock and care 'ferries'. With the introduction of large bulk carriers requiring heavy loading or unloading installations at the berth and with specialised container ships with stern or quarter ramps requiring heavy strength deck sections, the type of structure which had almost been standard for the last eighty years underwent a great change. Timber piles were replaced with tubular steel piles and the whole timber super structure was replaced with reinforced concrete.

Between 1960 and 1970 all of the existing large timber jetties still being used at that time for port activities were replaced, supplemented or modified. Many fell into disrepair and were either demolished or abandoned. Only those used to cater for fishing boats and small craft still remain.

The three large jetties at the Kimberley Ports of Wyndham, Derby and Broome were replaced in steel and concrete however. The jetties at Wyndham and Derby were built on the same site and the one at Broome was relocated at Entrance Point, five kilometres from the site of the timber jetty. Due to the large tidal range at the Kimberley ports economics ruled out the replacement of these jetties with the more versatile land backed wharf. However, provision was made on all three jetties for through or turnabout road traffic between the shore and the berthing head. In the case of Wyndham and Derby provision for rail traffic was originally retained on the new structures. During the same period extensive port works were also carried out at the regional ports of Albany, Bunbury, Esperance, Geraldton and Port Hedland. It was also in this period that Company iron ore export ports were established at Finucane Island, Port Hedland for Goldsworthy Mining Pty Ltd; Port Hedland for Mount Newman Mining Pty Ltd; Cape Lambert near Point Samson for Robe River Mining Pty Ltd and Dampier for Hamersley Iron Pty Ltd. Salt export facilities were also established at Port Hedland; Dampier; Useless Loop at Shark Bay and Cape Cuvier, about 100 kilometres north of Carnarvon. A wood chip export facility was established at Bunbury together with a loading berth for the export of alumina.

Figure 2a & b
Construction details at two jetties on the coast¹



¹Esperance and Eucla Jetties, photographed by D. Cumming

2) The system for establishing the relative significance of the port-related structures and sites examined.

Discussion

Non-disturbance recording and historical research have formed the basis of the strategies used in the assessment of the remains of the structures noted above.

Archaeological excavation has not been a part of the assessment strategy, being considered unnecessary due to the understandings that have resulted from two previous excavations. These were conducted at the Fremantle 'Long Jetty' in 1984¹ and the Albany 'Town Jetty' a decade later, in 1994.² In those two 'salvage archaeological' excavations it was shown that the sea-bed around port-related structures is most likely a rich source of artefactual material reflecting the period over which the parent structure was built and used.

These salvage archaeological excavations were designed to minimise the impact of the engineering and other developments in the vicinity of the two jetties under consideration. This was accomplished by archival research, a physical, biological and chemical pre-disturbance assessment, excavation and analysis.

The projects were funded by the developers on the basis that, under section 5.6 (3) of the Maritime Archaeology Act, No. 66 of 1973, the sea-bed under and around jetties and port-related structures that were in use before 1900 is a protected maritime archaeological site.

Thus though most historic port-related structures that lie on, or under the sea-bed on the shores of Western Australia, were protected under the Maritime Archaeology Act, it was the structures which projected above the sea-floor that were not protected until the advent of the Heritage Act 1990.

Under the Heritage Act, 1990, a series of criteria are to be applied in order to assess the relative significance of a site or structure. These various criteria, i.e., aesthetic, historic, scientific or social value, rarity and representativeness, have been applied in this instance.

Under the Heritage Act and most other pieces of heritage-based legislation, sites require assessment before they can be afforded legal protection. That assessment process in itself is often a matter of time and money, leading to the unfortunate tendency of developing agencies to demolish historic structures ahead of growing community and professional awareness of the value of those structures.

This is a fundamental problem. It is evident, from experience that structures from a bygone age would be better managed if they were considered generally historic i.e., they are protected until proved otherwise. Those proposing their demolition or serious alteration could then be made responsible for their proper assessment. That is the situation today in Maritime Archaeology.

¹Garratt, D., & McCarthy, M., 1994, *The Long Jetty Excavation, 14 July to 20 August, 1984: a report on the Long Jetty excavation*. Report, Department of Maritime Archaeology, Western Australian Maritime Museum, no. 78.

²Garratt, D., McCarthy, M., Richards, V. and Wolfe A., 1995, *An assessment of the submerged archaeological remains at the Albany Town Jetty*. Report, Department of Maritime Archaeology, Western Australian Maritime Museum, no. 96.

After nearly a quarter of a century of involvement with the protection of sites; first on an age-based, pre-1900, system and then a criteria based assessment system, the maritime archaeological fraternity have acknowledged that few, if any sites emanating from a past era are devoid of significance to at least one group in contemporary society however. It is also recognised that an assessment of significance on aesthetic, social or historic grounds, (as opposed to purely scientific considerations), is often the result of subjective analyses. Often these are based upon the background, culture and values of those making the judgements involved.

A date of 75 years before the present is now the criterion applied by maritime archaeologists for the nomination (and automatic declaration) of an historic site under current maritime archaeological legislation. The criterion remaining to be satisfied under that process is whether there is some structure extant at the site under consideration.¹

Thus though it is the Maritime Museum's preference to nominate every port-related structure over 75 years old, the 'Guidelines to the Burra Charter', the 'International Council of Monuments and Sites', the 'Criteria for the Register of the National Estate', the 'Heritage Council Criteria' and the 'Criteria of the 1976 Commonwealth Historic Shipwrecks Act' have all been considered with respect to the nomination of port-related structures by virtue of their unique position as both terrestrial, inundated and buried remains.

These various criteria are addressed in the statement of significance which is a part of the Heritage Council of Western Australia, Site Particulars Form appearing in Appendix 1 with supplementary material.

¹This has not been an *ad hoc* development and it is a situation which came about in the following manner.

Historically maritime archaeologists in Western Australia were constrained by a pre-1900 date for the declaration of shipwreck and survivor's camp-sites as historic under both the 1964 State Shipwreck Legislation and the 1973 Maritime Archaeology Act. This was later seen to be deficient for obvious reasons i.e the 1900 date. Later it applied a number of criteria, similar to the Guidelines to the Burra Charter re cultural significance, for the nomination of sites under the terms of the 1976 Commonwealth Historic Shipwrecks Act. In precis, they were:

- a) A site significant in the discovery, early exploration, settlement or early development of Australia
- b) A site relevant to the opening up or development of parts of Australia
- c) A site relevant to a particular person or event of historical importance
- d) A site, the possible source of relics of historical or cultural significance
- e) A site representative of a particular maritime design or development

The latter development was more in line with the strategies used in terrestrial archaeology and in the assessment of historic or significant structures generally.

Following an independent review (The Kendall Review conducted in 1989) which was entitled a *Consultancy to Review Commonwealth Government Objectives in and Commitment to the Protection of Australia's Underwater Cultural Heritage*, the 75 year 'rolling date' strategy was adopted in a recent amendment to the 1976 Commonwealth Historic Shipwrecks Act and is set to replace the pre-1900 provisions of the State Maritime Archaeology Act.

3) An historical background to port related structures on the coast of Western Australia

In geographical regions

(Based on Mr Cumming's original text with additions as required. ¹

The South-east coast

EUCLA: 31° 40'S., 128° 50'E

ISRAELITE BAY: 33° 37'S., 123°53'E.

ESPERANCE: 33° 52'S., 121°54'E

New Nominations

Eucla (Jetty)

Israelite Bay (Jetty)

Esperance, (Castletown Jetty)

Hopetoun (Jetty)

Existing Nominations

Esperance (Tanker Jetty)

Historical Background

Whalers and sealers.

Following explorations by Dutch, French and British interests dating back to the 17th century, American and French whalers began operating off the south coast of Western Australia at least as early as 1803. The Americans were particularly active around Flinders Bay and Busselton and their visits were welcomed by the early settlers of those areas. The whalers purchased large quantities of farm produce and traded in many essential items.

By 1838 William Lovett and Thomas Sheratt had begun whaling and sealing in King Georges Sound and eastward, towards the Esperance area. In that year the Lovett-Sheratt operations captured fifteen whales.

Whaling became an important source of revenue to the infant colony and by the 1840s, bay whaling stations had been established at Cheynes Beach, Cape Riche, Doubtful Bay Island, Two People Bay and Middle Bay. Many other stations were in operation along the west coast.

Sealing was often carried out in conjunction with whaling and sealers had been collecting skins from the islands of the Recherche Archipelago as early as the 1820s. Indications of this, normally little-publicised activity are found the number of vessels which were wrecked along the south-east coast while engaging in whaling and sealing, the first recorded being the *Belinda* wrecked at Middle Island in 1842. Other vessels lost were the *Mountaineer* in 1835, the *Avis* in 1842 and the *Arpenteur* in 1849. Another vessel, the

¹ The original Imperial dimensions are given as per Mr Cumming's draft. To convert feet to metres multiply by 0.3048.

brigantine *Wave*, although not engaged in whaling or sealing at the time, was wrecked along this section of the coast in 1848 carrying goods for settlers in the region.

Early settlement and the telegraph line.

Following the establishment of colonial settlement at King George Sound in 1826, settlers gradually took up grazing land eastward. George Cheyne occupied land at Point Riche and he was followed by the Wellstead family who settled at Bremer Bay in the mid 1850s.

The Dempster brothers Charles, Andrew and William, took up four pastoral runs and arrived with stock from Northam in 1863, and the schooner *Adur* of 24 tons¹ brought supplies to John Forrest and his exploring party in 1870. C. Taylor took up land on the Thomas River and A. Moir settled on 14,000 acres at Fanny Cove in 1873. They were followed in the 1870s by Brooks at Nanambinia, Pontons and Sharpe at Point Malcolm, Campbell Taylor at Thomas River, Kennedy brothers and McGill at Mundrabilla and John Muir at Moopina.

On 1 January 1875 work was begun in Albany on the East-West Telegraph Line connecting Western Australia with the rest of Australia and the world. Seven thousand squared jarrah poles, each fitted with a small lightning arrester and each weighing about 90 kilograms, had to be shipped to points between Albany and Eucla, including Israelite Bay and Esperance.

Many small sailing vessels were employed in the carriage of the telegraph poles and other materials. Some of these were the *Mary Ann*, *Agnes*, *Walter and Mary*, *Scorpion*, *Tribune*, *Planet*, *Twilight*, *Beatrice Wheaton*, *Eclipse* and *Bunyip*.

The East-West Telegraph Line was completed in December 1877 and many of the smaller coastal schooners secured Government contracts for the carriage of freight and telegraph personnel and supplying pastoralists and conveying their goods. Wool, skins (sheep and kangaroo), hides, sandalwood, salted pork, butter and vegetables were carried to Fremantle, Albany and Adelaide.

The ports visited by the coastal schooners were Cape Riche, Bremer Bay, Doubtful Island Bay, Mary Ann Harbour (Hopetoun), Fanny Cove, Esperance Bay, Thomas River, Point Malcolm, Israelite Bay, Alexandra, Eyres Sand Patch and Eucla.

The landing of telegraph poles or supplies, particularly east of Cape Arid, was dangerous work as there were few anchorages that offered safety from strong south-easterly winds. Many vessels were wrecked during the construction of the telegraph line and later in coastal service, for example, the *Mary Ann* and *Scorpion* in 1876 and *Twilight* and *Bunyip* in 1877.

The telegraph reached Esperance from Albany in 1876, and a repeating station was established with G.P. Stevens as Stationmaster. The topsail schooner *Brothers* of 48 tons brought A. Dempster and his family in 1878, and was lost while returning to Fremantle. A police station was established in 1879 and the cutter *Lily* visited in the same year, and the schooner *Agnes* of 43 tons in 1890. The Dempster brothers established a wool store and a small jetty or wharf at the southern end of the town sometime between 1870 and 1890, and this wharf was mentioned in 1896.

Following the discovery of gold at Coolgardie in 1892 and at Kalgoorlie and Norseman (Dundas) in 1893, many men arrived at Israelite Bay for the goldfields. Esperance was gazetted a township in the same year. F.W.S. Reid built a jetty 340 feet (104 m.) long with a 100 feet (30 m) head in ten feet (3m) of water.²

A bonded store and a goods store were erected in James Street in 1895, and passengers and cargo from the SS *Helen Nicholl* of 348 gross tons were ferried to the new town jetty

¹Tonnage is defined in appendix (3). It is a measure of both vessel size and carrying capacity, appearing as gross tons, register tons, net tons &c., and is a measure dependent upon the Navigation Acts which specified the measurement systems in force at the time. The unit is given here as an indication of size. Given that situation the ton and the tonne are generally comparable, the ton is left as per contemporary use.

²A foot is 12 inches in length. A metre is 39.37 inches. Where used in contemporary accounts such as these, the foot is reproduced with metric equivalents in parenthesis as is the custom with maritime history and maritime archaeology.

in small boats in 1896. The Adelaide Steamship Company (ASC) opened their office in Esperance in 1896 beginning a twice weekly service between that Port and Adelaide. Steamships which visited in 1896 included the *Lubra* of 264/167 tons, the *Rob Roy* of 393/291 tons, the *Emu* of 616/362 tons and the *Flinders* of 489/278 tons of the ASC.¹ The *Yaralla* of Australian United Steam Navigation Company, and the *Helen Nicholl* of 384/246 tons chartered by AUSNCo also called. The provision of port facilities still resulted in accidents and incidents however. The Esperance Chronicle reported (13.1.1897) that the steamships *MacGregor* of 255/163 tons and *Flinders* were both aground at the town jetty, and that trade with Kalgoorlie and Coolgardie decreased after their connection with Southern Cross by railway in 1897. The jetty was lengthened to 2810 feet (856m) with a 300 feet (91m) head in 18 feet (5m) of water and Captain Coombe carried out surveys in the *Waterwitch* in 1897, and the premier Sir John Forrest visited Esperance aboard the SS *Innamincka* of 2501/1355 tons in 1898. The SS *Franklin* of 730/395 tons took over the mail run from the SS *Herbert* of 302 tons in 1901, and a red ordinary lantern was established on the end of the town jetty in the same year.

In 1896 the rail link between Fremantle and Kalgoorlie was completed and Esperance lost much of its Goldfields trade. The year 1896 was also notable for its severe storms and in that year three vessels all owned or chartered by J. R. A. Conolly of Esperance were lost. In 1894 Conolly established farms on some of the islands off Esperance and grew potatoes, onions, and other vegetables for the settlements between Eucla and Albany.

After the SS *Franklin* was wrecked near Point Malcolm in 1902, the South West Mail Service was continued by the SS *Meinderry* until 1903 and by the SS *Dawn* subsequently.

The WA Year Book of 1902-4 reported that Esperance was the principal town in the district between Hammersley River and Eucla, and had a population of about 300 persons (down from 1500 in 1897). There was a weekly steamer from Albany 237 nautical miles² eastward, sailing vessels called, and there was a twice weekly coach service to Coolgardie taking 34 hours to Norseman and a further 29 hours to Coolgardie. The Government buildings included a court house, a post office, customs offices and an extensive goods shed with four acres of enclosed yards. The Esperance Bay Land Company had a township (now Castletown) north of the Government township, and this had a jetty into 23 feet (7m) of water at low tide.

Shipping arrivals in the 12 months to June 1907 included one steamship of 246 tons and six sailing ships aggregating 1000 tons from inter-state ports and 56 steamships aggregating 11,790 tons and nine sailing ships aggregating 738 tons from Western Australian ports. The port was described in 1908 as a large and safe natural harbour with a jetty half-mile long into 18 feet (5m) of water. The population of the district was 400 persons.

Shipping had begun to decline, however and the Adelaide Steamship Company closed the Esperance office in 1907. When the railway was extended from Kalgoorlie to Norseman in 1909, Esperance slipped further into decline. A goods shed was built at Esperance in 1911 however, and following investigations in 1911 and in 1916, land settlement increased in the 1920s. It was not until 1925 when the railway link from Esperance to Salmon Gums was completed that the port trade began to improve. The railway connected Esperance with Norseman, Coolgardie and Kalgoorlie, and wheat exports in the following years included 6803 tons in 1928, 4376 tons in 1929, 6460 tons in 1930, and 15,344 tons in 1931.³

Following a decision by the Lake View and Star Gold Mining Company to change to diesel power for which fuel was to be imported through Esperance, a new jetty was built in 1933-5. Known as the 'New Jetty' until the 70s and the Tanker Jetty thereafter, it was 2190 feet (667m) long and 15 feet (c.5 m) wide, expanded through a neck 120 feet (37m) long to a head which was 48 feet (15m) wide and 557 feet (170m) long.

¹The dual figure represents gross tons and net tons respectively. See appendix 3

²The nautical mile is a term still used today, being a minute of latitude or 6080 feet.

³ A ton is 1.016 tonne.

Breakwater Company finished this work which was 3425 feet (1044m) long and contained 321,000 tons (c. 321,000 tonnes) of stone in 1965. Meanwhile Dredging Industries (Aust) Pty Ltd. removed 2,560,000 yards (c. 1 cu m.) of sand between 1963 and 1965 to form a new channel and inner basin. John Holland & Company began building No.1 Berth which was designed by Guthridge Haskins and Davey of Sydney in conjunction with G.B. Hill & Partners of Perth, and consisted of a slab 73 feet (23m) wide and 634 feet (194m) long supported on groups of five tubular steel piles at 18 feet (5m) centres. This was completed in 1965 and equipped with a travelling elevated gantry for loading nickel ore soon after. Australian Dredging and General Works Pty Ltd. carried out further dredging in 1969, and John Holland Constructions Pty Ltd. constructed a second berth between 1970 and 1972. The breakwater was extended by 198 metres in 1974, and a fishing boat harbour was constructed at Bandy Creek in 1982-83.

Today little is visible of these events, bar the ruins of the Eucla, Israelite Bay and Castletown Jetties, which are substantial. All have been nominated as historic port related structures as a result.

*Figure 3.
The remains of the Eucla Jetty¹*



¹Photograph by D. A. Cumming, March 1994.

The South Coast

HOPETOUN (Mary Ann Haven): 33° 57' S., 120° 07' E

Existing Nominations

Hopetoun (Jetty)

Historical Background

HOPETOUN

Following visits by early nineteenth century explorers e.g., J.S. Roe in 1848, John Dunn took up land on the Phillips River in 1868 and stocked his run with sheep in 1872. In 1875, after carting his wool clip to Albany, he established a small hut at Dunn's Swamp where fresh water was available and sent his wool away on small ships which called at Mary Ann Haven bringing supplies. (These may have included the schooners *Agnes* of 43 tons which was on the south coast between 1879 and 1892, and the *Grace Darling* of 82 tons which arrived in Albany in 1892 and remained on the south coast until 1910. Eliza Dunn arrived by the SS *McGregor* of 255/163 tons in 1896, and the Phillips River Goldfield was discovered in 1898. Hopetoun (Mary Anne Haven) became a port at which the SS *Ferret* of 347/211 tons called in the late 1890s, mining began at Ravensthorpe in 1898, and the township of Hopetoun was surveyed in 1900 when Ravensthorpe had a population of about 500 persons.

A short jetty was built in 1901 at which machinery for the Floater Mine was landed from the schooner *Grace Darling*. This jetty was designed for 'lightering' or the carriage of materials from the shore in small vessels (lighters) to waiting sea-going vessels in deeper water. The government extended this 'lightering jetty' to 642 feet (196m) long and into 8 feet (c.2.5m) of water at low tide in 1902, and equipped it with a 2'-0" gauge tramway leading to a goods shed.¹ This was subsequently extended to 600 feet (183m) long and 10 feet (3m) wide, and equipped with a tee-head 50 feet (15.2m) long and 22 feet (7m) wide, a boat landing 20 X 20 feet (6m) and a goods shed 22 X 30 feet (6.7m). It was extended to 1416 feet (432m) and eleven feet (3.4 m) of water with a curve to the south-east in 1907 to improve facilities for exporting copper from the Phillips River Gold Field around Ravensthorpe, and it was equipped with a crane in 1907-8. A 5th order light (see lighthouses study) on a steel tower was built at the inner end of the jetty and the railway to Ravensthorpe was completed in 1909. The SS *Kepler* of 64/45 tons acquired by the Adelaide Steamship Company in 1909 and used as a lighter, sank at its moorings near the jetty in 1910, and the State Shipping Service began regular calls with the SS *Una* of 178 tons and the SS *Eucla* of 564 tons in 1912. The SS *Una* was withdrawn in 1917, and the SS *Eucla* was replaced by the SS *Kybra* of 950 tons in 1926.

The copper smelter closed in 1918 and the rail service in 1931 except for moving grain which continued for another year. The last harvest of 15,000 bags of wheat was loaded over the jetty in 1937, and the railway was finally closed and all regular calls by ships (*Kybra*) ceased in the same year.

The port was described in 1960 as a protected anchorage formed within the reefs and exposed to all off-shore winds except the South-West. The jetty 1350 feet (411m) long extended southward from Mary Ann Point into 12 feet (4m) of water, and there was a

¹ The figure 2' 0" indicates a 2 feet and 0 inches gauge. The foot (') being a unit of 12 inches ("). Presenting this data as a metric equivalent, in this case c. 0.6m gives little indication of the standard chosen. Again these are produced by convention in both imperial and metric equivalents.

mooring buoy in the anchorage. The initial approach on a bearing of 343° was defined by a triangular beacon on the summit of Table Hill and a cask beacon on the beach. The second leg on a bearing of 274° was defined by No.1 beacon of stone on the reef, and No.2 beacon on a pile about 1.5 cables (a cable is one tenth of a nautical mile) to the east.

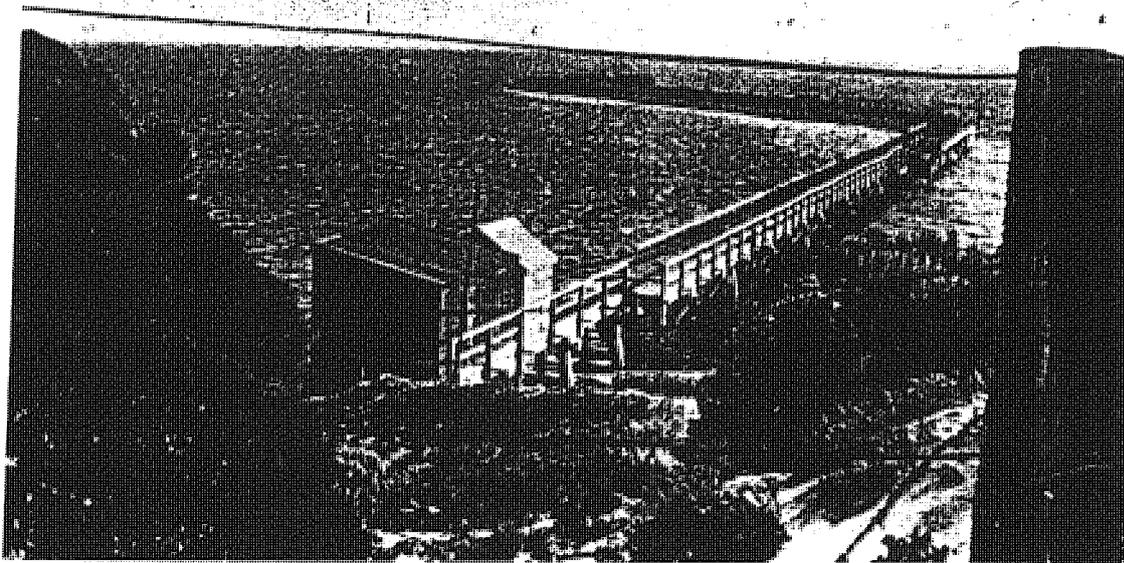
Control of the jetty was transferred to the Phillips River Road Board in 1938, and this notified that it would no longer be responsible for accidents on the jetty in 1944. A breakwater was constructed on Mary Anne Reef to the east of the jetty in 1982/3, a fishing boat harbour, boat ramp and boat landing were built in 1983/4, and the jetty was demolished in 1984/5.

In 1994, the two timber structures which served leading marks on 343° , and two leading marks on piles in the water which defined leg.2 on 274° were still standing. However, the light-tower and the stone cairn on 274° shown on Chart BA 2973, had been demolished.

Some remnants of the base of the jetty are visible today and the seabed is littered with jetty remains. The site has been nominated as an historic structure.

Figure 4.

The Hopetoun Jetty in 1901. It has since been demolished¹



¹Photograph by Ms Elsie Penglase, Hopetoun.

ALBANY HARBOUR ALBANY: 35°01'S., 117° 53'E

New Nominations

The Albany Town Jetty (Jetty)

The Norwegian Whaling station (Jetty)

Existing Nominations

Oyster Harbour Fish Trap site

Quaranup (Quarantine) Complex, 1875.

Sealer's Ovens, Waychinup Inlet

Heritage Park (including fort, lighthouse site)

Barker's Bay or Fisherman's Cove Whaling Station

Albany Forts

Albany Deepwater Jetty (since demolished)

Historical Background

ALBANY

After becoming the site of the first European settlement in Western Australia in 1826, Albany was proclaimed a township in 1832, and a small jetty was built at the foot of Osnaburg Street (now Bridge Street) in 1837. The cutter *Mountaineer* of 23 tons visited Albany while sealing on the south coast in 1835, and the *Fanny* of c.30 tons visited on voyages between Fremantle and Middle Island in 1836. Captain Thomas Symers arranged for the schooners *Chance* of 29 tons (possibly imported in frame) in 1842, the *Fairy* of 70 ton in 1844 and later a third ship, to be built in Oyster Bay at the mouth of the Kalgan River. A small jetty was built at the foot of York Street in 1850, but silt eroded from the street prevented any significant use.

The P & O Steamship Company made Albany a port of call in 1852, and built a coaling jetty 300 feet long from their depot about 0.2 miles east of Osnaburg (Bridge) Street and established a coaling depot and the schooner *Kingfisher* as a coaling hulk. (It was blown ashore west of the Town Jetty in 1863, but refloated and towed to the western end of the harbour.) The SS *Australian* of the Royal Mail Steamer Company called on its first voyage in 1852, and the P&O Company began their regular service with the *Chusan* of 699 gross tons and the *Formosa* in the same year.

The port was defined in 1855, and lighthouses were built on King Point and on Breaksea Island in 1858. The mail steamship service was interrupted by the Crimean War in 1858 but restarted in 1859. The Adelaide Steam Navigation Company secured a contract to operate mail steamers from Albany to Port Adelaide in 1861, which it extended to Melbourne in 1862 and continued until 1873.

J. Covert began building a new town jetty at Spencer Street in 1861 which A. Moir completed in 1864-5, and the P & O Company extended its coaling jetty in 1863.

The barque *Lady Lyttelton* of 178 tons on a voyage from Adelaide to Fremantle was lost while being repaired at the eastern side of the entrance to Oyster Cove in 1867, and the *Don Juan* ran ashore in the same year but was refloated. The *Northumberland* of 1168 tons was wrecked off Breaksea Island in 1868 while carrying coal from Newcastle to the P&O Company's depot in Albany, and the barque *Fanny Nicholson* of 285 tons was driven ashore and wrecked in Frenchmen's Bay in 1872 after whale fishing along the south coast. The P&O Company built a dry dock in 1870 which remained in use until about 1915 when it was deliberately sunk and abandoned.

The schooner *Walter & Mary* of 30.6 tons was built in Albany for T. Sherrat in 1871 and used regularly until about 1908, and the cutter *Victory* of 24 tons in 1873 and the cutter *Eva* of 40.7 tons (registered in Fremantle in 1893) soon afterwards, were also built. J. Peters built the cutter *Ada* of 26 tons for Cowden & Bruce in 1886, and it was wrecked in the harbour in 1888.

A quarantine station was built at Quarenup with a jetty and a powder magazine on Geak Point in 1874, and the Town Jetty was extended by J.J. Harwood in 1872-75, by J.H. Green in 1877, and further in 1887.

The SS *Georgette* of 202 g.tons began a coastal service between Albany and Geraldton (Champion Bay) in 1873, which continued until its loss in 1876 when it was succeeded by the SS *Rob Roy* of 393/231 tons. This was joined by the SS *Orway* of 563/486 tons in 1878, the SS *Macedon* of 826/532 tons in 1881, the SS *Adelaide* of 1711/917 tons in 1882, and by the SS *Ferret* of 460/372 tons and SS *Investigator* of 548/345 tons in 1883. These were joined by the SS *Lubra* of 246/167 tons in 1884, the SS *Albany* of 878/794 tons and SS *Colac* of 1479/915 tons in 1886, the SS *Flinders* of 521/278 tons in 1887, the SS *Bullara* of 1728/1087 tons in 1891, the SS *Adelaide* of 1711/917 tons in 1893, and by the SS *Innamincka* of 2500/1355 tons in 1894.

In 1880 the Adelaide Steamship Company took over many of the facilities which the P&O Company no longer required and used as coaling hulks the brig *Sarah Burnyeat* of 327/277 tons acquired in 1882, the *Herschel* of 814/787 tons acquired in 1883, the barque *St Lawrence* of 1094 tons in 1889, the barque *J.L. Hall* of 682 tons in 1895, and the *Copeland* of 688 tons which was purchased in 1902. Other coaling hulks were the barque *Anna Melhuish* of 344 tons acquired by the King George Sound Coaling Company in 1883, the barque *Athena* of 12 tons moored near the Town Jetty by Nellwraith and McEachern in 1898, the barque *Margaret* of 1143 ton brought to Albany soon after 1896, and the *Marius Ricoux* which was used between 1911 and 1928.

William Douglas built the cutter *Victory* of 24 tons in Albany in 1873, and acquired the SS *Jessie* of 24.8 g.tons in 1892 (first visit 1886), the SS *Dunskey* of 50.4 gross tons and 35 HP in 1897, and the schooner *Iris* of 206 tons in 1904 (first visit 1883, transferred to Melbourne in 1906). F. Douglas and C. McKenzie acquired the schooners *Agnes* of 43 tons in 1879 and the *Grace Darling* of 81.9 tons. J.F.T. Hassell owned the SS *Bruce* of 54 g.tons in 1898. (It was destroyed by fire in Albany in 1918).

The WA Land Company built its jetty in 1888 and began building the railway which connected Albany with Perth through Beverley and Wright & Burton extended the Town Jetty to 1568 feet in 1892. Dredging of Princess Royal Harbour began and the Princess Royal Fortress was opened in 1893. H.W. Smith erected a beacon in the entrance to the harbour in 1894, and a jetty 450 feet long with a head 45 feet by 13 feet was built for the quarantine station in 1895. A timber viaduct to give railway access to the Town Jetty was built and its head was strengthened and extended by 450 feet in 1900, and a small jetty was built at Middleton Beach in the same year. By 1904, the Deep Water Jetty was 2016 feet long with a head 758 feet long and 35 feet wide, which could take five small boats at berth in 17-20 feet of water and was connected to the Government Railway by a timber viaduct 1543 feet long.

The port was described in 1908 as having two jetties, the outer one able to accommodate vessels of 29 feet draft and the inner or Town Jetty with four berths for vessels of smaller draft. Both jetties were connected to the state rail system, and loading and discharging was directly into trucks. The jetties were well supplied with donkey engines and steam cranes for handling cargo, water was laid on, and labour was plentiful. The harbour channel had been dredged to at least 30 feet, and was defined by four pile beacons showing two red lights on the northern side and two white lights on the southern side. A fixed white light visible at up to 25 miles was shown from a granite tower on Breaksea Island, a fixed white light visible at 12 miles was shown from King Point, and two red lights on the Town Jetty led up to this jetty, when kept in line.

A jetty was built at Middleton Beach and the original light on King Point was replaced with an unattended acetylene light on a steel tower in 1911.

The jetties were described in 1929 as, the Town Jetty 1970 feet long with berths each side 400 feet long in 23 feet of water, and the Deep Sea Jetty as 3124 feet long with berths of 500 feet long in 25 feet of water, 350 feet in 30 feet, 550 feet in 32 feet, and 600 feet in 33 feet of water.

The State Shipping Service began a service between Fremantle, Busselton, Bunbury, Albany and on to Eucla with the SS *Una* of 178 tons in 1912, (sold overseas in 1917) and this was joined by the SS *Eucla* of 564 tons which continued in the service to Hopetoun, Esperance and Israelite Bay until 1926 when she was scrapped. The MV

Kybra of 950 tons continued this service until the service to Bunbury and Esperance was terminated in 1940. Superphosphate works and a land-backed wharf were opened in 1954, facilities for bulk handling grain were opened in 1956, and the second shipping berth was completed in 1957. The port was described in 1960 as having an entrance channel dredged to a depth of 33 feet (10.1m) over a width of 500 feet in 1955. The deepwater jetty extended southward from in front of the Harbour Master's House about 2.2 miles west of King Point. There was a small jetty south-east of the Harbour Master's House, and a small fish landing jetty westward towards King Point. Berthing accommodation was available on both sides of the deepwater jetty with 28 feet on the eastern side and 31 feet depth on the western side. A slipway 380 feet long extended SSE from about half way along this jetty. The New Arm Jetty 800 feet long, was dredged to 33 feet depth on its southern side and to 25 feet for a distance of 500 feet on its northern side. Land has been reclaimed westward of the deepwater jetty, to form a wharf about 1100 feet long with two berths with 28 feet of water. The Town jetty about 1.2 miles from Semaphore Point had been abandoned and was closed to shipping. Lights on two red steel framework beacons marked the southern side of the dredged channel and lights on two green steel framework beacons marked the southern side. Lights were exhibited from the heads of the Deepwater Jetty and from the New Arm. Albany had a population of about 9600 persons in 1957. A stock of about 2500 tons of coal was maintained, which could be supplied at the rate of about 20 tons /hour/gang, and fuel oil was available at the Deepwater Jetty, at the New Arm and at No. 1 Berth. Water was laid on to all jetties, and could also be supplied from a hulk of 100 ton capacity. A moveable 5-ton steam crane and a moveable 7-ton hand crane were available, and exports included wool, wheat, canned fish and whale oil. In the year ending June 1955, 62 vessels with an aggregate tonnage of 289,000 tons entered the port.

Little Grove Jetty with a Tee-head extended from Pagoda Point at the south-eastern end of Stuarts Head into six to nine feet of water, and a small jetty in Ellen Cove at the southern end of Middleton Beach (b.1900) extended into three to four feet of water.

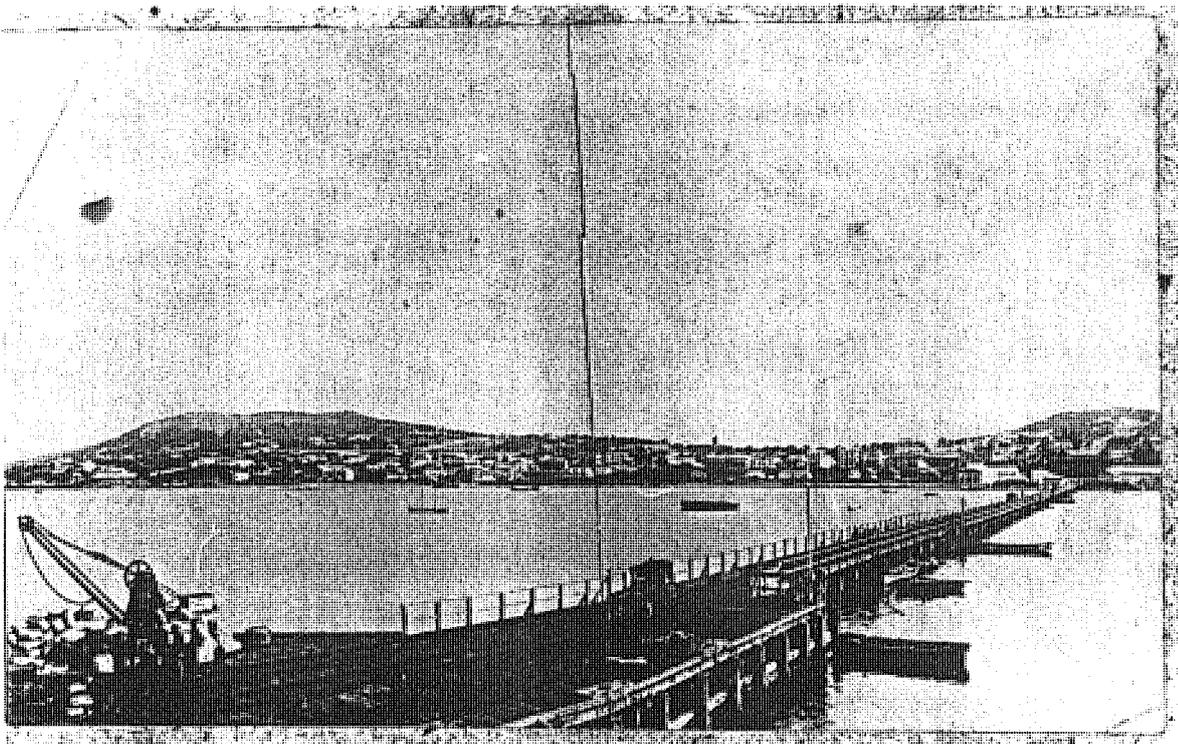
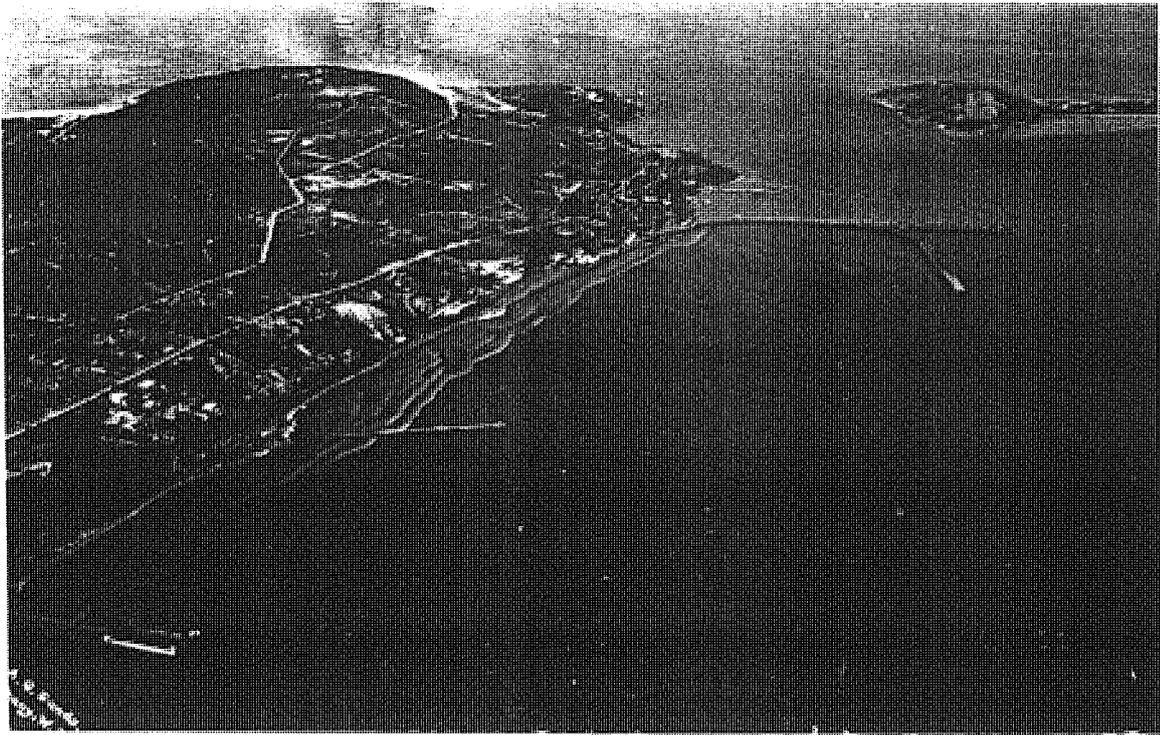
Whaling began near Middleton Beach in 1833, and George Cheyne was whaling in Doubtful Bay in 1836. Several French and American whalers called at Albany in 1837-8, and about 50 ships in 1840 and 47 including 25 American and three french called in 1841. J.W. Andrews used the *Vulcan* and up to four chasing boats for whaling in Two Peoples Bay in the years 1842 to 1845, and John and Julian Sindan hunted whales from Migo Island near Torbay and also from Cheynes Bay in 1845.

The Norwegian Company established a whaling station near Vancouver Spring in Frenchmans Bay in 1913, and built a slipway and village in 1914. About 10,000 barrels of oil were obtained in 1916, but operations ceased soon afterwards. Extensive relics remain on site. The Albany Whaling Company established itself in Frenchmans Bay in 1947 and was joined by the Cheynes Beach Whaling Company. Whaling ceased in 1978, and the area is now known as *Whaleworld*.¹ A number of nominations have resulted from this study. Appendix (2c) contains information on related sites within the town.

¹The maritime history of the Albany region also appears detailed in a recent comprehensive work by one of the consultants to this study (Wolfe, A., 1994. *The Albany Maritime Heritage Survey (1627-1994)*, Wolfe and Assoc., Albany, pp. 4-57). The survey was prepared for both the Heritage Council and The Albany Port Authority. The survey complements this study, appearing as not only a chronological account of significant maritime events such as those listed above for the south-east coast, but also a comprehensive analysis of all maritime sites in the region, including those for which there are no remains extant. It is an essential reference in its own right. The site descriptions appearing in that document were re-worked by Mr Wolfe for the purposes of this study, appearing in this instance in appendix (2). Those selected for nomination, the Albany Town Jetty and Norwegian Whaling Station, appear on the standard form in appendix (1). Other sites e.g., the Albany fishponds and the Norwegian Whaling Station water supply could be nominated on the basis of the information supplied through this study.

Another very important recent work is Gordon De L. Marshall's, *Mermories of Maritime Albany*. (De L., Marshall, G. *Mermories of Maritime Albany*, WA Maritime Museum, & Albany Maritime Heritage Assoc., 1994) This comprehensive study which is based partly on the Douglas family is an essential complement to Wolfe's chronological account and site oriented offering.

Figures 5a & b
Two views of Albany Harbour¹



¹WA Maritime Museum collection, MA 4569a and MA 4571.

The South-west coast

FLINDERS BAY: 34° 21'S., 115° 10'E

HAMELIN BAY: 34° 12'S., 115° 01'E

BUSSELTON: 33°39'S., 115° 20'E

QUINDALUP: 33° 38'S., 115° 09'E

WONNERUP: 33°36'S., 115° 27'E

BUNBURY: 33° 20'S., 115° 38'E

New Nominations

Barrack Point (Jetty)

Hamelin Bay (Jetty)

Quindalup (Jetty and tramway)

Wonnerup (Jetty and tramway)

Existing Nominations

Busselton (Jetty)

Historical Background

AUGUSTA: Flinders Bay

Founded in 1830 when the Molloy, Bussell and Turner families landed, Augusta developed as an agricultural settlement, although many of its settlers later moved northwards to the Vasse and Busselton. It also was a port of call for whaling ships and to a limited extent a base for shore whaling. It was proclaimed a port in 1855, and was visited by the ship *Congress* from New Bedford in 1857. W. Eldridge who had worked for the WA Timber Company at Lockeville, obtained a permit to cut timber in the Augusta to Hamelin Bay area in 1875, and exported some timber from Flinders Bay on the *Kitty Coburn* and the *Ashburton* in 1876. After working near Collie, M.C. Davies established a saw mill at Cowderup and acquired the right to export timber over the Barrack Point Jetty in 1881. Davies moved his mill to Karridale in 1882, and about the same time built a jetty in Hamelin Bay, as an alternative to Barrack Point. The latter was described in 1880 as a harbour for exporting timber. The jetty was initially 800 feet (244m) long, and was lengthened by 300 feet (91m) to 1100 feet (335m) subsequently.

It was subsequently demolished, though some of the base of the jetty remains at Barrack Point, leading to its nomination here.

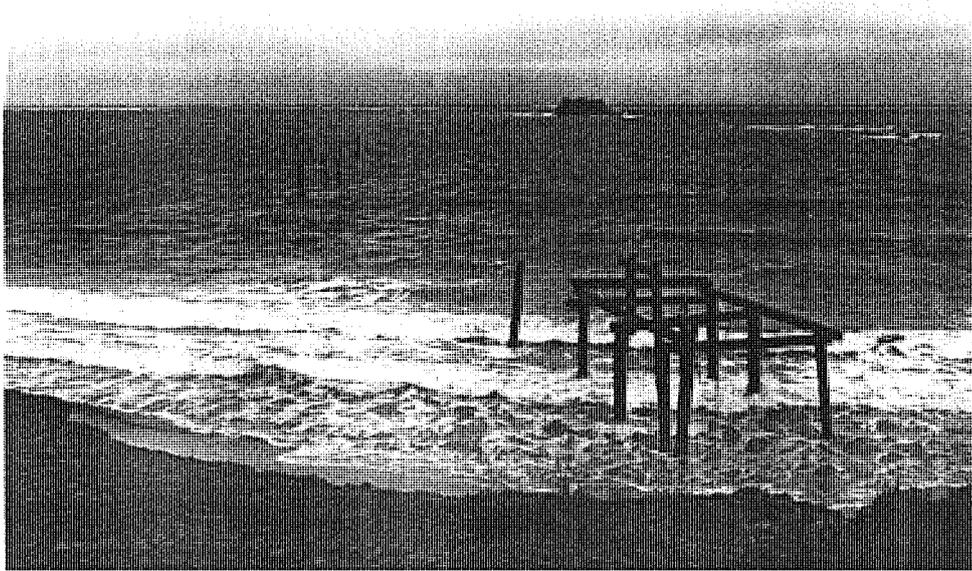
HAMELIN BAY.

The jetty was built by M.C. Davies in 1881 as an alternative to Augusta for the export of timber from his saw-mill at Coodarup. The port was described in 1880 and in 1883, as having a jetty 500 feet (152m) long with a tramway for shipping timber. Although dangerous in north-west gales, five or six ships could lie at anchor. The Karridale Mill was built in 1887 and was also served by the port. The jetty was then 1800 feet (545m) long and the pilot lived at Davies & Company's timber station. A mill was established at Boranup in 1891, and a third mill at Jarrahdale in 1895. It was abandoned soon after 1900 following the earlier wreck by storms of the vessels *Katinka* (1900) *Løvspring* (1900), *Chaudiere*, (1883) *Agincourt* (1882). These were large vessels ranging between 400-800 tons.

The jetty has since been abandoned and has deteriorated by natural means and by vandalism to be left as a line of piles stretching along its entire length from the shore into deep water. It is a substantial and historic structure and has been recommended accordingly.

Figure 6.

The remains of the jetty at Hamelin Bay (see original on the front cover)¹



¹Photograph: D. A. Cumming, July 1993.

BUSSELTON

After being settled by the Bussell brothers and their families from Augusta in 1834, the area was visited by Lieutenant Bunbury and by the Governor of Western Australia who arrived by the Government schooner *Champion* in 1836. A township was declared at the Vasse in Geographe Bay and the first land sales were made in 1837. Busselton was established as a legal port and provided with a Resident Magistrate in 1839. The *Ellen* sailed regularly between Fremantle and the Vasse in 1834 and the area was used extensively by whalers, with visits in January 1840 and in 1841 at an anchorage in the bay and landings near the Tub Beacon. The position of Tidewaiter (customs officer) was created in 1844.

The cutter *Black Swan* of 14 tons sailed regularly with produce between Fremantle, Bunbury and ports in Geographe Bay in the years 1843 to 1851 and the schooner *Bee* worked on the same task in 1850-1. The whaling ship *North Star* visited Geographe Bay for supplies in 1851, and the cutter *Brothers* of 16 ton was built for G. Chapman at the Vasse in 1854.

Though eminently suitable in the case of off-shore breezes and south-westerly gales, the port was open to the north-west and many shipping casualities were the result. The brig *Champion* of 225 tons, owned by H. Yelverton and Company, was blown ashore in company with the *Seagull* in May 1857 while loading timber for Adelaide. The two-masted schooner *Amelia* of 37 tons was built on the Vasse for G. Chapman in 1858.

The port was defined in 1855 as being the coast one league (2-3 miles) each side of the Tub Beacon at Busselton. It was described in 1878 as containing jetties at Quindalup, Lockeville, and the Vasse Inlet. The American whaler *Lapwing* of 432 tons visited the Vasse in 1854, 1858 and in 1863, and the schooner *Sea Bird* of 40 tons was built for H. Yelverton in 1865 and the cutter *Dania* of 25 tons at the Vasse in 1874.

H. Yelverton built the first section of Busselton (Vasse) Jetty, 528 feet long, in 1865, and the Vasse Light on a 56 feet (17m) tower at the end of this jetty was built in 1870. The jetty was extended by Sam Rose in 1872, then by G.H. Knap & J. Mewett (Merritt?) by 430 feet (131m) in 1875, and by J. Savage a further 687 feet (209m) in 1884. The SS *Rob Roy* began calling regularly in 1878 and was joined by the SS *Otway* in 1880. Additional extensions to the jetty were by C.L. Hastie of 1059 feet (322m) to 2369 feet (722m) in 1886-7, of 120 feet (37m) by F. Locke in 1889-90, of 390 feet (118m) by A.L. Payne in 1894, and of 450 feet (123m) in 1895. Another extension of 785 feet (239m) in 1896 after the Boyanup-Busselton Railway was opened in 1895, took the jetty to 4449 feet (1356m) and 18 feet (5m) of water.

The jetty was described in 1908 as extending in a north by west direction for a distance of 4032 feet (1229m) including the head, which provided ample accommodation for two large vessels with draughts of up to 18 feet. The jetty was provided with spring piles and vessels could lie alongside in any but exceptional weather. The jetty was connected with the railway and telegraphic systems and timber was put alongside vessels in rail trucks. A fixed white light exhibited at an elevation of 63 feet from a white tower at the inner end of the jetty, was visible for up to 15 miles, and a small fixed red light was shown from the end of the jetty.

The jetty was extended again in 1909-11 and also connected to the main railway by a skeleton jetty, and reached its peak of usage in the 1920s. It was described in 1923 as a jetty about 5,700 feet (1737m) long, narrow over the greater portion, but about 30 feet (9m) wide over the last 600 feet (183m) and in three other places. The berth on the eastern side of the outer end was 504 feet (154m) long with a depth of 23 feet and on the western side was 480 feet (146m) long also with a depth of 23 feet. The crane at the end of the jetty was capable of lifting seven tons, and coal from Collie could be loaded from trucks on the jetty at about 50 tons per gang per hour. There was a railway connection to main lines via Boyanup Junction, and a fortnightly steamship service to Bunbury. Vessels could find a fair anchorage in 4.5 to 5 fathoms (c.8m), with Busselton Lighthouse bearing 139° and the chimney of the Ballarat Sawmill bearing 085°.

The jetty was recorded in 1929 as 5850 feet (1783m) long with 984 feet (300m) of berthage in 23 feet of water. Trade declined in the 1930s, picked up slightly in the years

1940 to 1945 and declined subsequently as result of continuing improvements and developments in Bunbury Harbour.

The jetty was described in 1948 as one mile long (1609m) with 6.9m of water at its head and berths 504 feet (154m) long with 23 feet of water on its eastern side and 480 feet (146m) long with 23 feet of water on its western side (as in 1922). The crane at the end of the jetty was able to lift 7 tons. Stocks of coal were not held, but could be procured in railway trucks. The principal export was timber and dairy produce.

The jetty was closed in 1972. In April 1978 Cyclone Alby destroyed much of the inner end of the jetty, but access is currently still possible along the railway access jetty. The jetty has assumed considerable importance to the town as a recreational and tourist facility. Diving, especially at night, is recognised as one of the underwater highlights on the State's diving calendar.

The structure has been nominated to the Register of the National Estate by local interests. This nomination is strongly supported on the basis of the jetty's significance in the light of this study.

QUINDALUP

The loading point for timber from the mills of H. Yelverton which were established about 1 kilometre inland in 1857. A jetty 635 feet long was completed about 2 kilometres west of Dunsborough at a cost of £949 in 1897. The area was open to the north-west. The brig *Geffrard* of 316 tons was blown ashore near Yelverton's jetty in 1874 for example. It became a total wreck and was abandoned. The brig *Ella Gladstone* followed it ashore in 1878, but was later refloated. Some remains are visible above the seafloor and a site report has been prepared as a result. A nomination has been submitted.

WONNERUP / LOCKEVILLE

A loading point eastward of Busselton for timber from the WA Timber Company, which was founded by John Ditchburn of Ballarat in 1869. He built a jetty at Lockeville at the mouth of the Wonnerup Estuary and a bridge of 14 spans, 120 feet long across the estuary in 1871 and then began exporting timber.

It is thought that the mill was originally at Lockeville and that the timber was brought in from the forests around Yongerup along a timber tramway. The first steam locomotive in WA, named 'Ballarat' was imported in 1871 to run in the timber rails, but proved unsuccessful and was confined to shunting near the jetty. The company acquired the cutter *Laura* of 24 tons in 1872.

A site report has been prepared and the remains have been nominated.

BUNBURY

A military post was established at Port Leschenault in 1830, and Bunbury was founded in 1836 and the township surveyed in 1841. The *Parkfield* arrived with migrants for Australind in the same year. It suffered from the same problems as Busselton. The American whalers *Samuel Wright* of 372 tons, *North American* of 260 tons, and *Governor Endicott* of 298 tons were wrecked in Koombana Bay in 1841, and the *North America* of 285 tons and the schooner *Elizabeth* of 100 tons owned in Fremantle, were wrecked in 1843. The schooner *Gazelle* of 16 tons was built at Bunbury and the schooner *Emu* of 21 tons at Leschenault in 1847. The cutter *Two Sons* of 16 tons was built at Bunbury in 1851, stranded soon after but refloated, and the schooner *Favourite* of 46 tons was built at Bunbury in 1856.

After being defined as a port in the area between Point Casuarina and Leschenault Inlet in 1855, William Forrest built the first jetty 1400 feet (427m) long into seven feet (2m) of water in 1864 with timber supplied by H. Gillman. Following extensions by William Spencer in 1865 and by Geo. Rich in 1872, G.W. Floyd extended the jetty to 1850 feet (563m) and 12 feet (4m) of water in 1875.

The barque *Midas* of 555 tons was wrecked in a storm in March 1872 while loading timber for New Zealand and was removed in 1874, and the brig *Annie M. Young* of 303 tons was wrecked in 1876 also after loading timber for New Zealand. The schooners *Belle of Bunbury* of 42 tons and the *Ione* of 25 tons were driven ashore but refloated in 1879, and the schooner *Citizen of London* of 53 tons was wrecked in 1880. Other wrecks included the *Perseverant*. The SS *Rob Roy* of 309/200 tons began calling regularly in 1878 and was joined by the SS *Orway* of 563/352 tons in 1880.

Floyd built a sea wall at the inshore end of the jetty in 1885, mooring buoys were placed to reduce the load on the jetty in 1889, and Floyd repaired the jetty in 1890. After repairs by J. & H. Gibbs in 1891, it was extended into 18 feet (5m) of water in 1897 when construction of the breakwater from Casuarina Point began.

The Bunbury-Boyanup Railway was opened in 1891, and Bunbury was connected to Perth through Pinjarra in 1893. Boyanup was connected to Donnybrook in 1893 and onwards to Noggerup in 1908, and to Busselton in 1895. Brunswick Junction was connected to Collie in 1898.

A stone causeway and a timber viaduct leading to the jetty were built in 1900, and the breakwater was extended from 800 feet (244m) to 3969 feet (1210m) by Barry & McLaughlin in the years to 1907. A wharf crane supplied by Sir William Arroll in 1911 was still on site in 1993, and the jetty was extended by Public Works Department labour to 4800 feet (1463m) in 1918.

Ships calling in 1906-7 included 36 steamships and 22 sailing vessels from foreign ports, 94 steamships and one sailing vessel from inter-state ports, and 29 steamships and four sailing ships from coastal ports. These 186 ships totalled over 270,000 tons.

The port was described in 1908 as being the principal timber shipping point in Western Australia, protected by a substantial stone breakwater about 2300 feet long extending from Casuarina Point, Another was authorised and was about to be built. At the time the jetty was about 400 feet (122m) long with a depth of water of 23 feet (7m) at its outer end, and there were berths for nine vessels which could lie alongside during the year but might need to haul off in winter months with northerly gales. The jetty was provided with water, and connected to the railway system which could place timber alongside. Donkey engines and cranes facilitated loading, and labour was plentiful. Mooring were provided off each berth at the jetty to ease the strain, and wear and tear on the ships. Two sets of heavy moorings were provided in the stream at which vessels could lie in any weather and load to a draft of 24 feet (8m). A dioptric second order light was exhibited from an open-braced lattice tower on a hill within 400 m of Casuarina Point at an elevation of 122 feet (37m) and was visible to 17 miles. A fixed green light visible to seven miles was exhibited on the end of the breakwater, and two red lights on the jetty in line led clear of the end of the breakwater.

The harbour was described in 1923 as having a mole or breakwater 5000 feet (1524m) long curving north-eastward from Casuarina Point along the line of reef to form an artificial harbour. The jetty about 0.25 miles south of Casuarina Point projected 1300 feet

(396m) from the high water mark, and then north-north-easterly for a further 300 feet (914m). It was 90 feet (27m) wide, and its outer end was southward of the mole lighthouse. It was lit by electricity, and equipped with steam and electric winches and cranes of about 3 tons capacity. Vessels loaded in turn, and berthed according to draft. The jetty was reported as 3950 feet (1203m) long with 5800 feet (1767m) of berthage into 15 to 25 feet (4-8m) of water.

Bunbury was the principal port of the southern districts, and had a population of 4478 persons within the municipal area. Excellent quality bore water was available on the jetty, and wood, provisions and general stores could be obtained. Coal was sent from the mines in 2 ton boxes and could be placed on board by electric cranes at the rate of about 60 tons per hour. Exports were principally, jarrah and karri timber, wheat, bunker coal, and wool. During 1921, 162 vessels with an aggregate tonnage of 353,000 tons entered the port. Concrete silos and facilities for bulk handling grain were opened in 1937.

The jetty was superseded by a new port facility when land-backed wharves were developed in 1963 and 1967 and it ceased being used by large vessels after 1968 when the inner harbour came to fruition. The jetty lies in a protected location and is substantially intact, with a survey of piles undertaken revealing that it is comparable, in integrity, with the Busselton jetty. Recently the threat of demolition was staved off by the Bunbury Timber Jetty Preservation Society inc. A nomination to the Municipal Inventory has been made by the Jetty Preservation Society which has the unanimous support of the Bunbury City Council. Nominations to the Heritage Council and the National Estate are in the process of being lodged by the Society.

In May 1995, refurbishment of the jetty was commenced under the Group Training Scheme for long-term unemployed, a Commonwealth Government (DEET) initiative. Under the program, decking and some beams were replaced and a number of unserviceable piles were removed.

It is considered that a very strong case can be made by local interests with respect to a number of the criteria for register to State and Municipal inventories. These mirror the Carnarvon and Busselton instances in that regard. The Bunbury jetty is a substantially intact structure of significance to a section of local society and representative of a tangible and evocative element in the industrial and economic development of south-western Australia. The case being put by Bunbury interests and their unity with the City Council is an indication of the jetty's regional and cultural significance. Their submission is strongly supported by this study.

The Metropolitan Coast

ROCKINGHAM: 32° 17'S., 115° 43'E
 CAREENING BAY: 32° 14'S., 115° 41'E
 JERVOISE BAY: 32° 09'S., 115° 45'E
 OWEN ANCHORAGE: 32° 07'S., 115° 44'E
 FREMANTLE: 32° 03'S., 115° 44'E

New Nominations

The Fremantle Long Jetty

Existing Nominations

Seawall Fremantle (HCWA 0847)
 Mole Lighthouses Fremantle (AHC 16638, AHC 16653)
 Wharf Buildings and buildings Fremantle
 (HCAWA 0977, HCAWA 1028 AHC 10496)
 Customs House Fremantle (AHC 10496, HCAWA 0977)

Historical Background

ROCKINGHAM

Thomas Peel obtained a lease of the area southwards from Woodman Point to the northern bank of the Murray River in 1829, but was unable to make a settlement in the Rockingham area. However Careening Bay on Garden Island became a common site for careening and repairing ships in the 1830s, and Rockingham townsite was opened for selection in 1847.

The Wanliss Brothers established a timber company with mills at Jarrahdale, and built a tramway with wooden rails to Rockingham to carry timber to its jetty in 1870. Export of timber began in 1871 over a jetty 240 feet (73m) long, and the first locomotive The Governor Weld arrived on the brigantine *Nightingale* of 240/220 tons for the Rockingham to Jarrahdale Railway in 1872. However, it damaged the rails and was confined to shunting.

The port was difficult, as were most of the west coast havens. The barque *Anna* of 144 tons was blown ashore at the Timber Station in 1872 for example, and the barque *Contest* of 322 tons about to load sleepers for South Australia was wrecked in 1874. The schooner *Gratitude* of 298 tons was grounded on the Southern Flats but was freed by unloading ballast in 1875. Eighteen ships loaded sandalwood from the port in the same year. Mr. Hetherington took control of the Rockingham Jarrah Company in 1876, and six ships of an average size of 389 tons loaded timber for delivery to South Australia and Calcutta. The *Gads Hill* of 929 tons arrived with steel rails, the SS *Otway* began calling in 1877, and the barque *James Service* of 441 tons loaded jarrah sleepers for Calcutta in 1877.

A second jetty was built in 1882 to take ships of 1000 tons, and a jetty mooring buoy was established in 1885, the year in which 36 ships loaded timber.

Neil McNeil acquired the Jarrahdale Timber Station in 1889 and imported the locomotive Samson II. The company was reorganised as the Rockingham Railway and Jarrah Forrest Company with Alex. Munro as Manager in 1892, and two locomotives Rockingham and Jarrahdale of 42 tons were imported in 1896. By 1898 a third jetty had been built.

Loads of timber (at 50 cubic feet per load) exported through Rockingham included:-

Year	1896	1897	1898	1899	1900	1901	1902
No of loads	10,368	9,861	18,870	17,760	14,358	16,453	12,938

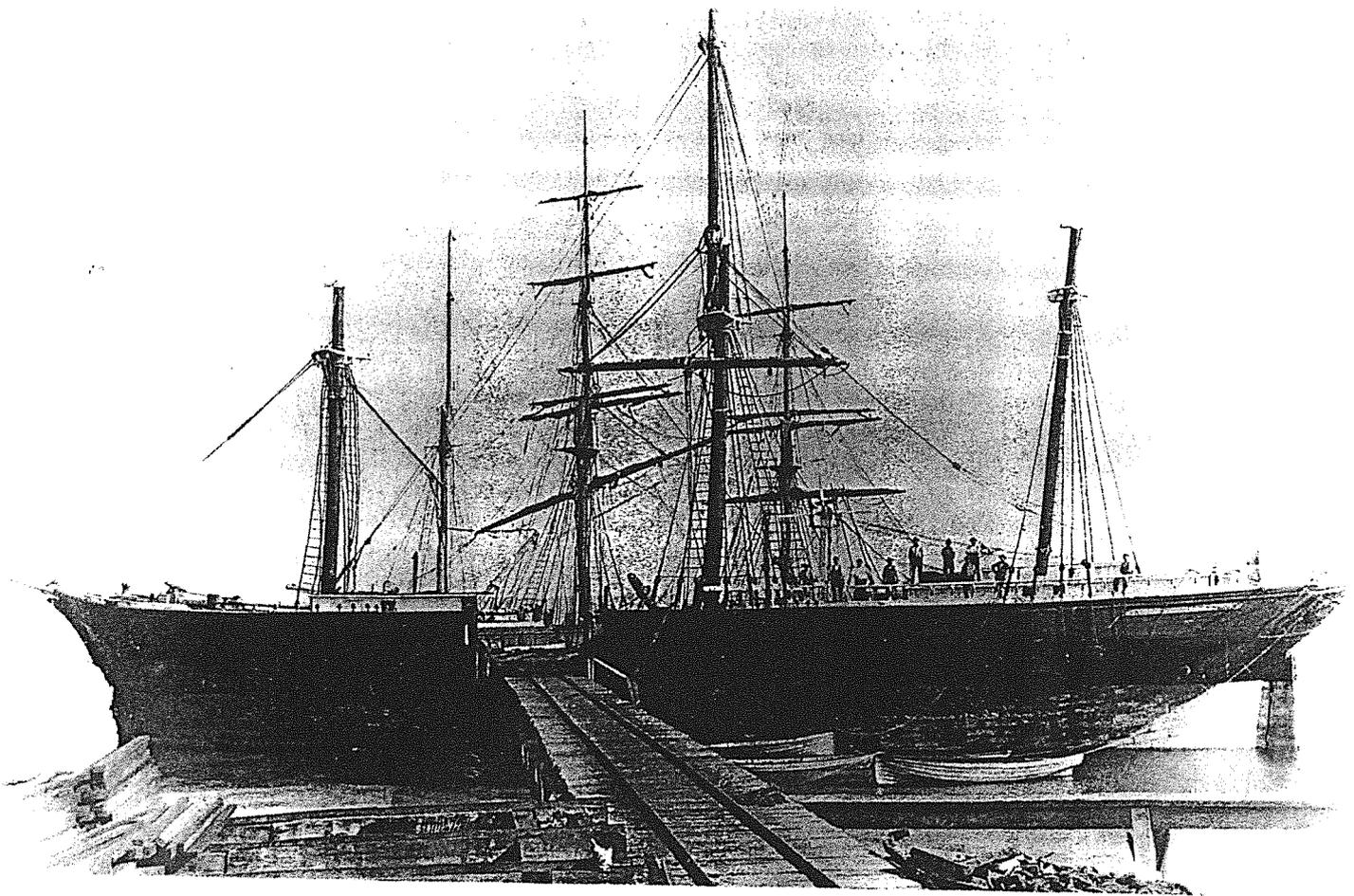
These totalled 134,000 loads during the period.

The Perth to Pinjarra Railway which crossed the Rockingham Jarrahdale railway, was opened in 1893 and diverted timber exports to Fremantle, especially after C.Y. O'Connor's scheme for Fremantle harbour had been completed in 1898.

The problems with west coast anchorages generally continued when *Helena Mena* of 615 tons grounded near the jetty in 1897. In the same year, the *August Tellefson* of 697 tons was impaled on the jetty at Rockingham and its hulk was incorporated into the jetty structure.

Figure 7.

*The August Tellefson impaled at the jetty, showing the jetty extended through it.*¹



¹WA Maritime Museum collection: MA 1350/5

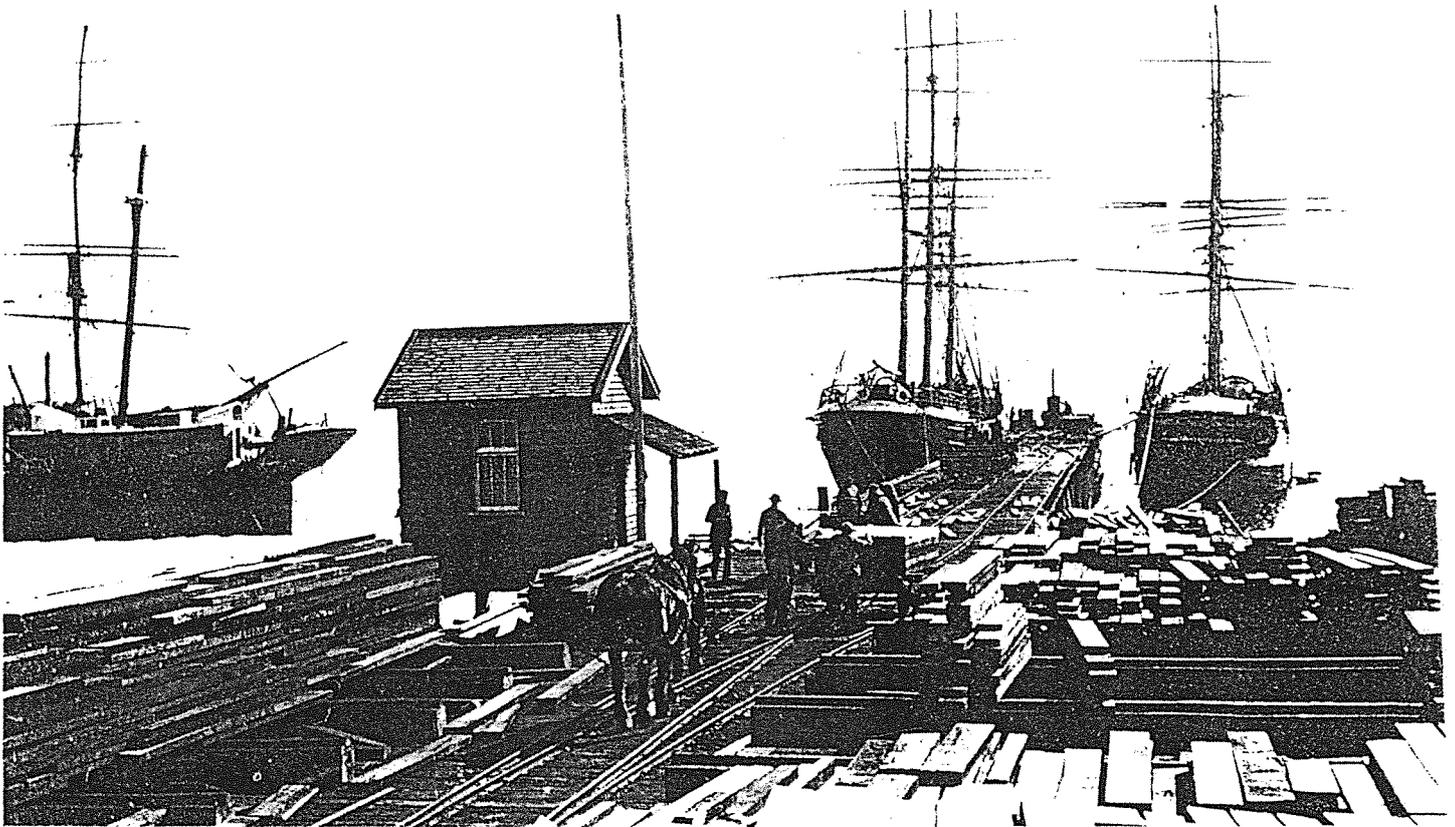
The port was described in 1908 as having two jetties with ample accommodation for four vessels which could load at the outer berths to 30 feet (9m). However owing to a limit of draft through Challenger Passage of just over 16 feet (5m), vessels were required to finish loading in Gage Roads or Fremantle Inner Harbour with extra handling and lighterage. One set of heavy moorings were available for vessels making a lengthy stay or for hauling off, and steam tug boats were available from Fremantle. No vessels were recorded as requiring pilotage after 1908.

The port was described in 1923 as having two jetties about 2.2 miles eastward of John Point, from which a tramway ran to the Jarrahdale Timber Works about 36 miles away. Vessels hauled alongside when loading timber, which included large quantities of jarrah consisting principally of railway sleepers and jetty piles shipped to India, Natal and other parts of Australia.

Fieldwork conducted by Ms Garratt in July 1995, confirmed the belief of the local historical society that nothing remains visible of the original structures apart from a number of jetty piles buried deep in the sediments offshore.

Figure 8.

Shipping at Rockingham. The August Tellefson is on the right, dating the photograph to circa 1898 (Photo WA Maritime Museum)



CAREENING BAY

Little appears in the records relative to the use of this natural harbour and repair facility. The earliest known usage was for careening or the hoving down of vessels onto their sides to enable them to be cleaned of marine growth. HMS *Success* and the *Rockingham* are two well known vessels repaired in the Bay soon after European settlement in 1829. Many other instances followed, such as the American whaling ship *Iris* of 271 tons which was hove down for repairs in the Bay in 1856 after being grounded at Port Gregory. Henry Yelverton repaired the brig *Champion* of 225 tons in the Bay in 1857-8, and then employed it in the timber trade to Adelaide until 1861.

The Bay was used as a mooring for coal hulks, or floating warehouses used for storing coal and sometimes other materials. The Adelaide Steamship Company established the coaling hulk *Kebroyd* of 363 gross tons in 1888 (wrecked 1889), *Harrison* of 384 tons in 1883, the *Redemptora* in 1892, the *Egmont* of 419 tons in 1900, the *Sesa* of 1332 g. tons in 1904, and the *Maranda* 1465 gross tons in 1915. Other hulks include the *Ellen* of 243 tons (1883-1890), *Herschel* of 814 g.tons (1893-1908) and the *Tamerlane* of 795 g.tons. The coal was bought into the bay by steam and sailing colliers such as the colliers SS *Colac* of 1479 tons and SS *Barrier* of 2036 tons which unloaded coal in 1892. It was an on-going process that served to alleviate the problems caused when steamers need to replenish their coal bunkers. It continued until the demise of steamships themselves and their replacement by oil powered vessels. The hulk *Sesa* was established in 1904 and was finally scuttled off Rottnest in 1928, and the hulk *Tamerlane* was scuttled in 1926 for example.

Nothing apart from the wrecks of the coal hulk, the ex-American whaler *Day Dawn* and the powder hulk, the ex sea-going brig, *Dato* remain as a reminder of these events. They are protected under the terms of the 1976 Historic Shipwrecks Act.

COCKBURN SOUND

With the exception of Rockingham, Careening Bay, Owen Anchorage and Jervoise Bay, the development of Cockburn Sound as an outer harbour to the Port of Fremantle itself is a modern phenomenon which began in the 1950s. First was the opening of an oil refinery and its port facilities in 1955, a steel rolling mill in the following year, an alumina refinery in 1964, a blast furnace and fertilizer plant in 1968, power station 1970, nickel refinery, 1973 and bulk grain terminal in 1976.

As a result of these and other developments, the sound has become a major port serving many industries and the Kwinana Industrial area generally.

JERVOISE BAY

On 14 December 1829, Thomas Peel first landed colonists in Jervoise Bay at a place soon to become known as Clarence. It was later the site of a gazetted townsite.

His three ships, the *Gilmore*, *Hooghly* and the *Rockingham* landed settlers and stores onto a wind-swept, desolate place in stages, the final group landing from the *Rockingham* during a mid-winter gale that almost resulted in the loss of the ship.

The disenchanted settlers drifted away and the proposed town site did not eventuate. The port of Rockingham thrived and Jervoise Bay had no role until towards the end of the nineteenth century, when it was used as a dumping ground for redundant ships. In the arms race up to world War I, it was proposed that a naval base, to be named the Henderson Naval Base, would be built in the Bay. Though preliminary work started in 1912, the project was shelved during the war and the concept was later totally abandoned under the terms of the 1921 Washington Agreement.

More ships were abandoned or were driven ashore during violent gales. They included a former French tug, the *Alacrity* and a former American three masted schooner the

Abemama, both of which saw a number of years of service under local ownership, and a Dutch submarine the *KVIII*.¹

Small-scale shipbuilding began in Jervoise Bay in the mid 1960s culminating in the world-renowned facility currently in operation. Protective moles, jetties, land-backed wharves, slipways, launching facilities, mobile slips, fabricating yards and support structures have all been constructed catering for large vessels including submarines and frigates of the RAN. Large high-speed ferries have recently been constructed for the Chinese market.

The wrecks remaining in the Bay have varying degrees of protection as historic and recreational sites.

OWEN ANCHORAGE

Between Success and Parmelia banks, this anchorage has a depth seven to nine fathoms (c. 15 metres). Used since European settlement as an anchorage and landing place, it was eventually surpassed by port facilities at both Rockingham and Fremantle. Subsequently, meatworks, tanneries and fellmongering works were established on the shores. A quarantine station and jetty were also established. Recently most of these activities have ceased operation and plans are afoot to develop the area for residences and a marina. A channel 300 feet wide and available for vessels drawing up to 17.5 feet (5 m) was dredged from Gage Roads through Success and Scott Ledge to Owen Anchorage in 1923.

Wrecks lying on the shores of the anchorage, such as the brig *James* (which was mooted for conversion as a possible jetty by Meares in 1830) and the *Diana* and the former hulk *Omeo*, are protected under shipwreck legislation

FREMANTLE

The maritime history of Fremantle, like that of Albany, is well established and it appears well-documented elsewhere. The City of Fremantle especially has conducted or facilitated numerous studies designed to identify and manage its historic buildings and places.

Most relevant to this study is the history of the port up to the establishment of the harbour as it is known today. This appears most recently in *The Long Jetty Excavation Report*, an account of the development of the port and the excavation of the Fremantle Long Jetty, its most prominent feature until 1897. The report written in 1994, chiefly by Garratt and McCarthy, a consultant and project manager in this instance, is relevant and as it complements this particular report. Appearing in appendix 2a, this document will be distilled in brief here, with additional information from Mr Cumming.

The first ocean jetty was built in 1830 but deteriorated steadily over the next six years, and the Whaling Company built a jetty below the Round House with access through a tunnel in 1837.

The Convict Establishment under Captain Henderson and Lt. Wray built the South Jetty towards Owen Anchorage, and the North Jetty into the River Swan above the rock bar in 1853-4.

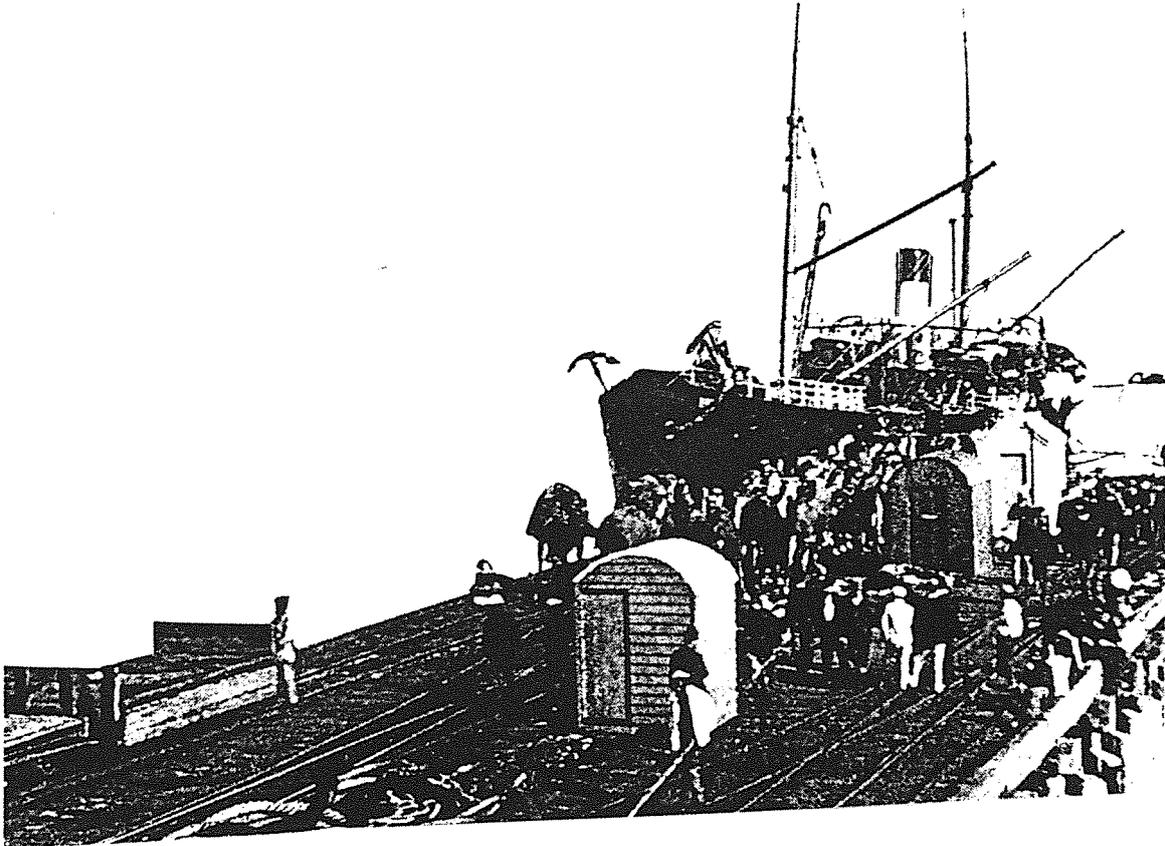
Mason Bird & Company built the Long Jetty 750 feet (229m) long into 12 feet (4m) of water from Anglesea Point in 1872, and Baillie Davis & Wishart extended it by 340 feet in a westerly direction in 1886. Following a report by Sir John Coode in 1887, R.O. Law extended this jetty in 1888, and M. Price extended it further to berth eight vessels into 22 feet (7m) of water in 1891. The final extension was by 457 feet (139m) in 1896, taking it to a total length of 3,294 feet (1,004m). Following the completion of the inner harbour, the Long Jetty was converted for pleasure use, and a hall was built on this jetty in 1907. This was not successful, and the jetty was demolished by R.O. Law in 1921. (Sir John Coode reported on harbour works in 1877 and in 1887, and J. Robb built the railway from Fremantle to Perth and Guildford for the WA Government in 1881).

¹McCarthy, M., 1989, *Jervoise Bay Shipwrecks*. Report: Department of Maritime Archaeology, WA Maritime Museum.

Today a number of piles are visible above low water and many project up to 2-3m above the seafloor, making an interesting and attractive dive. An interpretive facility has recently been built at the shoreward end by the resident potter Joan Campbell. The sea-bed around the Jetty was declared a maritime archaeological site under the terms of the Maritime Archaeology Act 1973 in October 1988, establishing a precedent for the declaration of the seabed around all pre-1900 jetties and port related structures in Western Australian waters. What remains of the jetty itself, is nominated here as an historic port-related structure.

Figure 9.

*The Long Jetty at Fremantle: in use and abandoned a century later
(Photos: WA Maritime Museum)*



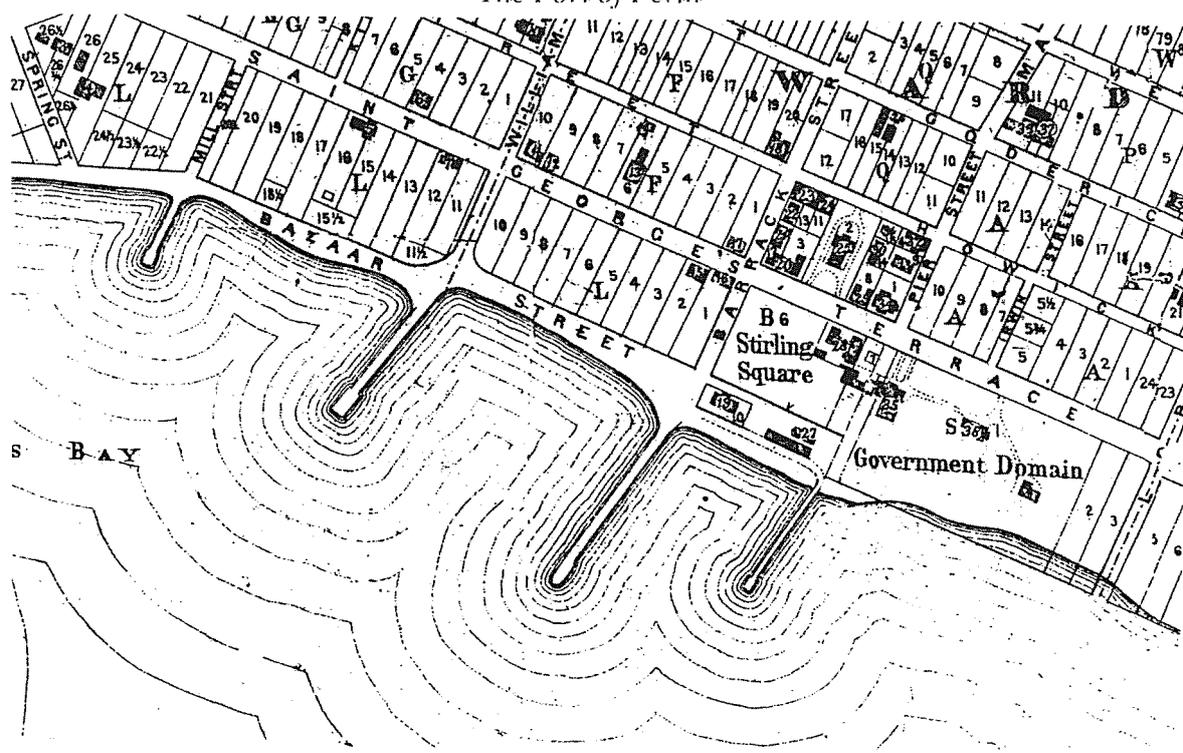
PERTH

The former Port of Perth is discussed briefly here due to its links with the coast via the Swan River, which was named by 17th century Dutch explorers. The Canning River, which feeds into it was first visited by Europeans in 1801 during a French exploratory visit. In 1827, Stirling conducted his explorations on both rivers. Perth was chosen as the Capital of the new colony on 12 August, requiring links with its port, Fremantle. These were to be by track (later road), by river and later by rail. The first plan of Perth shows a jetty, built by H. Revelly at the foot of Barrack Street in 1830, and the Town Trust built another in 1841. Trustees were appointed for the town jetties in 1842, and a toll house was built on a jetty at the foot of William Street in 1843. The Town Jetty and Mill Street Jetty were built in 1852, and dredgings from the canal at Claisbrook were for sale in 1855. The *Black Swan* arrived to begin dredging 1870 under the direction of J. Manning.

In the 1860s convicts constructed a fence designed to help keep the Canning River navigable and established a number of camps in order to do so, though these could not be considered port related structures. On the other hand, a plan of 1877 shows four jetties at the foot of Mill, William, Barrack and Pier streets in Perth respectively. River reclamation programs after the 1880's altered much of the original shoreline and by 1929 a new set of port facilities were in operation. The Swan Brewery also developed its jetty. As an example of the fact that Perth was an inland port of some significance, from 1921 to 1930, river lighters carried 55,000-88,000 tons of cargo per annum between Perth and Fremantle. Further reclamation dating up to the 1960s has ensured that the port related structures of the former Port of Perth now lie buried in the land-fill for the esplanade. This is discussed in detail in Stephenson's analysis of the city (Stephenson, 1975).

A study of jetties and other structures in this river and others such as the Kalgan River in Albany was not conducted, but is flagged here as a future possibility.¹

Figure 10
The Port of Perth²



¹Mr Wolfe has examined and described the Kalgan River Jetty and has recommend it as an historic structure (Wolfe, 1994 :178-180).

²Stephenson, G., 1975, *The Design of Central Perth, Some problems and possible solutions*. A study made for the Perth Central Area Design Coordinating committee, (UWA Press, Nedlands,1 p. 4.

The Midlands coast

DONGARA, Port Denison, Irwin River 29° 17'S., 114° 56'E

GERALDTON: 28° 46'S., 114° 37'E

PORT GREGORY: 28° 12'S., 114° 15'E

New Nominations

Nil

Existing Nominations

HCWA 1241 Port Denison and Old Irwin Jetty

HCWA 1242 Two Obelisks and commemorative plaque. One was demolished when the breakwater was built in 1977-79.

Historical Background

DONGARA

After being visited by Lt. George Grey and his party in 1839 and by the Gregory Brothers who discovered coal in the Irwin River in 1845, the mouth of the Irwin River and a townsite at Dongara (then Dhungarra) were surveyed in 1852. A site near Leander Point named Port Irwin and later Port Denison, was surveyed and named in 1866. Ben Mason began building a jetty in 1867 whose alignment was changed by J. Manning to reduce the difficulties in driving piles.

This jetty was lengthened in 1870, repaired by W.S. Moore in 1874 after being damaged by the schooner *Amy* of 32 tons, and extended by J.J. Grant in 1887. A jetty light and a light 150m from the beach were established in 1887, and the port was proclaimed in 1890. T.R. Risely built a goods shed in 1894 and extended the jetty further in 1901. Moullen described this jetty as being 409 feet long and 15 feet wide with a tee-head 202 feet long and 25'-6" wide in 18 feet (5.4m) at high water. Tenders were called for trucking on the jetty in 1881 and in 1887.

The SS *Julia Percy* of 580/355 tons, while on one of her regular trips between Fremantle and Geraldton, was wrecked against the jetty in 1905 but was salvaged. The wooden structure which supported the light was replaced with a one of braced steel and a heavy mooring buoy was established in 1907 when the harbour master recorded 177 vessels called. In 1908, 161 vessels called and none in the following year.

Fremantle Harbour Trust recorded cargo shipped to Dongara in the six months ending December 1903 as 136 tons, which included 124 tons of mixed goods and three tons of beer & spirits. Until the end of 1906, cargo shipped to Dongara was included with that to Geraldton.

The port was described in 1922 and in 1948 as having a jetty 1260 feet long into a depth of 14 feet about 0.3 miles north-east of Leander Point. It was unsafe for traffic and not to be used by vessels by that time. The anchorage was unprotected from off-shore winds and was unsafe as the shallow depth of sand over rock made a poor holding ground. Two beacons about 0.7 miles apart led on a bearing of 087° up the fairway of the main passage in 1922 and in 1948. Control of the jetty passed to the Irwin Roads Board in 1934 and it was later demolished.

A fishing boat harbour enclosed by two breakwaters was built in 1977-79, and a heavy duty service jetty, floating dinghy-pens and a slipway in 1980 at the northern end of this. The rear obelisk/beacon was demolished about 1980, though its foundations still existed in 1994.

A small well-preserved section of the base of the jetty remains on the shore and it has been previously nominated as a structure of historic significance.

GERALDTON

After being visited by Lt. George Grey in 1839, European settlers began arriving in the area, then known as Champion Bay. Captain Mason delivered mail to the Postmaster in 1842, the town was established in 1850, and large pastoral leases were granted near Greenough in 1851. The first town lots were sold in 1853, and the office of Resident Magistrate was established in 1854.

Lead ore was discovered at the Geraldine Mine on the Murchison River in 1850, and was exported initially through Port Gregory and often transferred to ocean going vessels at Geraldton. The Warribanno Smelter began smelting in 1853 and 53 tons of pig lead were exported in that year.

Geraldton was declared a port within Champion Bay (in the area between Point Moore and the Chapman River) in 1855. The auxiliary steam schooner *Les Trois Amis* of 42 tons made several visits in 1857, and approval to commence the first jetty, built opposite Gregory Street, was granted in 1864. Ships which loaded ore from the Northampton Mineral Field included the barque *Palestine* of 426 tons in 1863, 1866 and 1867, the full-rigged ship *Hastings* of 541 tons in 1863 and 1866, the barque *Robert Morrison* of 522 tons in 1864 and 1867, the ship *Daylight* of 629 tons in 1865, and the barque *Fitzroy* of 573 tons in 1866 and 1867. In 1865, H.J. Cutting and R. Cousins extended the jetty to a design by J. Manning to a length of 300 feet. Projecting into 9'6" of water, it had a 61 feet by 49 feet, berthing head. It was connected to the railway in 1869. The schooner *Twinkling Star* of 59 tons began regular voyages in 1868, and Scott and Gale lifted, repaired and replaced buoys in the bay in 1871. J. Nunan extended the jetty in 1872, R. Creswick further in 1875 to carry railway traffic for the construction of the railway to Northampton, and H.E. Victor again in 1883. The jetty was handed over to local authorities following submissions to that effect in 1897 and a rotunda for functions and recitals was built. This was removed immediately after WWII.

The SS *Xantho* called in 1872, followed by the SS *Georgette* which began a regular service to Fremantle in 1873. The telegraph arrived from Newcastle in 1874.

After the loss of *Georgette* south of Cape Naturaliste in 1876, it was replaced by the SS *Rob Roy* of 309/200 tons in 1878. The Bluff Leading Lights on a bearing of 074° were commissioned in 1876, with the forward light on an octagonal tower and the rear 900 feet away on a square tower, and Point Moore Lighthouse after being erected twice, was commissioned in 1878. The SS *Rob Roy* made regular trips from Albany up the coast to Cossack and the SS *Otway* of 563/352 tons made similar trips from Geraldton via Bunbury and Busselton to Albany and then to Melbourne with mails in 1880. The SS *Ferret* of 347/211 tons took over the shipping service to Albany in 1884. Geraldton was connected by railway to Northampton in 1879. The SS *Australind* of 1018/554 tons began calling on her trips between Fremantle and Singapore in 1887, and the railway was extended southwards to Walkaway in 1887. Following the proclamation of the Murchison Goldfield in 1890, the railway was built to Mullewa in 1894 and extended to Cue in 1898. Gold declared for export in 1895 included 6135 ounces (oz.) in May, 6518 oz. in July, 6281 oz. in August, 5822 oz. in September, and 10,950 oz. in October. After a report by Sir John Coode in 1887 and the construction of the railway to Greenough in 1888, dredging of the harbour began in 1889. Following the proclamation of the Murchison Goldfield in 1890, the North Jetty at Durlacher Street was commenced by S. Smith in 1893 and extended in 1895. This structure is variously known as The Railway Jetty, The Durlacher Street Jetty, the New Jetty, the North Jetty and the Long Jetty. Moullen described this jetty in 1893, as being 25 feet wide for 303 feet, 33 feet wide for 300 feet, and 47.5 feet wide for 312 feet; a total length of 915 feet. The SS *Cintra* of 1979/1175 tons, the *Waroonga* of 2513/1609 tons and the *Sultan* of 2063/1270 tons berthed at this jetty in 1896, and the barque *Mayhill* with railway iron from England was wrecked on Point Moore. Atkins & Law extended the jetty by 398 feet to 1800 feet to provide two berths in 20-22 feet at low water in 1902-4.

In 1914 a scheme was adopted for harbour improvements that in its revised form included building an island breakwater using granite from White Peak transported on a specially -built timber railway access viaduct 4200 feet long. This was completed in 1917.

In the year 1921-22, 113 vessels with an aggregate tonnage of 78,690 tons called, and wheat was the chief export. Mail steamers of the West Australian Steam Navigation Company called fortnightly on the route between Fremantle and Singapore, and there was a regular service by ships of the Melbourne Steamship Company and the State Steamship Service. The North Jetty was 2250 feet long with 200 feet of berths on either side in 1922, and the old South (Town) Jetty was used only as a promenade.

Work on the breakwater was resumed in 1923, and 2200 feet of it was completed in 1925, with extensions at the western end of 145 feet in 1926 and of 800 feet in 1928. Three new berths were opened in 1930, 1931 and 1933, and were re-conditioned in 1960.

The harbour was described in 1948 as a wharf on the southern side of the harbour of concrete, with three berths usually available and a travelling crane with a capacity of 10 tons and a boat landing stage with 12 feet of water. The Railway Jetty which extended north-westward from a point on shore north-east of the eastern end of Geraldton Wharf, became redundant after the wharves were completed in the 1930s. Being dilapidated and no longer in use it was demolished in WWII. Circa 1300 feet east of this jetty was the Condenser Jetty, a structure which carried a 6" pipe about 50 metres from shore to obtain cooling water for a condenser situated in the railway yards. This supplied water for the steam engines, but also supplied townsfolk at 3/6d per 100 gallons around the turn of the century. Its remains have not been found. A small jetty existed on the southern side of the harbour about 300 metres westward of the western end of Geraldton Wharf, which may have been a flying boat jetty which was built and used in WW2. The dredged channel 300 feet wide with 30 feet of water in 1947, led into the dredged basin and the inner harbour passing through a gap 600 feet wide between the western end of the island breakwater and the eastern end of the western breakwater which curved northwards at its head.

A slipway was built in 1945, a fishing boat harbour with two wharves and two sets of pens in 1955, and groynes were built at Fitzgerald Street and at Point Moore in 1965. The harbour was described in 1965 as having three adjacent land-backed wharves with a total length of 1644 feet and a fourth land-backed wharf 594 feet long, all with a minimum depth of 30ft. The fishing boat harbour was at the western end of the main harbour. The imports were phosphate rock, agricultural fertilisers and refined petroleum, and the exports were wheat, flour, sheep wool, crayfish tails and general cargo.

A launching ramp was built in 1972, and J.D. Clough built an additional berth to a design by G.B. Hill & Partners in 1977-8.

When visited in July 1994, the project manager and Mr Peter Worsley of Geraldton, found that nothing remains of the 1864 Town Jetty (also known as the Old Jetty, Gregory Street Jetty, Esplanade Jetty and Promenade Jetty). With the exception of the base of five piles, barely visible in the rock wall at the foot of Durlacher street, little of that structure remains today, though piles are visible above the seabed further out to sea. A nomination has not been made on that basis.

PORT GREGORY

Probably visited by Lt. George Grey while walking southwards from Shark Bay in 1839 and by A.C. Gregory in 1848, Port Gregory developed as port for the Geraldine Mine after its discovery in 1849. It opened in 1850 to load five tons of lead ore. A convict depot was established at Lynton in 1851-2 to supply labour to the mines and to the pastoralists. Bay whaling commenced in 1853. In the same year the brig *Leander* of 173 tons which had traded regularly on the coast between Fremantle and Surabaya from 1851 onwards, visited the port to deliver mooring tackle, and 55 tons of lead ingots were exported from the Warribanno Smelter. The townsites of Pakington at Port Gregory and Lynton on the Hutt River, were gazetted in 1854.

Though there are some records, much of what is known of this port emanates from registers of wrecks and casualties and in descriptions of attempts to make the port more amenable. In 1855, the schooner *Preston* of 19 tons visited the port also to deliver mooring tackle, for example. The barque *Mary Queen of Scots* of 256 tons was wrecked

while entering Port Gregory to load 40 tons of lead ore, and the 311 ton whaling ship *Iris* from New Bedford was beached but subsequently refloated. The schooner *Sarah* of 54 tons was wrecked while leaving the port with a cargo of whale oil and copper ore in 1856, and the iron-hulled schooner *Les Trois Amis* of 42 tons called several times in 1857.

Two probationer convicts lost their lives on a reef while escaping from the Lynton Depot in 1862. The barque *Zephyr* of 409 tons went ashore at Port Gregory in 1864 while carrying machinery to the Geraldine Mine but was subsequently refloated, and the schooner *Favourite* of 46 tons was wrecked while leaving harbour in 1867 after trading along the coast. The SS *Xantho* of 66 tons on journey southwards from Singapore, was wrecked in 1872, while returning to the port from which it had loaded lead ore.

A small jetty was built to assist in unloading in the 1860s, and following damage when three steam tractors were unloaded for the Geraldine Mine, resulting in one falling into the sea and being abandoned; an iron jetty was then built.

Mr LeSouef of the Hutt Lagoon Salt Company, applied for permission to build a jetty in 1914. The Port Gregory Salt Company which was formed in 1919 after LeSouef ceased harvesting, applied for permission to build a tee-head on this jetty, which was connected to the salt works by a tramline. The works closed in the late 1920s, and the site of Pakington, now Port Gregory, was abandoned in the late 1930s.

Salt received in Fremantle from Geraldton, which could well have come from Hutt Lagoon through Port Gregory, varied from two tons in 1907 through to a peak of 906 tons tapering off to 318 tons in 1923 after which the industry ceased.

The port was described in 1922 as a safe harbour for vessels of less than 12 feet (3.7m) draft, and was principally frequented by small vessels carrying salt to Champion Bay for transshipment. At the jetty (not charted) about 0.7 miles (1 km) south-east of Hillock Point, the depth was not more than 12 feet (3.7m) and decreased to 6 feet (1.8m) in the south-eastern part of the port. The best entrance to the port was Hero Passage, with Leander and Gold Digger passages as narrower and shallower alternatives. Because of confined space vessels could not swing at a single anchor, and moor with one anchor on the shoal beach within the main ledge and another on the beach. Neither the jetty nor the traffic in salt were described in 1948, when comments were made that the sea washed over a low sandy beach into Hutt Lagoon between Hillock Point and Shoal Point.

The salt works jetty was reopened when fishing began after World War II. Several blocks were leased in the township in 1953 and two substantial huts were built in 1954.

The existing jetty was built in 1979-80.¹

Henry Sandford began whaling at Port Gregory in 1854, and obtained sixteen casks of oil. Sandford, Harwood and Bateman all had whaling interests in the area in 1856, and produced black oil valued at £1600 and 1.27 tons of bone. In 1858 the try works and much valuable gear was destroyed in a fire, but Bateman continued, and shipped 20 tons of whale oil from Port Gregory in 1864. The whaling facility has been located in the sand hills north of the existing jetty by the Maritime Museum and in a number of whaling studies (McIlroy, 1987, Gibbs, 1994)².

Another whaling station is reputed to lie in the sandhills north of Sanford's facility. The Museum's searches, which were conducted during the 1985 excavation of Charles Broadhurst's steamship, the SS *Xantho*, which foundered at Port Gregory in 1872, showed that only Sanford's whaling station remains are visible today.

¹McDonald, G. K., nd, "*The little boat harbour*": *History of Port Gregory*, unpublished typescript, Port Gregory.

²a) McIlroy, J., 1987, *Nineteenth Century Bay whaling stations in Western Australia*, A report to The National Trust of Western Australia, Perth.

b) Gibbs, M., 1994, *An archaeological, conservation and management study of 19th. century shore-based whaling stations in Western Australia*. A report to The National Trust of Western Australia, Perth.

The North-west

GLADSTONE: 25° 57'S., 114° 15'E
 DENHAM: 25° 56'S., 113° 32'E
 CARNARVON: 24° 53'S., 113° 40'E
 MAUD LANDING: 23° 07'S., 113° 47'E
 POINT CLOATES: 22° 44'S., 113° 40'E
 EXMOUTH GULF: 22° S., 114° 20'E
 OLD ONSLOW: 21° 41'S., 114° 58'E
 NEW ONSLOW: 21° 38'S., 115° 07' E
 FORTESCUE LANDING: 21° S., 116° 05'E

New Nominations

Gladstone (Jetty)
 Maud Landing (jetty)
 Old Onslow (jetty)
 New Onslow (jetty)

Existing nominations

The Fascine (AHC 18815)
 Railway Museum (AHC 17038)
 Carnarvon Jetty (HCWA 0467)

Historical Background

SHARK BAY

Following landings by Dirk Hartog on the island now bearing his name in 1616 and by William De Vlamingh in 1697, William Dampier visited the Bay in 1699. Nicholas Baudin and Captain Hamelin made extensive charts of the area in 1800. Lt. Helpman RN. conducted explorations in the early 1850s after which Shark Bay was recognised as a potential source of pearl shell, guano and sandalwood. Guano and sandalwood in some quantity were collected resulting in the establishment of a military camp with rock groynes at Quoin Bluff on Dirk Hartog Island. In 1873-4, the Bay came into prominence with the establishment of the pearling industry at Wilyah Miah near Useless Loop. Facilities were established there following a gold-rush like period. The leading pearl-ers were Charles Broadhurst and Captain Francis Cadell (McCarthy, 1990).¹

The cutter *Mystery* of 16 tons sailed for Shark Bay to collect guano in 1861 and the schooner *Macquarie* of 125 tons arrived in Shark Bay from Colombo with general cargo and left for Champion Bay with guano in 1878, and the SS *Otway* began calling with mails in 1884. Again details of shipping movements are sparse, requiring the registers of wrecks and casualties to be utilised to help provide an indicator of shipping movements. The crew of the wrecked brigantine *Occator* landed on Dirk Hartog Island in 1856 and were picked up by the schooner *Favourite* of 44 tons which was collecting guano from Bird Island, for example. Another instance is the cutter *Olive* of 43 tons which drifted on to Dorre Island and was lost in 1916. The Norwegian barque *Gudrun* was deliberately

¹McCarthy, M., 1990, *Charles Edward Broadhurst, 1826-1905, A remarkable 19th century failure*, M. Phil Thesis, Murdoch University.

run ashore on the Peron Flats after an attempt was made to sink it off Fremantle. It is believed to have become the source of a considerable amount of shipbuilding and house timber in later years.

DENHAM.

Pearling facilities were established at Freshwater Camp (Denham) in the late 19th century. The Bay, itself was surveyed in 1882, the SS *Australind* began calling on a trip from Fremantle to Singapore in 1887. Ordinary lanterns were established on a wooden platforms 12 feet high at Lagoon Point in 1898 and at Denham in 1900, to keep small craft clear of the shallow water to the southward. Small jetties were built at the foot of the town to service small boats and at the foot of the nearby Peron Station to off-load wool direct from the shearing shed. None of these remain today.

During WW I, shell was stockpiled and when he arrived, in 1919, the noted diarist and future Denham resident, Mr Mick Fry, described Denham as 'just a small village' with a police station, post office, hall, school, library and hotel. (Fry, 1989:4).¹ Fry's father had a large pearling lease near Wilyah Miah, the other major settlement in the Bay. Later they turned their attention to fishing. There was a black cask buoy in a depth of four fathoms about two miles west of Lagoon Point (north of Denham) where the Blue Funnel Line and State Ships would anchor and send in or receive small vessels or lighters. Most loading was done on the backs of local people, direct into the lighters which were pulled up onto the shore.

According to Fry, a narrow private jetty with a light rail was built in 1957. This extended to the edge of the bank to allow fish to be off-loaded. A slipway was established at the shore end. As an indication of the need for the facility, Fry recounts there were 27 licenced fishing boats in operation and that he unloaded 94000 lbs (c 42,000 kg) of whiting and 27000 lbs (c. 12000 kg) of mullet, taylor and bream in 1964. Launching ramps were established in 1969. The Shark Bay Salt Company began building a salt works, jetty and causeway at Useless Loop on the western side of Freycinet Reach in 1963 and after overcoming difficulties from rain and cyclones, shipped their first salt in 1967 aboard the *Nichizui Maru*.

WILYAH MIAH

Other pearling camps at Wilyah Miah, on Peron Peninsula at Cape Leseur and at Peron Point flourished up to the end of the industry in the 1920s. Apart from Denham, only the remains at Wilyah Miah constitute what could be considered a modification to the shoreline in order to facilitate the movement of people and goods. The latter was apparently the structure built in 1874 by Mr Smith, the manager for Charles Broadhurst. Today it is barely discernible as a loose conglomeration of rocks at the base of the remains of a fish/shell processing factory, though there are substantial remains within the former townsite of Wilyah Miah itself. Wilyah Miah has recently been the subject of a number of preliminary studies, both archaeological (McGann, in prep) and historical (McCarthy, 1990) and these and their antecedents are expected to result in the nomination of the former town as a heritage place.

The heavily disturbed, barely discernible rocks believed to be Broadhurst's 'stone jetty' (actually a land backed facility) are not nominated as a port related structure, though it is strongly recommended that a nomination of Wilyah Miah in its entirety is made as soon as possible.

GLADSTONE.

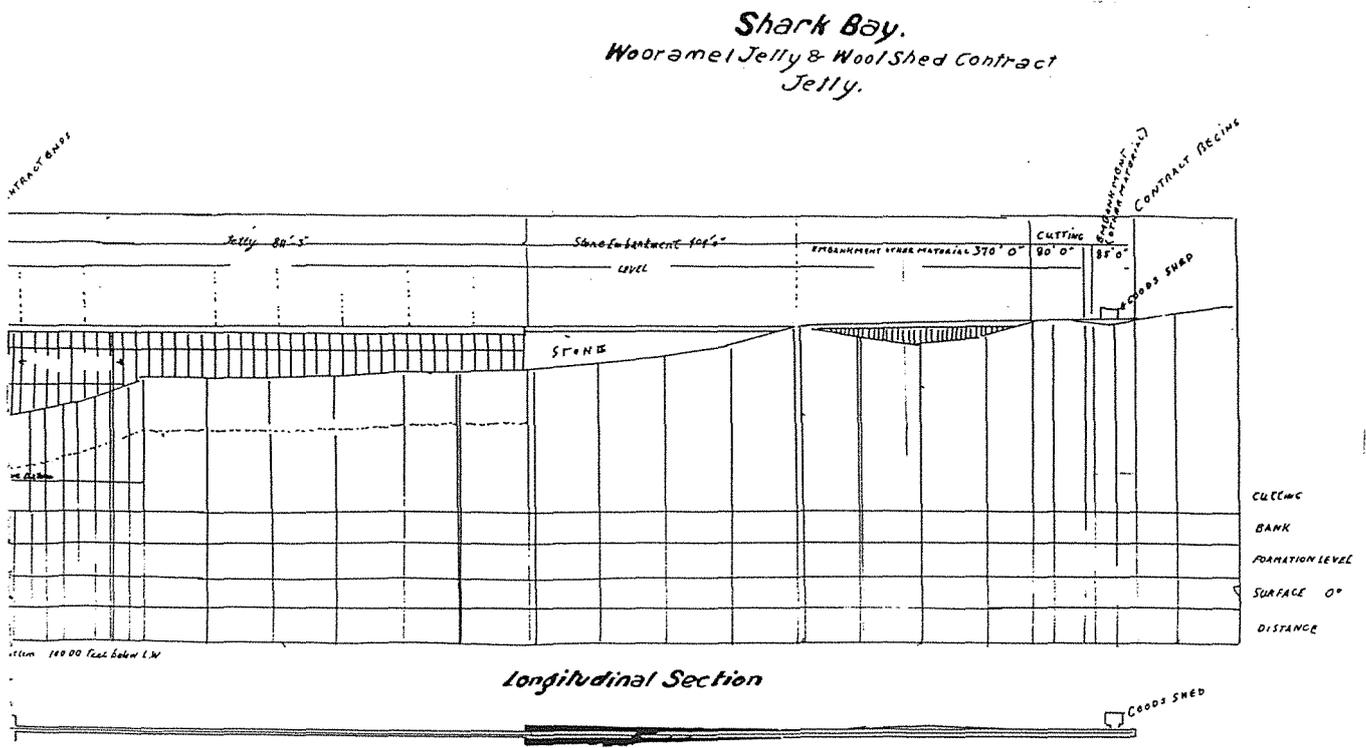
A small port on the eastern side of Shark Bay, to the west of Yaringa Station. It consists of a well-constructed 287 metre long stone causeway which led from a wool-store shed to a small timber jetty built in 1910. The jetty has a 6m wide by 13.7m long end served by a 2.6 by 63m long access to finish in 2 m of water at low tide. A light tramway was

¹Fry, G.W., 1989, *Shark Bay Days*, Hesperian Press, Perth.

used to transport wool to the end of the jetty and waiting lighters. The jetty was not reported in 1922, but Wurramel Creek to the north was reputed to have a channel suitable for pearling boats and to be a port of export for sandalwood. A settlement, but not a jetty was described at Gladstone in 1948. When visited in 1993, the goods shed had recently been demolished, apparently as a result of fire and the timber jetty had been rendered unusable.

Re-examined in July 1994 by the project manager, the structure was found to represent the best preserved and most substantial of all the wool-lightering jetties and structures on the coast. It has been nominated as a result of this understanding with the note that it is worthy of consideration as a rare and well-preserved example for the National Estate. The plans for its construction appear below.

Figure 11
 Contemporary plans of the Gladstone Jetty¹



¹Supplied by Mrs C. A. Miller of the Gascoyne Historical Society. (see appendix 2)

CARNARVON

After being visited by F. Gregory in 1857 and being surveyed by Capt. Denham in the *Herald* in 1858, Carnarvon was a base for pearling in the 1870s. The SS *Rob Roy* of 309/200 tons began calling in 1878 and was joined by the SS *Otway* of 563/362 tons in 1880, and the township was surveyed on the southern bank of the south entrance of the Gascoyne River in 1881. The SS *Natal* of 743/458 tons called regularly between 1883 and 1887. Following the proclamation of the township in 1886, the first jetty was built south-west of the town, in the south entrance in 1886-7. This was in time for the SS *Australind* of 1018/554 tons to call and for the regular service of the SS *Flinders* of 528/278 tons and *Otway* of 563/352 tons between Fremantle and Wyndham in 1887.

A quarantine station was built on Babbage Island, the Gascoyne Roads Board was established, and boat licences were issued for the port in 1888. Baillie, Davies & Wishart completed a second jetty for lighters at Mangrove Point south-west of the town in 1889 which gave better access to the deep water in Yule Creek. R.O. Law carried out protection works on the bank of the Gascoyne River in 1890, and repaired the tramway in 1891, the year in which H. Campbell repaired the jetty. Carnarvon became a port for the Ashburton Goldfield in 1894. M. Price completed a jetty on Babbage Island, 4340 feet long and 15 feet wide with a head 252 feet long and 30 feet wide with a red fixed ordinary lantern on a 15 feet wooden platform at its outer end in 1899. A 2'-0" gauge railway with 12 lb rail was established to carry goods from this jetty to the town over a bridge 1060 feet long. Lewis & Reid extended the head of this jetty by 310 feet in a south-westerly direction in 1904. The railway was relaid with 35 lb rail and 3'-6" gauge in 1909 for the locomotive Kiora.

The jetty was described in 1928, as being 4900 feet long with berths 560 feet long into 11 feet of water, and in 1948 as 4900 feet long with 320ft of berthage on its northern side and 300 feet on its southern side. There was a boat landing on the northern side, and a single track railway connected to the township. The best anchorage was off the northern entrance to the Gascoyne River with Babbage Island Light bearing 07°, and there was an anchorage in the southern entrance with Mangrove Point bearing 108° and Babbage Island light bearing 016°.

In 1995 the remains of the railway included a 25,000 gallon water tank built in 1925, a locomotive shed built about 1960 at the inner end of the jetty, and two bridges across the tidal section of the river, which were in poor condition and were closed to the public.

Carnarvon was a very significant port, ranking with Bunbury and Busselton at least. In the 12 months to June 1907, 18 steamships aggregating 28,418 tons called from overseas, and 40 steam ships aggregating 55,176 tons and 25 sailing ships aggregating 1043 tons called from other Western Australian ports. In 1911, over 65,900 sheep, 585 bales of wool and 283 tons of other materials were shipped to Fremantle. The bulk of this was shipped on 144 steamship departures and 26 sailing ship departures, aggregating over 249,000 tons and 2529 tons respectively.

Ships which made regular calls in 1924, included the *Gorgon* of 2886/1734 tons and *Centaur* of the Blue Funnel Line, the *Gascoyne* of 3850 g.tons of Bethell Gwyn, and the *Kangaroo* of 4433 g.tons and *Bambra* of 3302 tons of the State Shipping Line.

In 1921, the population of Carnarvon amounted to 950 persons and of the Gascoyne District, to 1870 persons, and 98 vessels with a total tonnage of 99,000 tons entered the port. Mail steamers of the West Australian Steam Navigation Company called fortnightly, and other steam and sailing vessels arrived frequently to load and discharge cargo. There was a good supply of water, but only a small quantity of coal. In 1923, the township was the centre of a large pastoral area, and trade consisted mainly of cattle and sheep, pearl shell, sandalwood and wool.

Cargo shipped from Fremantle to Carnarvon included beer & spirits, cattle, fodder, mixed goods, sheep, timber and wool in bales.

Irrigation, particularly for bananas, began from the Gascoyne River in the 1930s and was extended greatly in the 1950s, and flood control works were carried out on the northern side of the town in 1961.

After the coastal road from the south was established in 1957 and sealed in 1962, the use of the jetty was confined to oil tankers, and coastal shipping was abandoned in favour of

road haulage in 1966. A new jetty was built on Mangrove Point in 1971, and the fishing boat harbour at Pickles Point with slipway and service jetty was built in 1973-5.

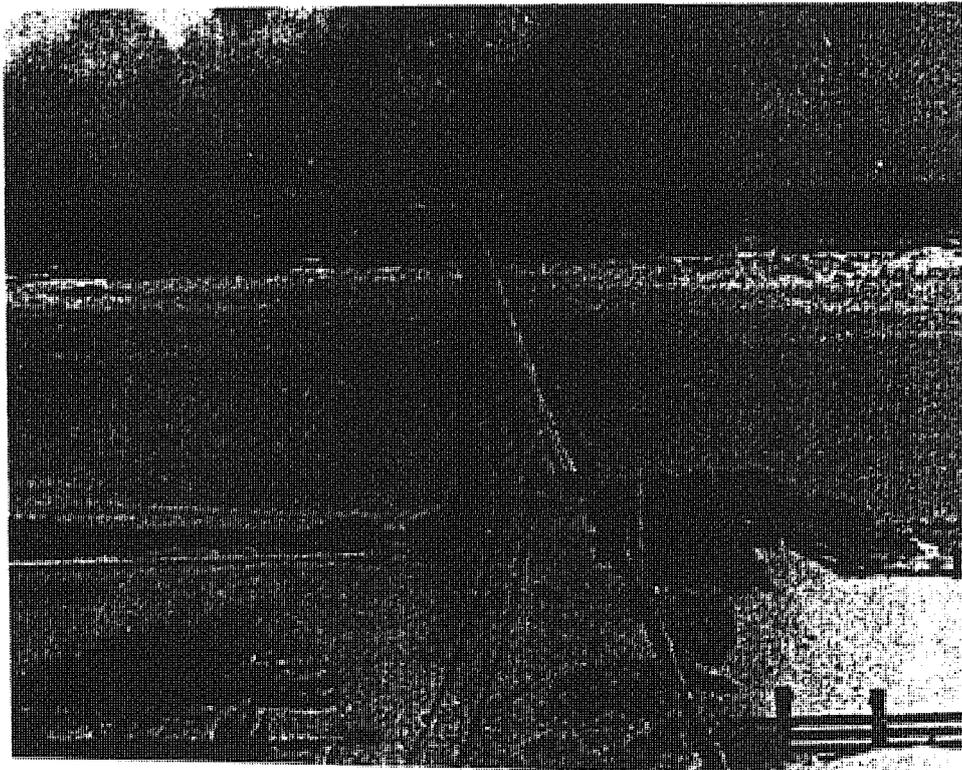
A whaling station was established by the Australian Whaling Commission in the early 1950s, with the whale catchers *Minilya*, *Gascoyne* and the larger *Carnarvon* of 598 tons. With a jetty 230 m long and a quota of whales per year, this became the sole station in this North-west, when Norwegian Bay was abandoned in 1957. It too was abandoned in 1963 and its facilities were subsequently converted to processing fish and lobsters. Little, bar a solitary pile, was visible of the old flensing deck when visited in 1995, though the remains of some machinery could be seen in the scrub outside the station.

A nomination to the National Estate has been lodged by local interests including the Gascoyne Historical Society represented by Mrs C. A. Miller, a contributor to this report. This has been supplemented here by material that encompasses what has been lately termed the Carnarvon Maritime Precinct (Miller, 1995). This report is reproduced in full at appendix (2d)

It is considered that a very strong case has been made by local interests in the Carnarvon instance with respect to a number of the criteria for inclusion on the registers, not just on State and Municipal inventories, but also to the National Estate. These mirror the Busselton instance. The Carnarvon jetty is a substantially intact structure, of technical interest, of significance to a section of society and representative of a tangible and evocative element in the industrial and economic development of North-west Australia. With the Busselton jetty, it is one of the last of its type on this coast. The case put by Carnarvon interests is compelling and is an indication of the jetty's regional and cultural significance. Their submission is strongly supported by this study.

In that context, further *ad hoc* demolition as that noted in the Carnarvon submission and clearly visible when the site was last visited should be halted. It is also considered desirable that the damage done should be rectified.

Figure 12
Carnarvon Jetty with a tanker at the end¹



¹Supplied by Mrs C. A. Miller of the Gascoyne Historical Society. (see appendix 2)

MAUD LANDING

J. & J. Wishart built a jetty 1500 feet long and 12 feet wide, with a head 100 feet long and 20 feet wide into nine feet of water in 1897 about 3 km north of Coral Bay. It was fitted with a 2-0" gauge tramway to a woolshed/store (100' by 30') at a cost of £7989. A wharf crane was erected in 1903-4, and ships known to have called in 1907 included the *SS Penguin* and *SS Una*.

The jetty was leased by G.H.S. Burton between 1911 and 1921, by F. Meager in 1922-3, by J.G. Cooper in 1923, and by C. French & Company of Cardarbia from 1927 onwards. The unsuccessful Maud Landing Shipping & Trading Company worked the jetty between 1924 and 1926 when motor vehicles were being used to move the trucks and the lighter *Nickol Bay* was in attendance.

The anchorage was described in 1923 as being fair for light draft vessels, but with many coral pinnacles and shoals in the southern part. The wool shed at the shore end of the 1200 feet long jetty was described as conspicuous, but Greyling, Dawson, Maud Hill and Anchor beacons were considered unreliable due to possible damage by strong winds. The *SS Kybra* called in 1935 and handled 102 tons of cargo and 140 rams, but normally the Onslow Lightering Service collected cargo for transport up the coast.

The jetty was reduced in length to 175m with an 18m head in 1937, and the goods shed and jetty were removed in 1947. It is claimed that the jetty timbers were reused at the Norwegian Bay Whaling Station at Point Cloates. The bay was used by the Norwegian Bay Whaling Company as a convenient point for transferring whale oil from a local lighter to ocean going tankers in the 1950s.

Now demolished, only a few piles remain visible on the seabed and above water. Despite this the remains are nominated as an historic structure representing the days of wool lightering and the heyday of the sheep station in the north-west.

NINGALOO HOMESTEAD

Mrs Billie Lefroy, owner with her daughter Jane of Ningaloo Station, advised in September 1995 that their shearing shed was once connected to the beach by a light rail. Bales of wool would be wheeled from the shed and loaded aboard a small boat for tranship-ment to the lighter *Nickol Bay*. Mrs Lefroy advised that the Master was often under the influence and she recalled that on one occasion, she and her husband, the late Edgar Lefroy, were advised that the lighter was lucky not to have been lost as the inebriated skipper took the vessel over the reefs to deeper water.

Nothing remains of the rail line, bar a few sleepers, though the shed, which lies only a few metres from the shore is still intact and in regular use. The Lefroys are also the owners of the derelict Point Cloates light tower and quarters.

EXMOUTH GULF

Few records other than reports of wrecks and other casualties were kept for this region in the 19th Century. A perusal of these gives some indication of the extent of the shipping in the Gulf. Much of it in the 1870s revolved around pearling, for which the Bay became noted in that time. In December of 1875, the pearling boats *Dawn*, *Azelia*, *Montiara*, *Dolphin* of 24.8 tons, *Governor Weld* of 18 tons, *Barringara*, and others were caught in a gale in Exmouth Gulf. The ketch *Wild Wave* of 27.8 tons and the schooner *Lily of the Lake* of 25.98 tons were lost.

The bay can be a very difficult anchorage. The schooner *Fairy Queen* of 115 tons for example, was lost on arriving from Singapore in 1875, the lugger *Snuggler* of 8.9 tons built in 1892 and owned by Z.B. Erickson was lost in 1893, and the the pearling schooners *Cutty Sark* of 52 tons, *Hawk* of of 12 tons and *Kate Florence* of 12 tons were lost in the Bay of Rest, and the Schooner *Eclipse* of 23 tons in the Gulf in 1907.

POINT MURAT

A small modern jetty in Exmouth Gulf about two miles south-east of the North-West Cape Lighthouse built to supply the Communication Station.

LEARMONTH ANCHORAGE

Consisting of two small modern piers 3.5 miles north of the airstrip, Learmonth was an advanced base for American submarines during World War II. WAPET also built a small wharf for oil exploration in Rough Range.

OLD ONSLOW - ASHBURTON RIVER¹

Originally a port for pearling and for pastoralists at the entrance to the Ashburton (Curlew) River in the 1860s, the area developed and the steamships *Rob Roy* of 309/200 tons, *Macedon* of 826/532 tons, and *Orway* of 563/362 tons delivered mail and cargo to lighters in 1882. J. Clark then built a riverside wharf about one mile north of the town in 1885. The area was damaged by a cyclone in January 1888, and the schooner *Airlie* of 236 tons caught fire while passing and was lost on the beach in 1889. Following discovery and proclamation of the Ashburton Goldfield in 1890, J. Innes built a new jetty/wharf in 1893 in the river above the bar, which was soon doubled in length to 107 feet to end in 10 feet of water at high tide.

M. Price built a stock jetty 2760 feet long by 5 feet wide with a Tee-head 120 feet by 30 feet outside the mouth of the river in 1896 which was destroyed by a cyclone in 1897. Atkins & Law built another jetty slightly further east in 1899 which was suitable for lighters and was joined to the township by a tramway four miles long. A red fixed ordinary lantern was placed on the jetty and a leading light on a steel tripod in 1901, and the jetty was equipped with a jetty light on a wooden platform in 1904 and provided with a leading light on a steel tripod in 1914.

The pearling industry was active to around 1917 when the annual licences issued dropped from the high twenties at the turn of the century to zero or as little as three during the 1914-18 war.

In 1912, the port was described as an open roadstead used by about twenty pearling vessels, and the port for the pastoral district and for the Ashburton Goldfield, at which vessels unloaded into lighters. Its principal exports were wool, lead, copper, pearl shell and kangaroo skins, and it was a regular port of call for ships proceeding from Fremantle to Broome, Derby and Wyndham. The population of the town and district which included extensive pastoral holdings and the Ashburton Goldfield, was about 400 in 1921, the year in which 89 vessels with a total tonnage of 88,790 tons visited.

The pier was described in 1922 as 1120 feet long with a two-ton crane and a light on its outer end, 1.5 miles eastward of the entrance of the river and three miles from the town. It was connected to Onslow by a light tramway, and was used for shipping stock and landing general cargo. Ships anchored at least half-a-mile off the bar in 4-5 fathoms of water, and the rear leading light stood on a sand hill bearing 138 degrees from the jetty. Onslow was described as a small township on the eastern bank of the Ashburton River three miles from the entrance, with hospital, post and telegraph office, police station and bond store. Onslow was the point of entry for men and supplies for the Ashburton Goldfield which was proclaimed in 1889, but the gold was mostly alluvial and the mining phase was short. However silver-lead ores was discovered at Uraroo, and have been worked intermittently since.

NEW ONSLOW- BEADON POINT

Following silting of the Ashburton River and difficulty with jetties east of the mouth of this river, a reinforced concrete jetty 2162 ft long with a Tee-head 300 ft long was built at Beadon Point in 1923. The township of (Old) Onslow was moved in the next two years, and two leading lights were established at heights of 33 and 36 ft in 1925. This jetty was

¹Historical archaeologist, Ms Gaye Nayton reported on these structures in 1991. She kindly made her work available to Mr Cumming and assisted him with his analyses.

described as 2628 ft long with 347 ft of berthage on each side with 22 ft of water at low tide in 1928. After serious damage by a cyclone in 1934, the outer end was rebuilt in timber to give a total length of 2993 feet in 1935.

The port was used for supplying fuel to naval and other ships during WW2, and the township and port were the headquarters for the nuclear bomb tests in the Monte Bello Islands in 1952-56.

The jetty was damaged by a cyclone in 1953 after which 240 piles had to be replaced, and by another cyclone in 1958 which damaged 73 piles, the foreshore and the abutment of the jetty. Three cyclones early in 1961 carried away the outer 975 ft of the jetty and it was then decided to abandon the structure. In 1966 its function was taken over by an 88 ft long steel lighter *Ashburton*. This vessel worked to a land-backed wharf in Beadon Creek to which a permanent navigable channel was dredged with an entrance protected by a 2000 ft stone groyne. The port was closed in the early 1970s and the jetty over which asbestos from Wittenoom Gorge had been exported between 1943 and 1966, was demolished. In 1981 the leading lights were on lattice metal towers 12m and 18m high.

The wharf, and a tramway bridge at Old Onslow, and a jetty ruin at New Onslow, (Beadon Point) have been nominated as historic structures.

FORTESCUE LANDING.

An anchorage at the mouth of the Fortescue River on the mainland between Onslow and Dampier near Mardie Station (established in 1866) was fairly sheltered from westerly winds and was visited by the pearling schooners *Minnie* of 38 tons in 1872 and the *Nautilus* of 48.5 tons in 1875. Wrecks in the area again give an indication of shipping movements. These include the topsail schooner *Rosette* of 67 tons in 1879, and the schooner *Ethel* of 14 tons west of the river entrance in 1881. The schooner *Florence* of 24 tons capsized in the same year but was salvaged, and the SS *Orway* began calling with mails in 1885, the year in which a telegraph station was established on the line between Perth and Broome.

A small jetty or wharf was built for £475 in 1894 and was extended to 70 feet long by 23 feet wide in 1896. Tenders for leasing this were called in 1898. The schooner *Harriet Constance* of 52 tons owned by Denny Brothers & Lynn left Fortescue for Cossack in 1907 and was lost at sea.

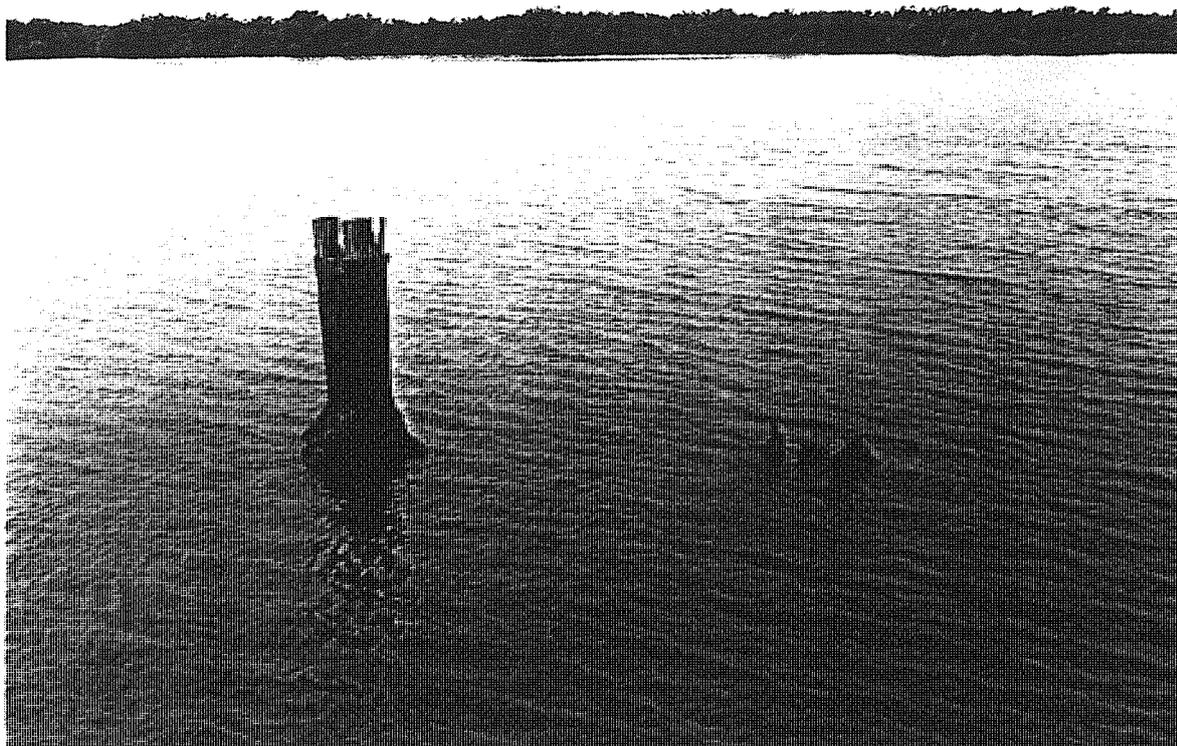
In 1922, the Fortescue River at the southern end of Fortescue Road and about twelve miles west of Cape Preston, was navigable at high water for vessels of light draught to about one mile above the entrance. Landings could be made on the western side of the river about 0.5 miles above the entrance. The bar had one foot of water over it at low tide. Sheep could be obtained from stations on the Fortescue, and water from Tom Bull Pool about five miles up the river. The usual anchorage in Fortescue Road was in 3.5 fathoms with the summit of Fortescue Island bearing 281° and distant four miles, and the mouth of the river on 185°

The schooner *Geraldton* of 62 tons grounded in the channel and lost cargo in 1922, and the jetty continued in use mainly by private lease until about 1927 when it was abandoned.

Cargo recorded by the Fremantle Harbour Trust as shipped from Fremantle to Fortescue and Condon included agricultural Produce, fodder, mixed goods and timber.

When visited in 1994, a row of iron bolts was identified in the cliff and four piles were located below the water at half-tide. A timber ramp with iron rails for use as a slipway was observed about 40m downstream, and the road from the structure was quite clear.

Figure 13a & b
Fortescue Landing¹



¹Photographs : Dennis Cumming, 1994

The Pilbara

DAMPIER: 20° 38'S., 116° 43' E
 COSSACK: 20° 39'S., 117° 12'E
 POINT SAMSON: 20° 38'S., 117° 12'E
 BALLA BALLA: 20° 40'S., 117° 46'E
 PORT HEDLAND: 20° 18'S., 118° 37'E
 BOODARRIE LANDING: 20° 20'S., 118° 25'E
 CONDON (Shellborough): 20° 00'S., 119° 15'E

New nominations

Condon (Jetty)

Existing nominations

Cossack (Wharf)

Historical Background

DAMPIER, Hampton Harbour

Dampier, originally known as Hampton Harbour, lies in Nickol Bay and was the site of a pearling port in 1875. It was described in 1923 as a well sheltered anchorage for small vessels in 3.5 to 4.5 fathom often used by pearling vessels during the cyclone season. It was described in very similar terms in 1948. Hearson Cove where F.T. Gregory and his party landed from the *Dolphin* in 1861, and Cleaverville (Port Robinson) were similar shelters. After whaling by Americans early in the nineteenth century, Pearse and Marmion began whaling off Rosemary Island in 1870, and J. Bateman began on Malus Island in 1872. His schooner *Star* of 70 tons returned to Fremantle with 147 casks of oil in 1877.

After considerable development, Hamersley Iron Pty Ltd. began exporting bulk iron ore from Mount Tom Price over a newly built jetty in 1966, and began pelletising in 1968. Production and export of salt began in 1969, and the port became a base for oil exploration in 1971-2. SECWA agreed to build a gas line southwards from Dampier in 1975, and export of LNG began in 1989.

COSSACK

After being visited by Gregory on his journey inland from Nickol Bay to explore the hinterland in 1861, the barque *Tien Tsin* with J.T. Jarman as master, called in during 1863 at or near Butchers Creek. Its purpose was to land a party who were to establish a settlement on behalf of Walter Padbury at the De Grey River. Nairn moved the stock eastward to establish this station and exported some wool on the cutter *Mystery* of 16.8 tons in 1864. Robert Sholl the Government Resident moved his headquarters from Camden Sound to Roeborne on the River Harding about eight miles south of Cossack in 1865. Other settlers including the Withnell family, the Denison Plains Association led by C.E. Broadhurst, the Portland West Australian Squatting Company and the McRae Brothers. Most of these pastoralists followed the lead of W. Tays of the Denison Plains Company and took up pearling in Nickol Bay.¹

Nickol Bay proved one of the few areas in which the Europeans were successful in establishing themselves in these early years. The schooner *New Perseverance* of 105

¹ McCarthy, 1990, op. cit.

tons, carried the remnants of the failed Roebuck Bay Pastoral Company to Nickol Bay for example. It was wrecked on the beach near Butchers Inlet and was used as an office by the police, then to store pearl shell and later as an infamous pub.

Roebourne was surveyed and subdivided in 1866. The *Mary Ann* of 33 tons, *Mystery* of 16.8 tons and *Morning Star* were engaged in fishing for pearl shell in 1867. Harper and Grant built the first jetty early in 1869, and the cutters *Pilot* of 7.5 tons and *Mystery* and the pearling boats *Crest of the Wave* and *Bonnie Dundee* but not the schooner *Mary Ann* were beached in Butchers Inlet by a cyclone in 1870. Most cargo was loaded or unloaded at the Upper Landing about 5 miles from Roebourne, and about twelve pearling boats lay in the creek in the off-season between April and September.

The *Governor* visited the area in HMS *Cossack* and this led to a name change and Cossack was gazetted a port in 1872, the year in which the cutter *Rover* of 14 tons was built. In the same year the SS *Xantho* bought in a navigational beacon for use in the area. Tenders were called for the supply of timber for a jetty north of Cossack in 1871, a necessity for about thirty boats were engaged in pearling. J. Nunan built large buildings at Cossack and Roebourne and J. Clark a jetty at Cossack in 1875. A road was built, a quarantine officer was stationed in the area, and copper ore was discovered at Whim Creek further east. The barque *Marianno* of 589 tons grounded off Jarman Island and was lost in 1877, and the SS *Rob Roy* of 309/200 tons began calling regularly in 1880 and was stranded in Butchers Inlet in 1882 but was salvaged.

A (timber?) pile lighthouse 24 feet high was built on Readers Head in 1881 (and destroyed by fire in 1884), the SS *Orway* of 700/565 tons began calling in 1882 and E. Martin extended the jetty and wharf at Cossack in 1884. Exports of pearl shell and pearls were valued at £52,150 in 1882 and peaked at £214,700 in 1889-1890. The SS *Australind* of 1018/554 tons began calling on her trips between Fremantle and Singapore and the SS *Flinders* of 521/278 tons on trips between Fremantle and Wyndham in 1886.

A new lighthouse was built on Jarman Island in 1888 under the supervision of W.L. Owen and a 2'-0" gauge tramway was opened to Roebourne 8.5 miles (13 km) away in the same year. It carried 7555 passengers in the first year and was running two trips daily by 1891. Nelson & Martinson built a wharf 262 feet long and a goods shed and rerouted the tramway south of the township in 1891-2 and the wharf was seriously damaged by a cyclone in 1894. Exports of wool cleared through customs included 1351,000 lb in 1893 and 1795,000 lb in 1894, 1888,000 lb in 1895 and 2794 lb in 1896, while gold from the Pilbara Goldfield declared for export in 1895 included 2000 oz in April, 2720 oz in May and 2269 oz in July of that year. An explosives magazine was built north of the township in 1896 or 1897 and the wharf was damaged in the same year. The SS *Beagle* of 121 tons was beached and the *Maggie Golan* of 58 tons was wrecked at the wharf in 1898.

Pearling licences issued from the port indicated that it remained a strong centre up to and including World War I, though a decline to 13 from a peak of 38 in previous years was noted during that conflict.

Cossack was described in 1922 as being a small town within Reader Head on the western side of Butchers Inlet. Mail steamers of the West Australian Steam Navigation Company called about fortnightly on the run between Fremantle and Singapore. Vessels generally lay aground on a rocky bottom on the western bank above the jetty at Cossack and a small narrow pool about half mile above the jetty in which vessels could float while moored to the eastern bank, was used for loading horses and cattle. Roebourne about eight miles away, was the chief town of the district, whose products included gold, silver, copper, tin and lead. There were large sheep farms in the area, whose population excluding aboriginal persons numbered about 600 persons. The wharf was described in 1929 as 262 feet long with a berthage of the same length which dried by three feet at low tide.

Ships which called regularly in 1923, included the SS *Gorgon* of 2885 n.tons and SS *Centaur* of 3066 tons of the Blue Funnel Line, the SS *Gascoyne* of 3580 tons of Bethell Gwyn, and the MV *Kangaroo* of 4333 tons and SS *Bambra* of 3302 tons owned by the State Shipping Line. They either moored eastward of Jarman Island or at Point Samson jetty. It was damaged by fire in 1925 and by a cyclone in 1929, and rebuilt to a length of 2267 feet into 22 feet at low water in 1936-38. In this period, goods were taken to the

wharf at Cossack by lighters and thence by road, for the tramway southwards had been taken up by 1932.

The wharf was described in 1948 as 250 feet long, drying by 3 feet and falling rapidly into disrepair. Vessels drawing up to 15 feet could enter at high tide. Vessels could moor alongside the bank on the eastern side of a narrow pool about 12 feet deep and 0.5 miles south of the wharf. In 1948, the jetty was used by the two steamers which called each month, and was equipped with two leading lights on a bearing of 250 degrees, one on the jetty end and the other on the hill. Cossack Wharf was then falling rapidly into disrepair.

The State Shipping Service began regular voyages to the north-west with the SS *Kwinana* of 2425 tons and the SS *Western Australia* of 2937 tons in 1912. The SS *Bambra* of 3302 tons and the MV *Kangaroo* of 4348 tons were added in 1915 to allow the *Western Australia* to be sold to the UK in 1916. The SS *Kwinana* (which caught fire south of Carnarvon in 1920, and was moored in Careening Bay near Rockingham, whence it was blown ashore in 1922 and wrecked) was also a caller. The MV *Koolina* of 4227 tons was purchased to replace the SS *Bambra* in 1927, and was joined by the MV *Koolama* of 4068 tons in 1938.

The Cossack Lightering Company acquired the SS *Silver Star* from Albany in 1935 and used it with the *Nickol Bay*, *Rozelle* and *Uribes*, particularly after the Samson Point Jetty had been damaged. Cossack had a resident population of about 35 persons which doubled when the pearling boats were in port between November and March. The *Silver Star* was wrecked after hitting the wharf at Cossack in 1936 and was beached in the creek. The motor ketch *Eva* of 41.5 tons was blown ashore at the entrance to Cossack Creek in 1935 but was not visible in 1978. Several luggers were burnt in the creek in 1942, to prevent their possible use by invading Japanese.

What remains of the port-related facilities of Cossack have previously been nominated as part of the historic precinct generally.

POINT SAMSON

Point Samson, Cape Lambert, Port Walcott.

After Cossack became inadequate as a port in the 1890s and early 1900s, Lewis & Reid built a jetty at Point Samson four miles northwards of Cossack in 1903-4. It was 1816 feet long and 15 feet wide with a jetty head 281 feet long and 30 feet wide. Point Samson Jetty was equipped with a 3'-6" gauge tramway, a steam locomotive and a car barn transferred from Cossack in 1908, cattle yards and a goods shed. The 3-6 gauge tramway was connected to Roebourne in 1912, when the port was described as having an anchorage in which ships of 200 tons could lie alongside a jetty, which was connected by a tramway to Roebourne nine miles away and to Cossack four miles away. Steamships from the North-West ports called about fortnightly while on voyages between Fremantle and Singapore, and the population consisted of about 170 people, around 70 of which were Europeans.

Roebourne about 8 miles away, was the chief town of the district, whose products included gold, silver, copper, tin and lead. There were large sheep farms in the area, whose population excluding aboriginal persons numbered about 600 persons.

Shipments of asbestos from the north-west, mainly from Wittenoorn through Point Samson in the period 1950 to 1964 ranged from 1200 to 15,700 tons, peaking in 1962.

The first mine was in Yampire Gorge. Australian Blue Asbestos Pty. Ltd. began operations at Wittenoorn in 1943, and by 1950 this had become the sole producer. Asbestos was carted from Wittenoorn to Point Samson or Port Walcott as it became known, for loading from the late 1940s until 1966 when the mine closed.

Cargoes carried northwards to Point Samson, included, general, timber, cement, petrol and oils. Outward cargoes carried southwards, included, general goods, asbestos ores, wool and skins.

In the period 1970 to 1972 over 69,000 tons of cargo including 15,768 tons of rail and 39,531 tons of sleepers were landed for the Robe River (Panawonica) Railway.

Cape Lambert Service Jetty for loading iron ore from Panawonica (Robe River) on to 150,000 deadweight carriers, was completed in 1972, and the last stateship MV *Kangaroo* called in 1974. The Point Samson Jetty was closed in 1976.

The planning of improved facilities for the fishing industry began in 1979, and dredging of a new harbour in Johns Creek began in 1980 and was completed in 1982, when provision of water and electrical services began and a groyne was constructed at the entrance. The service jetty, ten mooring pens, roadworks, services and navigational aids were completed by 1985.

BALLA BALLA LANDING

After being used by pearling boats in the 1870s and being recorded as an anchorage south-east of Depuch Island by P. Walcott, the master of the government cutter *Gertrude* in 1878, Balla Balla Landing became a port for exporting sheep, and copper ore particularly from Whim Creek and Mallina. The SS *Eddystone* of 2040/1313 tons was wrecked off Depuch Island in 1894 on its second visit to deliver equipment for the Timbuctoo, Stray Shot, Excelsior and No. 1 SE goldmines near Marble Bar. Davies & Flight built a jetty 275 feet long and 12 feet wide with a tee-head 97 feet long and 20 feet wide in the creek with a 2'-0" gauge tramway to the shore in 1896-7. The causeway across the marsh to the new township was built in 1898, but was damaged by a cyclone soon afterwards, and rebuilt by departmental labour a little later.

Exports of copper ore mainly from Whim Creek and Mallina, amounted to 7018 tons before 1899, 255 tons in 1899, 1605 tons in 1900, and 1162 tons in 1901. Further exports included 3365 tons in 1907, 1486 tons 1908, 7135 tons in 1909 and 8479 tons in 1910. In 1907, the Whim Well Copper Mines Ltd. applied in 1907 to lease 20 acres to form a right-of-way 20 links (2m) wide to build a tramway to their mine, and completed construction of this in 1908. The jetty was leased for £35/year in 1907 and it was also leased in 1913 to the Whim Well Copper Mines Ltd. The mine closed in 1914 and passed into the hands of a receiver who continued operating until 1917.

The jetty was described in 1923 as being 157 feet long with a tee-head in 16 feet of water at high tide, equipped with a tramway and other shipping facilities. In 1921, twelve vessel with an aggregate tonnage of 22,700 tons entered the port, which appears to have been based on Depuch Island. The SS *Bambra* of 3302 tons called in 1922, and the MV *Koolinda* of 4227 tons from 1927 onwards. The jetty was described in 1928 as 234 feet long with berthage of 97 feet in 3 feet of water at low tide. It was abandoned in the early 1940s after mining ceased, and was demolished by a cyclone in 1956.

Copper ore exported before 1902 valued at over £130,000 included 262 tons in 1891, 412 tons in 1892, 50 tons in 1893, none in 1894, 802 tons in 1895, 6 tons in 1896, 64 tons in 1897, 281 tons in 1898, 1405 tons in 1899, 543 tons in 1900, 1058 tons in 1901 and 68 tons in 1902, mainly from mines at Croydon, Egina, and Whim Creek:-

PORT HEDLAND

After the visit by Peter Hedland in the schooner *Mystery* in 1863 and the discovery of a landing in what was then called Mangrove Harbour, the newly named Port Hedland became a landing point for settlers and pearlers and a point of entry for the Pilbara Goldfield in 1887-8. Charles Broadhurst and other pearlers based at Port Hedland in the 1870s 'naked diving' era and the Japanese section in the Poineers Cemetery attests to the area being frequented by users of the 'hard hat'. The lugger *Opal* of 6 tons sank in 1892 for example and some initial construction including a jetty and landings followed in 1897. This was equipped with a 2'-0" gauge railway, and a goods shed of wood and iron on concrete blocks in 1899 or 1900. The tramway was relaid with 45 lb rail in 1902, and a new goods shed 60 feet by 40 feet and a light on a 40 foot tower were built in 1904.

R.O. Law built a jetty for the railway to Marble Bar in 1908 and the port was described in 1908 as having a substantial jetty and that it was a major port for the Pilbara Goldfield (Marble Bar and Nullagine), the Woodgina Tinfield, and for the export of cattle. The 3'-

6" gauge railway to Marble Bar 114 miles long was begun by Smith & Timms in 1909, and was finished by the Government in 1911.

The SS *Minilya* grounded on a sand bank nine miles north of Port Hedland in 1901 and the SS *Australind* and SS *Moonta* both grounded in the harbour, in 1902 and 1908 respectively. The schooner *Alto* of 91 tons was stranded by neap tides between Port Hedland and Boodarie Landing in 1911. Two pearling ship licences were issued in 1909, three in 1910, four in 1909, thirteen in 1912 and one in 1914, with none in the other years between 1906 and 1917.

The SS *Koombana* of 3668/3800 tons (1909-1912) owned by the Adelaide Steamship Company left Port Hedland in 1912 and was lost in a cyclone.

Eighty-nine vessels of an aggregate tonnage of 88,790 tons called in 1921, and the principal exports were cattle and other stock. The port was described in 1923 as being a secure harbour about two miles long with depths of five to eight fathoms and having a jetty at Mangrove Point about 700 feet long into 20 feet of water at which two steamers could berth and discharge into railway trucks. Cattle yards were close by. The bar two miles north of the harbour consisted of rock thinly covered with sand and there was an inner bar with 1.8m of water about 0.7 miles (1km) northward of Hunt Point. Lights were exhibited from Lumsden Beacon on Airy Point and from the tidal signal staff south of the township and Laurentius Point. The jetty was described in 1929 as being 803 feet long with 316 feet of berthage in 20ft of water.

Special arrangements were made for trucks to carry sheep for export to Singapore in 1923, and the jetty and railway carried heavy loads of bombs, fuel and ammunition during World War II.

The jetty was described in 1948 as being 766 feet long with 385 feet of berthage on the south-western side, with a crane of 3 ton capacity, all connected to Marble Bar by railway. Exports consisted of sheep, wool, skins, cattle and ore, and imports of general cargo.

The railway was closed in 1951 and the timber jetty was rebuilt in 1959 to provide a northern berth 336 feet long and a southern berth 298 feet long with minimum depths of 20 feet.

Bulk exports of iron ore from Mount Goldsworthy began over a new land-backed berth in 1966, and exports of salt in 1969. New berths were built at Nelson Point between 1971 and 1974 for loading iron ore from Mount Newman and a second ore-handling facility was opened on Finucane Island for Mount Goldsworthy in 1976.

In the years 1965 to 1975, Stateships carried over 280,000 tons of cargo including 48,000 tons of cement to Port Hedland for the Mount Newman and Goldsworthy mining companies. In the peak year of 1968, the total carried amounted to 32,250 tons of cargo including 8000 tons of cement. The years 1970 to 1974, saw the transport of 19,800 tons of railway sleepers with a peak loading of 8,000 tons in 1971. The MV *Dongara* carried the tug *Sam Rafaele* southward in her hold in 1968, 1000 tons of manganese ore on other trips, and a 47 ton drilling spud 93 feet long as deck cargo in 1970. Later cargoes included 46 ton front end loaders, scrapers and tractors, a 44.8 ton Michigan loader, and various parts of the 685 ton bucket-wheel reclaimer for Mount Newman Mining Company.

The tugs *Strelly* and *Tabba Tabba* began service in 1966 and were acquired by the Adelaide Steamship Company (Hedland Port Services) in 1969, and were joined by the *Yule*, *Turner* and *Talga*.

Boodarie Landing to the west was used by vessels such as the barque *Arabella* and by smaller ships. Little else has been found on its history however and little remains at the site today.

CONDON

Condon Creek, about twelve miles east of the mouth of the De Grey River and Condini were small landing sites, used initially as a pearling camp by W. Hale with F. Cadell as his partner in the *Water Lily* in 1872, and visited by the pearling schooner *Sea Spray* of 31 tons in 1873. Condon or Shellborough was a loading point for wool from the De

Grey and other stations. The barque *Minderoo* of 478 tons owned by Trinder Anderson & Company loaded wool in the 1890s and the barque *Arabella* of 959 tons about 1900. Plans for a jetty were prepared in 1896 but were cancelled, though the bond-store was built in that year. (It was moved to Broome later) and only the foundations remain today. The jetty and a short tramway to the post office, were built in 1898 or 1899. The township then had a population of 200, but this had dwindled to twelve residents by 1905. The cutter *Dolphin* of 24.8 tons was lost off Condon in 1902 and the schooner *Edith* of 67 tons became a total wreck off Condon in 1907, although the cargo was salvaged. The *Pearl* of 12 tons was wrecked at the mouth of the creek in 1912, and the ketch *Rescue* of 54 tons was towed to Condon in 1917 after being beached on North Turtle Island.

Cargo received in Fremantle included four tons of mixed goods and four tons of dairy produce in 1910, two tons of mixed goods in 1918, 171 bales of wool and nine bales of skin in 1919, and nothing in other years between 1904 and 1921.

There is some structure remaining of the jetty and stores and these have been nominated. The site was visited in September 1995 and a report is being compiled to complement the material previously presented.

Figure 14
Contemporary plans for Condon

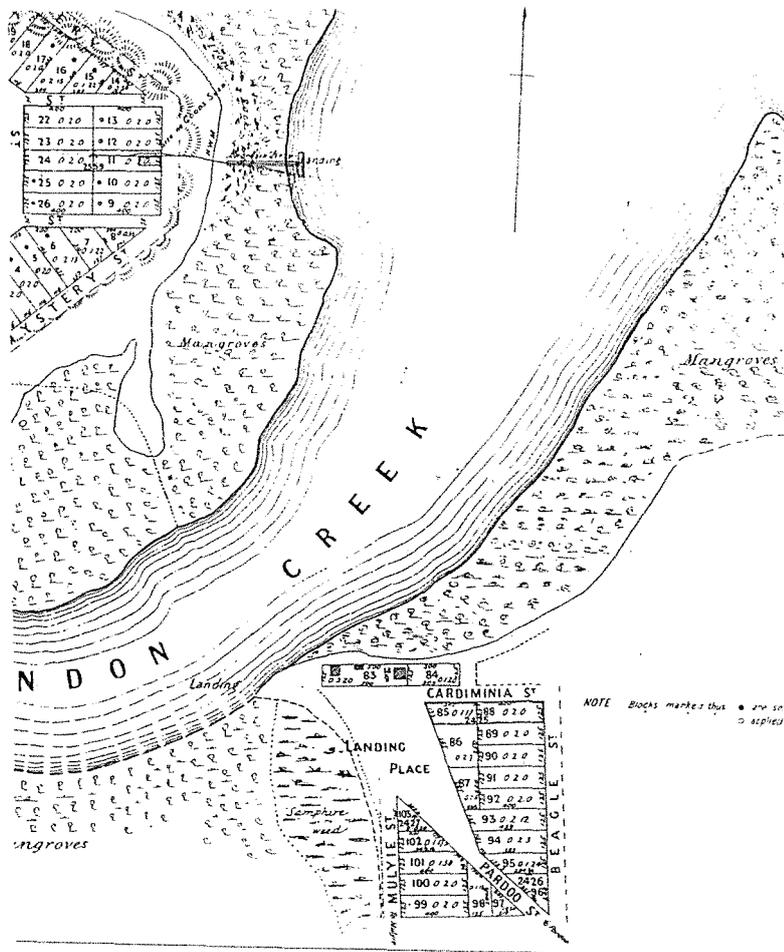
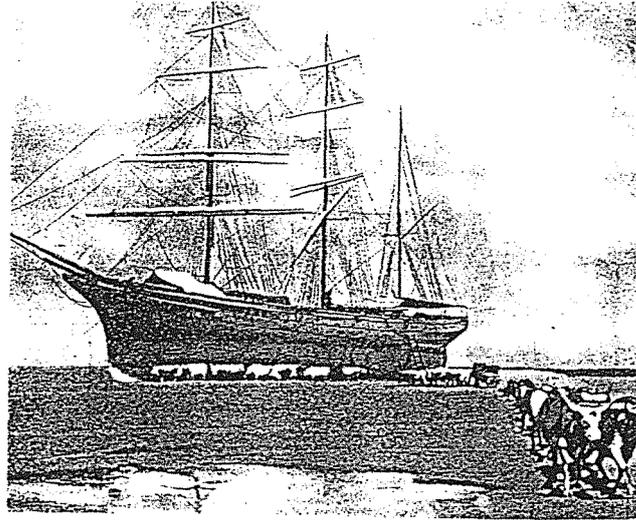


Figure 15
*The Arabella at Condon with excerpts from the parent article*¹



There were no large-scale charts of the coast, but Captain Richardson had made his own small plan, and conned the ship from aloft while she sailed in under easy sail, eventually taking the ground on soft sand, both anchors were dropped underfoot, and when the water left the ship, the cables were unshackled and a team of about sixty bullocks dragged them out on each bow, returning to drag out the cables, which were shackled on again and hove taut.

For months before the arrival of the ship the staff of the De Grey Station, consisting of white manager and assistant manager, with an unknown number of aborigines, or Australian Blackfellows, had been bringing the wool bales down to the coast and stacking them to await the time of loading. As soon as the ship was moored the discharge of her cargo, by the ship's company, into bullock waggons, was started, and continued each day while the tide was out, the cargo being stacked on shore. When discharge was completed the bullock waggons brought the wool alongside to be stowed by the sailors, the bales being "screwed," or compressed into as small a space as possible.

This was very hard work in the normal day temperature of about 120 in the shade, and sometimes it was necessary to stow the bales on deck until they could be taken in the hold. This work was carried out by a gang of aborigines working under one of the apprentices. During neap tides, when the water did not come near her, the gang scrubbed, scraped, and painted the bottom of the ship.

PARDOO LANDING AND BANNINGARRA CREEK

In 1872, the pearler, Charles Broadhurst established a base for his steamer, the SS *Xantho* at Banningarra Creek, adjacent to Mt Blaze and Cape Keraudren. There he found fresh water in both the intertidal zone and in a large lagoon on sandy ground not far from the landing. He established a camp for his divers and planted coconuts to feed them, but abandoned the base soon after his ship sank near Port Gregory. The creek was frequented by other pearlmen over the next few decades, though they do not appear to have established jetties or other structures in order to facilitate their access to and from the shore.²

This contrasts to the situation at nearby Pardoo Station, where in order to move wool bales and stores to and from the station, a small landing was established in the mangroves at Pardoo Creek. Accessible only at low water, the jetty was short, being only 16.5 m long by 1.8m wide of rough hewn timber. Only a few piles remained in September 1995, but the remains are clearly indicative of station activity and it is expected that the practice has been repeated at many other stations elsewhere.

¹Simmer, G.L., nd. "Arabella" a woolship of the 'Nineties. in *Journal of the Honourable Company of Master Mariners*, pp 372-374.

²McCarthy, 1990, op. cit.

The Kimberley

BROOME: 17° 58'S., 122° 14' E

Streeter's Jetty

DERBY: 17° 19'S., 123° 38'E

WYNDHAM: 15° 28'S., 128° 06'E

Nominations

Streeter's Landing (Jetty)

Historical Background

BROOME

After being visited by Capt. P. P. King in 1821 and by the crew of HMS *Beagle* in 1838, Roebuck Bay became the site of an unsuccessful settlement in 1865 and an anchorage and landing for pearl fishing in the 1870s. Broome was declared a township in 1883 the year in which the SS *Natal* of 743/458 tons began calling on her trips to Singapore. The SS *Otway* of 563/352 tons began calling with mails in the months of March, May, June and July in 1884. The SS *Australind* of 1018/554 tons replaced the SS *Natal* on voyages between Fremantle and Singapore in 1887 and an underwater telegraph cable was brought ashore from Java in 1889. Pile beacons in the entrance channels were built in 1890, and around this time Broome became the principal port for pearling vessels on the North-West coast.

J. Wishart & Son built a timber jetty at Mangrove Point 2953 feet long and 15 feet wide with a tee-head 340 feet long by 30 feet wide, with cattle ramp and yards, a goods shed and a 2'-0" gauge tramway with a branch to Streeters private jetty in 1896-7. Tenders were called for leasing this jetty and tramway in 1898, and leading lights were established in 1900 when the stock rails which had been damaged by white ants were repaired.

The tramway was relaid with 45 lb rails and converted to 3'-6" gauge in 1908, and the port was described as being the headquarters of the pearling fleet and also the principal cargo port for the North-West. It had a large jetty in the inter-tidal, cattle yards and a tramway, and ships called fort-nightly on voyages between Fremantle and both Singapore and Wyndham. The tramway was operated by horses until 1910 when an Orenstein & Keppel 0-4-0 steam locomotive arrived.

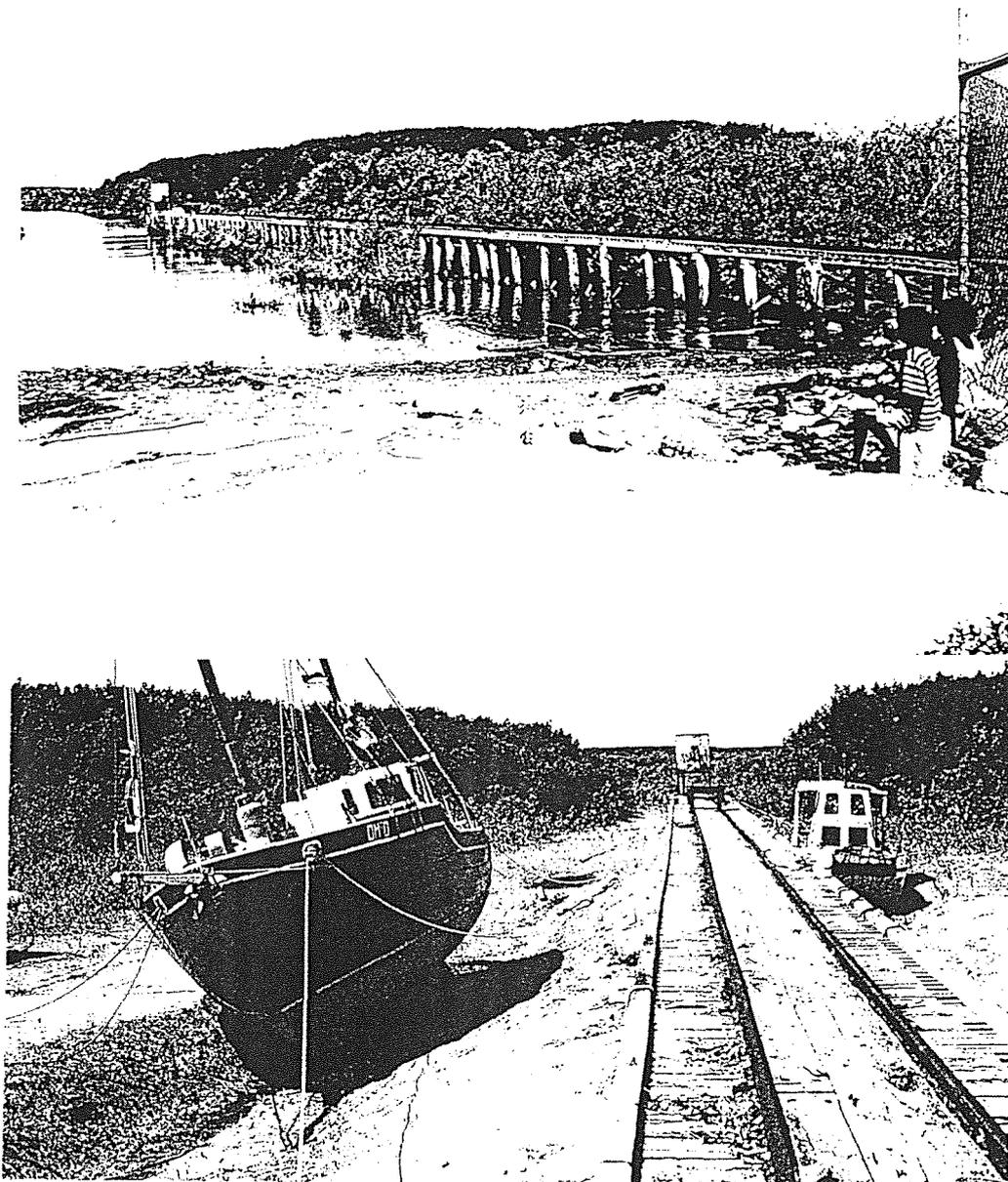
Pearling licences from 1906 to World War I were rarely less than 300, ranging down from 357 to 302 at the outbreak of war. Halved at the outset, the numbers gradually increased back to 277 in 1917. The port was described in 1922 as having a jetty 2700 feet long into 25 feet at high water springs, equipped with a tramway, two cranes, a water supply, and cattle yards, at which vessels lay on muddy sand at low water. The front skeleton leading beacon was at the foot of the town pier, and the rear was in front of the town about one cable southward of Lookout Hill. Both carried white lights. Communication was about fortnightly by mail steamer to Fremantle and other north-west ports by vessels of the West Australian Steam Navigation Company, and coasting vessels called frequently. The port was headquarters of the pearling fleet which employed about 1000 men out of a population of about 2400 persons. The trade was mainly pearls, pearl shells, hides, stock and wool in 1921, and 143 vessels with an aggregate tonnage of over 100,000 tons called in that year. Ships which made regular calls in 1923, included the *Gorgon* of 1734 tons and *Centaur* of the Blue Funnel Line, the *Gascoyne* of Bethell Gwyn, and the MV *Kangaroo* of 4433 tons and the SS *Bambra* of 3302 tons, both owned by the State Shipping Line. The jetty was described in 1929 as 2532 feet long with berthage of 340 feet on each side, which dried at low tide by six feet.

The township was attacked by Japanese aircraft in 1942 and much damage was done. Several flying boats were totally destroyed in the raid, and the tramway remained out of operation until 1946.

A deep water jetty with tubular steel piles and a steel and concrete deck 2296 feet long and 24 feet wide leading to a Tee-head 600 feet long by 86 feet wide with inner berths in 28 feet of water and outer berths in 32 feet, was completed near Entrance Point south of the town in 1966, and the jetty at Mangrove Point was then demolished. There was a goods shed on the jetty, another at the goods yard and additional facilities in town.

Streeters' Landing, a focus in Broome for the pearling industry in the twentieth century has been nominated as an historic structure by local interests, including the Historical Society. The site was assessed in October 1995 and it was found to be a substantial structure with a dressed timber deck on rough-hewn natural timber supports. Given its history and its unique status as the only remaining structure of its type, the nomination is strongly supported.

*Figure 16a & b
Streeter's Landing in the 1990's¹*



¹Photograph : D.A. Cumming and a postcard.

DERBY

After being visited by the explorer, Phillip Parker King, by John Forrest the port was established as a landing for the Murray Squatting Company. Commander Coghlan RN surveyed the approaches in the survey ship *Meda* in 1882 and Derby was proclaimed a township in 1883. Pastoral settlement was just beginning, and the area became a port for pearlshers after the pearling banks had been identified. It was an alternative entry point which competed with Wyndham for traffic entering the Kimberley Goldfield around Halls Creek after its proclamation in 1885.

The SS *Otway* of 563/362 tons began calling with mails in March, May, June and July of 1885. David Law built the first jetty at the end of Loch Street with its one mile long approach embankment, cattle races and 3'-6" gauge horse drawn tramway in 1886-7. Pearl shell, wool and gold were then exported. The SS *Australind* of 1018/554 tons then began calling on her voyages between Fremantle and Singapore in 1887. When the SS *Perth* of 499/298 tons was wrecked off Point Cloates in 1887, it was immediately replaced by the SS *Flinders* of 521/499 tons in the carriage of mail and goods.

The jetty was extended to 561 feet long and equipped with a tramway depot in 1893. It was extended by a further 150 feet and equipped with a tee-head 180 feet by 30 feet and was provided with 2-ton anchors off its north and south ends in 1901. A sixth order white dioptric light on a braced steel platform at the end of the jetty was also provided at the time. The causeway track was relaid with 45 lb rail, and was extended southwards into the town and possibly to the quarry in 1904.

Shipping arrivals in the 12 months to June 1907 included four steamships aggregating 6762 tons from overseas ports and 46 steamships aggregating 66,473 tons from Western Australian ports. In 1908, the port was described as shipping about 16,000 head of cattle per year through its cattle race and over its jetty. The population of the town was about 230 persons and the district generally was about 450 people. The SS *Colac* was declared a total wreck after being grounded north of the town in 1910 and the hulk was subsequently towed just south of the wharf and scuttled.

The Harbour Master recorded shipping movements varying from 39 in 1906 gradually rising to a high of 98 in 1911, being mainly cattle and sheep outwards and agricultural produce, beer & spirits, coal and mixed goods inward.

In 1920-21, 86 vessels of an aggregate tonnage of over 100,000 tons entered the port, and in 1922, the jetty at which vessels of 20 feet (6.1m) could berth, extended from the shore within the bar, and a light was exhibited on a wooden gallows. A tramway connected with the township and cattle yards adjoined. The population was then about 150 persons, and shipments of wool and cattle were considerable.

Steamship communication was fortnightly to Fremantle and to Singapore by West Australian Steam Navigation vessels; to Fremantle monthly by the State Steamship Service and irregularly during the cattle season to Fremantle and Wyndham by Australian United Steam Navigation and the State Steamship Service Company and also by the Melbourne Steamship Company.

Ships which made regular calls in 1925, included the *Gorgon* of 2886/1734 tons and *Centaur* of 3066 tons of the Blue Funnel Line, the *Gascoyne* of 3850 tons of Bethell Gwyn, the *Kangaroo* of 4443 tons and the *Bambra* of 3302 tons of the State Shipping Line. The jetty was described in 1929 and in 1948 as 669 feet long with berthage of 241 feet which dried out by 4 feet at low tide. The railway to the township was single track.

Meat works were constructed south of the town in 1958, and frozen meat for export was taken to the jetty by motor vehicle. A new concrete jetty, 577 metres long, was built in 1964, and the original timber jetty was demolished in 1965. In 1904, cargo ships on the Geraldton-Derby-Wyndham run included the *Moonta* of 2266/1447 tons and *Kolya* 1801/1168 tons of the Adelaide Steamship Company; the *New Guinea* 2674/1700 tons (1884- 1911) and *Maira* of 2184/1385 tons which was owned by others. The *Allinga* of 2750/2242 tons was slow and unpopular because of her poorly-ventilated dining room, and the *Bullara* 1725/1087 tons, although popular in her day, was old and was eventually converted to carry cargo. The Blue Funnel Line ran regularly from Singapore to Derby and then down the coast to Fremantle using the SS *Gorgon* of 1734 tons and the SS *Minderoo* of 1636 tons. 1980 proved the last commercial shipping visit to the port.

WYNDHAM

After being visited by Alexander Forrest on his exploration from the De Grey River to Darwin in 1879 and being the point where the Durack exploration party heading for the Ord River landed from the schooner *Levuka* in 1881, Wyndham became a recognised landing place. It developed into a port for exporting cattle after Argyle, Lissadell and Ord River stations had been established in 1882 and 1884, and after 1885 it became an entry port for the Kimberley Goldfield around Halls Creek. Wyndham was proclaimed a town in 1886, and land sales followed. The SS *Rajputana* and the Adelaide Steamship Company's SS *Otway* of 563 tons and SS *Albany* of 885 tons called in 1886, and the SS *Active* on the eastern run called in 1887-8. Boats licenced at Wyndham in 1887 included the Adelaide Steamship Company's *Otway* which was licenced to carry seven tons of cargo, and the *Forrest* owned by Connor & Doherty licenced to carry 30 ton of cargo.

J.J. Grant built the first jetty at Anthon Landing in 1887-8. A.B. Wright replaced (or extended) this in 1890-1, and further construction included stockyards and a cattle race in 1895-9.

The SS *Bularra* of 1725 tons struck an uncharted rock in 1903 and had to be towed to Sydney for repairs. The SS *Mildura* of 1394 tons left Wyndham for Fremantle in 1907 and was lost off North-West Cape. Thirty seven ships aggregating over 41,000 tons called in 1907, of which five aggregating 1000 tons were from interstate ports (probably Darwin). The SS *Kwinana* hit a rock when leaving Cambridge Gulf in 1914 and grounded again in 1918, the SS *Bambra* hit a rock in 1917. Again accidents and incidents help give a clue to shipping traffic. The WA State Shipping Service placed the passenger liner SS *Western Australia* of 2937 tons on the run from Fremantle to Darwin in 1912, but returned her to England 1917. The SS *Kwinana* of 2425 tons was placed on the run in 1912 and carried cattle south to Fremantle on many trips. It caught fire in 1920 and was towed to Careening Bay off Garden Island, whence it drifted ashore soon after. The MV *Kangaroo* of 950 tons was purchased for the north-west trade in 1915 and was sold overseas in 1938. The SS *Bambra* was acquired in 1915, and sailed regularly to the north-west until 1927 when it returned to England.

A jetty about 27 feet wide and with two lines of track was built at Stony Point, north of the town, for the Meat Works between 1916 and 1918. This was equipped with a 3-6" gauge locomotive drawn railway.

In 1921, 13 vessels with an aggregate tonnage of 29,210 tons visited the port. The township was described in 1923 as being the principal port of the Kimberley District for exporting cattle and frozen meat. Large meat works had been built on the side of the gulf to the north of the town which had a resident population of about 400. The Meatworks Jetty at Stony Point was 300 feet long and 30 feet wide and it provided a shipping berth served by a 4-ton travelling crane for one vessel in 30 feet of water at high tide. A railway ran from this jetty to the meat works and also to Anthon Landing. There, the jetty was 230 feet long with a Tee head provided with cattle facilities and a tramway. It could berth one vessel, provided it lay on the mud at low water.

The jetties were described in 1929 as, the Meatworks Jetty which was 918 feet long with 300 feet of berthage in 30 feet of water, and the Town Jetty (Anthon's Landing) which was 301 feet long with berthage of 100 feet in five feet of water.

The MV *Koolama* was bombed by the Japanese off Cape Londonderry and eventually reached Wyndham, where it was attacked again at the Meatworks Jetty and rolled over and sank in 1942. It was raised by compressed air in the late 1940s and moved to deeper water where the hulk still lies as a memorial.

Anthon Jetty was burnt in 1944, and the port was described in 1948 as having a meatworks jetty 915 feet long near Stony Point with 300 feet of berthing with a depth of 30 feet. A light railway ran to the meatworks and to the township. Anthon Landing had since been destroyed.

The meat works jetty was extended southwards to form a loop which created 852 feet of berthing in 1961. Material for the Ord River Diversion Dam and Kununurra Township constituted major imports in the early 1960s with bulk cement exceeding 12,000 tons in 1961/2. The SS *Dulverton* for example, carried 40 radial gates, each weighing 10 tons.

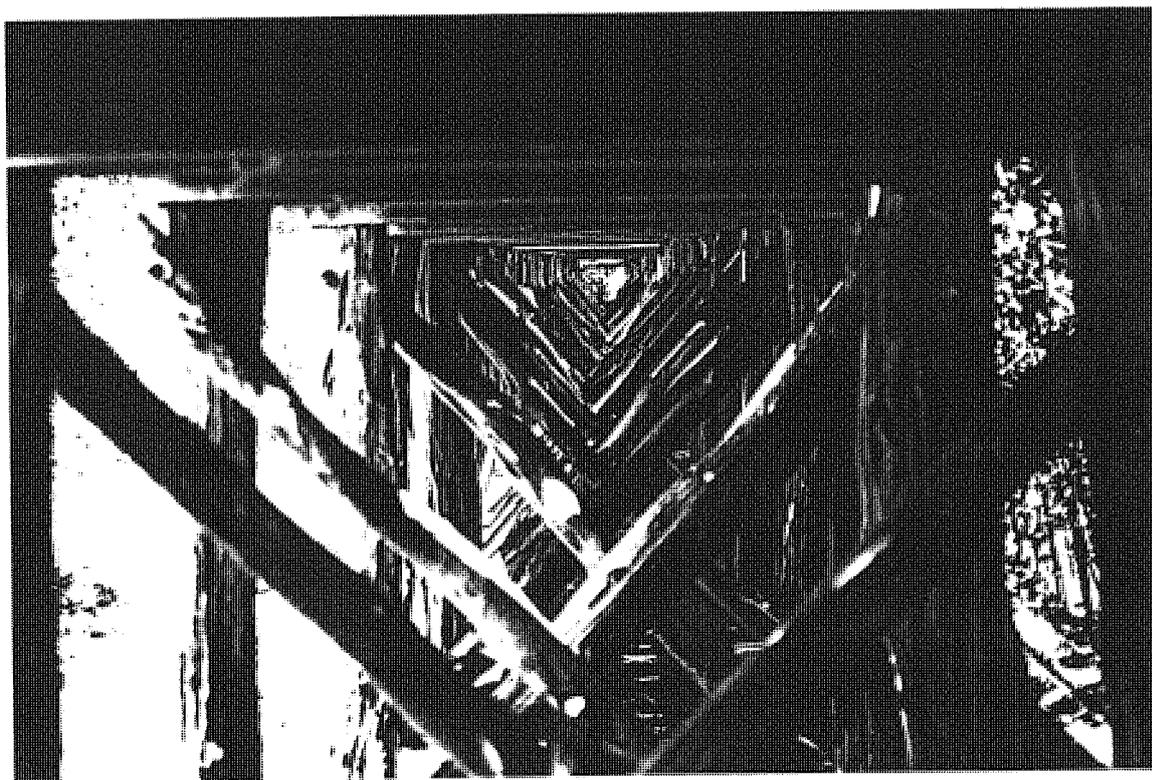
Major exports in 1969 included more than 12,000 bales of cotton from Kununurra. Stateships ceased their passenger service in 1971. Following major reconstruction in 1971-2 and the construction of concrete decking in 1975, a mechanical loader for sorghum grain was opened in 1977. The northern section was rebuilt in steel and concrete in 1978-80. The meat works, which was sold to a private company in 1967, were extended by Norwest Beef Industries to double the freezer space in 1978, and a container ship arrived in 1979 to lift the first reefer containers for the American market in 1979. The works closed in 1985 after killing a record 65,000 head in 1982. Significant parts of it were destroyed by a fire in 1987. When visited in October 1995, only the remains of a few concrete-encased stumps were visible.

Figure 17
Anthon Landing in 1910.



Bibliography and references to the Port Related Structures Study

Supplement to those appearing on each individual site nomination form in Appendix 1.



Frontispiece : Streeters Jetty, Broome, October 1995. (Photo M. McCarthy, WA Maritime Museum)

SOUTH-EAST COASTEUCLA TO ESPERANCE

LITERATURE

- ARHS Bulletin, *Railway development in the Esperance District*, May 1962.
 Australian Pilot Volume 1, *Cape Leeuwin to Cape Northumberland*. HMSO, London 5e 1960, pp 72-3.
 Battye, J.S. *The cyclopedia of Western Australia*, Perth. 1912, 2v.
 Bureau of Transport Economics, *A study of Western Australian ports*. Director General of Transport, WA, AGPS, Canberra, 1981, pp. 56-8.
 Commission of Enquiry on the Maritime Industries. *Report on adequacy of Australian Ports*. AGPS, Canberra, 1976, pp. 522-533.
Esperance Chronicle & Esperance Times, 1895 onwards.
 Garratt, Dena *Esperance Bay Jetties, Maritime Heritage Inspection Report*, Department of Maritime Archeology, WA Maritime Museum, 1994.
 Government Gazette 1894, p.1259.
 Henderson, Graeme & Kandy Jane, *Unfinished voyages, shipwrecks on the Western Australian Coast 1851-1880*. UWA Press, Nedlands, 1988, pp. 226-7.
 Le Page, J. *Building a state, the story of the Public Works Department*. Water Authority, Perth, 1986, pp. 201, 553, 594. (Abbreviated as LPG)
 Moullen. *Note Book*. Department of Marine & Harbours. Fremantle, p. 9.
 Page, Michael, *Fitted for the voyage, The Adelaide Steamship Company Ltd. 1875-1975*. Adelaide, 1975, pp. 130-148.
 Parsons, Ronald H. *Ships registered at Fremantle before 1900*. Lobethal SA, 1971, p. 30.
 PWD 1895-6, p. 29.
 Rintoul, John (comp) *Esperance yesterday and today*. Esperance Shire Council, 1964.

CHARTS

- AUS 119, Approaches to Esperance, 1:75,000, 1974.
 BA 1059, Doubtful Island to the Great Australian Bight. 1:610,000, 1881.1901.
 BA 2973, Esperance Bay Anchorage.

MAPS

- Esperance S1 51-6, 1:250,000.
 Esperance 3230, 1:100,000.

HISTORIC PLANS

- Battye Library (Abbreviated as BL), State Archive of Western Australia (Abbreviated as SAWA).
 Plan of Esperance Townsite, public plan, 1:1,584 (1" to 2ch), 1893. c.no 504 226.
 Plan of Esperance Townsite, public plan, 1:1,584 (1" to 2ch), 1896.c.no 504 227.
 Plan of Esperance Locality, public plan, 1:15,840 (1" to 20ch) canc.1912. c.no 002 960.
 Plan of Esperance Locality, public plan, 1:31,680 (1" to 40ch) 1912. c.no 504 228.

PHOTOGRAPHS

- (LPG refers to Le Page, 1986).
 Boat Harbour, Bandy Creek, 1983. (2), LPG 9.6
 Esperance harbour, pictorial view, LPG 8.38
 Jetty (BL 249498P), LPG 4.24
 Jetty c1900. (BL 3160P), LPG 4.23
 Railway Jetty. c.1930. (R p190)
 Tanker Jetty 1935 (J.D. Gillespie), LPG 6.25
 Tanker Jetty under construction 1934 (J.D. Gillespie). LPG 6.24

PLANS

- Berth Profile, LPG 8.39 No.1.
 Locality Plan and Services Data, Port of Esperance, 1:20,000, 1:50,000, M. Anderson, Perth, 1991.
 Outports of Western Australia, PWD 41352. Public Works Department, 1965.
 Regional Ports of Western Australia, PWD48583-12-1/2 3. Public Works Department, June 1975.

HOPETOUN¹

LITERATURE

- Archer, A.W. *Ravensthorpe, then and now*. Ravensthorpe Historical Society, Ravensthorpe, 1977.
Australian Pilot Volume 1, Cape Leeuwin to Cape Northumberland. HMSO, London, 1960, pp. 72-3.
Australian Railway Historical Society, Bulletin No. 349.
 Chambers, W., (comp), *Hopetoun Jetty 1902-1983*. Ravensthorpe Historical Society, nd.
 Dickson, Rod, *Marine accidents and incidents in Western Australian waters*, Department of Maritime Archeology, WA Maritime Museum (WAMM), No.56
 Garratt, D., 1994, *Hopetoun Jetty, Maritime Heritage Inspection Report*. Department of Maritime Archeology, WA Maritime Museum, Report No. 83, 1994.
 Le Page, J. *Building a state, the story of the Public Works Department*. Water Authority, Leederville, 1986, p. 340.
 Page, M., *Fitted for the Voyage, The Adelaide Steamship Company Ltd 1875-1975*. Adelaide, 1975, pp. 162, 175.
 Parsons, Ronald H., *Ships registered at Fremantle before 1900*. Lobethal SA, 1971. p. 1.
 Parsons, Ronald H., *Steamships in Colonial Western Australia*. Lobethal SA, 1973, (2e 1980). p. 2.
 Pemberton, Barry, *Australian coastal ships*. MUP, Carlton, 1979.
Public Works Department, Report 1902, p. 19; & 1906-7.
 Stephens, A.M. *The Stateships story*. Stateships, Fremantle, 1977.

CHARTS

- AUS 116, Mary Ann Haven, 1:12,500, 1981.
 BA 1059, Doubtful Island to the Head of the Great Australian Bight, 1:610,000, 1881,1897,1901.
 BA 2973, Mary Ann Haven, 1:12,130, 1897,1905.
 DMH 575, Hopetoun, 1:25,000. 1986.

MAPS

- Ravensthorpe SI 51-5, 1:250,000.
 Ravensthorpe 2930, 1:100,000.

PHOTOGRAPHS

- Hopetoun, 1925. (AR p. 89)
 Jetty built in 1901; possibly 1950? (Elsie Polglase) (2)
 Jetty c.1980?? (Elsie Polglase)
 Jetty ruins, 1994. (5) (DAC)
 SS *Eucla* at Hopetoun (AR p86)
 SS *Kybra* at Hopetoun in 1935. (Elsie Polglase)

¹Starvation Boat Harbour (33 56'S, 120 35'E) was a small refuge 25 miles east of Mary Ann Haven.

THE SOUTH COASTALBANY

LITERATURE

- Albany Week (1907), *Official Guide Book*. Albany Advertiser, Albany. 1907.
- Anon. *A description of the settlement of King George's Sound in the colony of Western Australia with a map by the Australian Colonist*. Smith Elder & Co. London, 1846. (BL - Q994.1DES).
- Australian Pilot, Volume 1, Cape Leeuwin to Cape Northumberland*. HMSO, London, 5e, 1960, pp. 62-7.
- Bach, John A *maritime history of Australia*. Nelson Australia 1976; Pan Books, Sydney, 1982, p. 120, etc.
- Bird, Ivan, *Fortifications of Albany*. Typescript, (SAWA - PR2768)
- Boocock, A, et al., *Survey of wrecks Frenchman Bay, Albany*, Report, Department of Maritime Archaeology (RDMA), No. 50, 1990.
- Bullbeck, Dora The P&O Company's establishment at King George's Sound 1850-1880 - *Journal of the Royal Western Australian Historical Society*.7 (1) 1969, pp. 103-130.
- Bureau of Transport Economics, *A study of Western Australian port*. Director General of Transport, WA, AGPS, Canberra, 1981, pp. 58-62.
- Commision of Enquiry on the Maritime Industries, *Report on adequacy of Australian Ports*, AGPS, Canberra, 1976, pp. 534-552.
- Dahl, A. *The Albany report; the Awhina survey and the Athena wreck, inspection*, RDMA No.49, 1990.
- de l. Marshall, G., 1994, 3rd ed., *Maritime Albany Remembered*, The WA Maritime Museum and the Albany Maritime Heritage Assoc, Fremantle.
- Dispatches re defence of King Georges Sound*. V&P WA 1885. 30.
- Garden, D.S. *Southern haven, the Port of Albany*. Albany Port Authority, Albany, 1978. (G2)
- Garden, D.S., *A panorama of the Sound from 1827*. Griffin Press, South Australia, 1977. (G1)
- Garden, D.S. *Albany a panorama of the Sound from 1827*. Nelson, Melbourne, 1977.
- Gillespie, J.D. *Development of the Port of Albany*. Public Works Department, Perth, 1972.
- Glover, R. Captain Symers at Albany-*Journal of the Royal Western Australian Historical Society*., 4 (5) pp. 74-93.
- Government Gazette*. Perth. 24/4/1855: 8/1/1861: 1865 p 138: 1875 p. 68: 1876 p. 260: 1877 p. 31: 1879 p. 261: 1880 pp. 116: 1883 p. 416: 1892 p. 831: 1894 p. 436.
- Henderson, Graeme & Kandy-Jane, *Unfinished voyages Western Australian Shipwrecks, 1851-1880*. UWA Press, Nedlands, 1988, pp. 38, etc.
- Henderson, Graeme, *Unfinished voyages Western Australia, shipwrecks before 1851*. UWA Press, Nedlands, 1986.
- Johnson, G.L. *Albany and the Whalers*. Albany Travel Centre, Albany. 1979.
- Johnson, L. *The guns of King George's Sound, the Albany forts*. Albany Town Council, 1989. 40p.
- Le Page, John, *Building a state*. Water Authority, Perth. 1988, pp. 98, 199,596.
- Maber, John M. *North Star to Southern Cross*. Stephenson, Prescot UK, 1967.
- Marshall, G. De L. *Memories of maritime Albany* RDMA No.53, 1991.
- Martin, R. *A sound defence, the story of the Princess Royal Fortress, King George Soand*. Scott & Scott, Bicton WA, 1988. 37p.
- McIlroy, J. *Whaling Stations Survey 1987, sites south of Perth*.1987, private publication (Report to the National Trust of WA).
- McKenna, R., *Albany's Coal Hulks*. Department of Maritime Archaeology, WA Maritime Museum file, 2 Vols., 1993.
- Moullen, *Note book, 1900-1937*. p1. (WSA, M. Museum, Loan 82)
- Page, Michael, *Fitted for the voyage, The Adelaide Steamship Company Ltd 1875-1975*. Adelaide, 1975, pp 50,56-7,100,etc.
- Parsons, R. *Ships registered at Fremantle before 1900*. R. Parsons, Lobethal. 1971, pp. 29,63.
- Parsons, R. *Steamships in colonial Western Australia*. R.Parsons, Lobethal. 1973. 2e.1980.
- Parsons, Ronald. *The Adelaide Line, a centenary history of the Adelaide Steamship Company Ltd, 1875-1975*. R.H. Parsons, Magill SA, 1975.
- Public Works Department reports* - 1893 p. 7; 1895-6 p. 28; 1896-7 p. 33; 1900 p. 26.
- RDMA - Reports of the Department of Maritime Archacology, WA Maritime Museum.
- Report on condition of Albany Harbour*. V&P, WA, 1881 SS, 14.
- Scratchley, P.H. *King George Sound (Princess Royal Harbour: report on defences*. Govt Printer, Melbourne, 1881.
- Stephens R. *Builders of Albany, George McCartney Cheyne 1790-1869*. Typescript 1950.

- Stephens R. Thomas Brooker Sherrat: Albany Merchant, bay whaler and ship owner ... Octagon Church, *Journal of the Royal Western Australian Historical Society*. 6 (2) 1963, pp46-67.
 Tydeman, F.W.E. *Report on Albany Harbour*. Public Works Department, Perth, 1948.
Western Mail 7/8/1952, p.4.
 Wolfe, Adam *The Albany Deepwater Jetty Study*, Report to the Heritage Council of Western Australia' Heritage Council, Perth, 1991.
 Wolfe, Adam, *The Albany Maritime Heritage survey: 1627-1994*, Wolfe and Associates, Albany, 1994.

CHARTS

- Albany 2427, 1:100,000.
 Albany SI 50-15, 1:250,000.
 Albany SI 50-E, 1:500,000.
 AUS 109, Port of Albany, 1:12,500, 1982.
 AUS 118, Port of Albany, 1:50,000, 1973.
 BA 27, Princess Royal Harbour (6" to 6104") 1:12,160, 1877.
 BA 47, Princess Royal Harbour (6" to 6104") 1:12,160, 1890.
 BA 1034 Cape Naturaliste to King George Sound and Doubtful Bay 1:603,000, 1876,1914; inc Busselton Harbour 1:17,500, 1912.
 BA 1059, Doubtful Island to the Head of the Great Australian Bight, 1:610,000, 1881,1901.
 BA 1418, Princess Royal Harbour.
 BA 2619, King George Sound and Princess Royal Harbour 1:48,530, 1879, 1910.
 Breaksea 2527, 1:100,000.

MAPS: historic

- Albany Public plan, 1:4,752 (1' to 6ch) 1874, C.no. 503 632.
 Albany Public plan, 1:6,336 (1" to 8ch) canc. 5-6-1907, c.no. 503 633.
 Albany Public plan, 1:6,336 (1' to 8ch) ex.d 1915, c.no 503 638.
 Albany Public plan, 1:4,752 (1" to 6ch) 1947.
 Albany - Eucla Telegraph Line. Battye Library CN53 30, L&S 4/1972.
 Albany public plan, 1:4,752 (1" to 6ch) 1874, c.no 503631 & 503 632.
 Albany public plan, 1:6,336 (1" to 8ch) enc.1907, c.no 503 633.
 Albany topographical maps 1881. Battye Library CN53 36, 784C, 006730 B25.
 Great Southern Railway, Albany. Battye Library CN53 151, 784C, 006777 B211.
 Great Southern Railway, Albany. Battye Library CN53 152, 784C, L&S 4/1972.
 Part of townsite of Albany, public plan, 1:1,584 (1" to 2ch), 1899, c.no 503,634.

PHOTOGRAPHS

- Albany harbour, c1918, 5.13.
 Deep Sea Jetty, new arm, 1916, 5.14.
 Deep water jetty during the visit of the US Fleet in 1908. (WA Newspapers). 3.21.
 Harbour development, 1950s, 7.8.
 Princess Royal Harbour, c.1958. (D2 p. 328).
 The Great White Fleet in Princess Royal Harbour, 1908. (G2 p. 279).
 Town jetty, c1898. (BL 28949P). 4.22.
 Water front with baths, c.1915. (G2 p. 266).

PLANS

- Albany, late nineteenth century. (G2, p.198)
 Harbour Wharf profile, 1950s. LPG 7.9
 Locality Plan and Services Data, Port of Albany, 1:20,000, 1:50,000. M. Anderson, Perth, 1991.
 Outports of Western Australia, PWD 41352. Public Works Department, 1965.
 Princess Royal Harbour, 1977. (D p. 324)
 Regional Ports of Western Astralia, PWD 48583-11-1/2. Public Works Department, June 1975.
 Site of Albany, 1836.

THE SOUTH WEST COASTAUGUSTA

LITERATURE

Cresswell, Gail J. *The Augusta-Margaret River Shire history, Augusta-Margaret River Shire*, 1989.
GG 24/4/1855; 1876 p131; 1880 pp. 283.
Turner, T., *Turners of Augusta*. Perth, 1956.

CHARTS

AUS 116-1981, Flinders Bay, 1:25,000.
AUS 757, Australia - South Coast, Cape Leeuwin to Point D'Entrecasteau, 1981, 1:150,000.
BA 31, Flinders Bay (4" to 6104) 1:18,300, 1879.
BA 413, Cape Mentelle to White Point, 1896, 1911, sc1973, 1:99,200.
BA 1037, Flinders Bay, 1879, 1899, 1911, sc1961, 1:39,145.

MAPS -

Bunbury SI 50-W, 1:500,000.
Augusta SI 50-9, 1:250,000.
Leeuwin 1929-III, R712 1-AAS, 1:50,000.
Leeuwin 1929, 1:100,000.

OTHER - Maps & Plans

Sussex & Blackwood River, 1:267,600 (1 to 300ch)
A. Hillman, pre.1964, c.no 506 223: Plan of Augusta, 1: 6,336 (1" to 8ch), 1875.
Plan of Augusta, 1:6,336 (1 to 8ch), 1901.
Plan of Augusta, 1:6,336 (1 to 8ch) 1947.

HAMELIN BAY

LITERATURE

GG 1880 p. 283; 1883 pp. 3,416; 1887 p. 191.
Ridgway, P.L. ed., *Minor ports of Australia*. Australian Association for Maritime History, Perth, 1988,
pp. 31-9.
Clarke, Milton. *Hamelin Bay Expedition 1986*, Maritime Archeology Association of Western Australia,
Fremantle.

CHARTS

AUS 116, Hamelin Bay, 1:12,500, 1981.
BA 61, South West Coast, Hamelin Inner Harbour, 1896.
BA 62, Hamelin Bay, Inner Harbour, 1879.
BA 413, Cape Mantelle to White Point, 1896, 1911, 1:99,200.
BA 1037, Flinders Bay, 1879, 1899, 1911, 1:39,145, (detail 1:12,130).
BA 1472, Plans on the South-West Coast, 1898 (1961).

MAPS -

Augusta SI 50-9, 1:250,000.
Bunbury SI 50-W, 1:500,000.
Leeuwin 1929, 1:100,000.
Leeuwin 1929-I, 1-AAS, 1:50,000.

BUSSELTON

LITERATURE

- Australian Pilot Volume V, North, North-West and West Coast ...* Torres Strait to Cape Leeuwin. 2e 1923.
- Australian Pilot Volume V, North, North-West and West Coast ...* Torres Strait to Cape Leeuwin. 4e 1948, p. 352.
- Government Gazette*, Perth 1865 p. 174; 1872 p. 230; 1875 p. 51; 1878 p. 245; 1880 pp. 108, 283; 1884 p. 465; 1886 pp. 466,663; 1887 p. 466; 1889 p. 529; 1894, p. 478.
- Henderson, Graeme and Henderson, J. J., *Unfinished Voyages Western Australian shipwrecks 1851-1880* UWA Press, Nedlands. 1988, pp.7, 154, etc.
- Jennings, Rodger, *Busselton. ... outstation on the Vasse*. South-West Printing & Publishing, Busselton, 1983.
- Le Page, John, *Building a state*. Water Authority of WA, Perth, 1986. pp. 83,100,603.
- Notes re. timbers of Western Australia suitable for railways, engineering works and construction purposes generally. Government Printer. Perth, 2e 1908. Appendix D.
- Purcell, Geoff, *Notes on Busselton Jetty*. The Author. Busselton, 1993.
- Ridgway, P.L. ed., *Minor ports of Australia*. Australian Association for Maritime History, Perth, 1988, pp. 25-9.

CHARTS

- AUS 116, Busselton, 1:12,500, 1981.
- BA 19, West Coast, Koombana Bay to Cowaranup Point (1" to 6104) 1878.
- BA 1033, Champion Bay to Cape Naturaliste, 1:7,200,000, 1877, 1882,1964.
- BA 1034, Cape Naturaliste to King George Sound. 1:603,000: Busselton 1:17,500.
- PWD 544494, Busselton to Cape Clairault, 1:50,000. 1983.

MAPS - current

- Bunbury SI 50-W, 1:500,000.
- Busselton 50-5, 1:250,000.
- Busselton 1930, 1:100,000.
- Busselton, Conservator of Forests, 1:50,000, 1979.

OTHER Maps & Plans

- Busselton, 1:3,960 (1" to 5ch) 1897, c.no 503 945.
- Busselton, 1:4,752 (1" to 6ch) 1908, c.no 503 946
- Busselton, public plan, 1:3,168 (1 to 4ch) G. Vincent, July 1865, c.no 503 944.
- Outports of Western Australia, PWD 41352-10, Public Works Department, 1965.
- Plan showing locations in the Sussex District, H.M. Onmaney, Vasse Estuary Area, 1:47,520. (1" to 60ch) c.no 507 487.
- Sussex (1864) 1:126,720 (1" to 160 ch), 1864, c.no 506 200.
- Sussex District, 1:63,360 (1" to 80ch) 1865, c.no 506 225.

PHOTOGRAPHS

- Busselton Jetty, LPG 5.16. (BL 25406P)
- Busselton Jetty, inner end with baths, (L.P. Smith 1994)
- Busselton Jetty c1973? (Murray Views)
- Jetty (3 DAC)

BUNBURY

LITERATURE

- Bunbury Harbour Board, annual report, 1911.*
Chief Harbour Master, report, 1907.
 Director General of Transport, *A study of Western Australian ports*, Bureau of Transport Economics, WA, AGPS, Canberra, 1981, pp. 62-5.
Government Gazette, Perth 24/4/1855; 1865 p. 66; 1869 p. 204; 1872 p. 230; 1875 p. 77; 1877 p. 31; 1884 p. 388; 1885 p. 388; 1889 pp. 206,344; 1890 p. 504; 1891 p. 241.
 Henderson Graeme & Kandy-Jane, *Unfinished voyages, Western Australian Shipwrecks*. UWA Press, Nedlands, 1986, pp. 10,12, etc.
 LePage, John, *Building a State*. Water Authority, Leederville, 1986, pp. 83,99.
 McCarthy, M. *Koombana Bay wrecks, an investigation of wrecks in Koombana Bay for the State Energy Commission*. Report of Department of Maritime Archeology, Fremantle Report No. 19.
Moullen Note book, 1900-1937. p2. (WSA, M. Museum. Loan 82)
Notes re timbers of Western Australia suitable for railways, engineering works and construction purposes generally. Government Printer, Perth, 2c 1908, Appendix D.
Public Works Department, annual report, 1892 p. 7; 1900 p. 26.
Report on adequacy of Australian Ports. AGPS, Canberra, 1976, pp. 553-565.
Reports on proposed Bunbury Harbour works. V&P WA 1896, A14.

CHARTS

- AUS 334, Wedge Island to Cape Naturaliste, 1:300,000, 1970.
 BA 26, Koombana Bay, (4" to 6104) 1:18,312, 1876.
 BA 66, Bunbury Harbour Improvements 1876-1896 (1" to 1000) 1:12,000, 1896.
 BA 1033, Champion Bay to Cape Naturaliste, 1:7,200,000, 1877, 1882, 1964.
 BA 1034, Plan of Geographie Bay.
 BA 1472, Plans on the South-West Coast, 1898 (1961).
 PWD 54495, Australia West Coast, Bunbury to Busselton, Bunbury Harbour, 1:20,000, 1983.

PLANS

- PWD 6470, Bunbury Harbour Works, 1898, (1" to 400) 1:4,800. [784c 168]
 Locality Plan and Services Data, Port of Bunbury, 1:20,000, 1:50,000. M. Anderson, Perth, 1991.
 Outports of Western Australia, PWD 41352-9. Public Works Department, 1965.
 Regional Ports of Western Australia, PWD 48583-10-1/2/3. Public Works Department, June 1975.

MAPS

- Bunbury 2031, 1:100,000.
 Bunbury SI 50-W, 1:500,000.
 Bunbury, Conservator of Forests, 1:50,000, 1977.
 Collie 50-6, 1:250,000.
 Western Australia showing proclaimed ports, lighthouses and jetties, 1929.

OTHER

- Plan of Bunbury, public plan, 1:2,376 (1" to 3ch) canc.1875, c.no 503. 876.
 ditto, 1:3,168 (1" to 4ch) canc.1896, c.no 503 877.
 ditto, 1895, c.no 503 878.
 Plan of townsite of Bunbury, 1:3,960 (1" to 5ch) canc.1930, c.no 503. 879; ditto, 1923 c.no 503,880.

PHOTOGRAPHS

- Harbour, 1920s. (BL 25406P), LPG 5.16
 Inner harbour, Nos.1 and 2 Berths, LPG 8.37
 Jetty 1898? (BL 5107P)
 Jetty extension c1956 LPG 7.6
 Jetty extension, driving piles, c1956 (M. Anderson), LPG 7.7
 Jetty showing rail causeway, 1899. (BL 24939P), LPG 4.26
 Loading timber at jetty (notes on Timber, 1908)
 No.1 Breakwater berth and jetty (SW Times), LPG 8.33

DAC August 1994
 Breakwater berth loader.
 Jetty crane, Sir Wm. Arrol, 1911. (3)
 Outer end of breakwater.
 Timber Jetty (2)

PLANS

Breakwater berths development, 1960s. LPG 8.31
 Harbour showing breakwater, 1898. LPG 4.25
 Inner harbour, c1978. LPG 8.34
 Inner harbour, No.1 Woodchip Berth profile LPG 8.35
 Inner harbour, No.2 Berth profile. LPG 8.36
 No.1 Breakwater berth, profile, 1960s. LPG 8.32

PLANS

Bunbury Harbour Works copied from PWD 1735. n.d. BL 932C.
 Bunbury Harbour Works proposed extension. rpr Southern Times. BL 331C.
 Map showing Bunbury Harbour Works ... progress plan to 30 June 1915. 36" X 25" BL 588C.
 Plan showing existing harbour works, AC No.899, 1903. BL 329C.
 Plan showing the breakwater as constructed and proposed extensions. C.Y OConnor, 1901. BL 330C.

THE METROPOLITAN COAST

ROCKINGHAM

LITERATURE

Australian Pilot, North, North-west and West Coasts. Torres Strait and Cape Leeuwin. HMSO, London, 2c, 1923, p. 367.
 Brown, J.E. *Report on forests of Western Australia.* V&P WA 1896, 27, pp. 29-30.
 Coy, Neil J. *The Serpentine, a history of the Shire of Serpentine- Jarrahdale.* Mundijong, 1984, pp. 90-102. UFV2.
 Fall, V.G. *The sea and the forest, a history of the Port of Rockingham.* UWA Press, 1972.
Fremantle Harbour Trust Commissioners reports 1904 to 1911.
Government Gazette, Perth, 1877 p. 128; 1885 p. 507; 1892 p. 339.
Notes on timbers of Western Australia ... railway engineering works and general construction purposes. Government Printer, Perth, 1908.
Papers ... sea jetty at Fremantle. V&P, WA 1872, 1.
Report of Royal Commission on Forestry. WA PP 1903-4, 24, p. 157.
Report of Royal Commission on Railways. V&P WA 1872, A3.
Report of Select Committee ... Harbour Improvement Board. V&P WA 1873, A2.
Rockingham-Jarrahdale Heritage Trail. WA Heritage Council, 1988.
 Taggart, N. *Rockingham looks back, a history of the Rockingham District, 1829-1982.* Rockingham District Historical Society, Rockingham, 1984.

CHARTS

AUS 117, Gage Roads & Cockburn Sound, 1:25,000, 1972.
 BA 1033, Champion Bay to Cape Naturaliste, 1:7,200,000, 1877, 1882, 1964.
 BA 1058, Rottnest Island to Warnbro Sound.
 DMH 001, Ocean Reef to Cape Peron, 1:75,000, 1988.

MAPS - current

Fremantle 2033, 1:100,000.
 Pinjarra SI 50-2, 1:250,000.

MAPS - other

Cockburn Sound 2, 1:22176 (1" to 28ch) (J.Cowle 1866) c.no 506 239.
 Cockburn Sound and Murray, 1:95,040 (1" to 12ch) 1860s, c.no 506 235.
 Rockingham, Public plan 1:11,980 (1" to 15ch), 1904. c.no 505 085.
 Townsite of Rockingham. sheet I, 1:12,672 (1" to 16ch) ex.d 1923, (insets) c.no 505 087.

HISTORIC PLANS

Battye Library (State Archive of Western Australia)
 Rockingham, public plan. 1:11,980 (1" to 15ch), 1904. c.no 505 085.
 see also 505 806/7.

CAREENING BAY

LITERATURE

McKenna, R., *Unpublished notes on coal hulks of Fremantle*, Department of Maritime Archaeology, file 194/79, WA Maritime Museum.
 Page, Michael, *Fitted for the voyage, The Adelaide Steamship Company Ltd 1875-1975*. Adelaide, 1975.
 Parsons, Ronald, *The Adelaide Line, a centenary history of the Adelaide Steamship Company Ltd, 1875-1975*. R.H. Parsons. Magill, 1975.

FREMANTLE

LITERATURE

Bureau of Transport Economics, *A study of Western Australian ports*, Director General of Transport, WA, AGPS, Canberra. 1981. pp. 65-76.
 Commission of Enquiry on the Maritime Industries. *Report on adequacy of Australian Ports*. AGPS, Canberra, 1976. pp. 495-521.
 Government Gazette 3/4/1855, p. 4.
 Government Gazette 1887, pp. 95, 347-354; 1889 p. 688; 1891 pp. 572, 927.
 Hitchcock, J.K. *The history of Fremantle, the front gate of Australia 1829-1929*. Fremantle City Council, 1929.
Correspondence ... safe and commodious harbour at Fremantle V&P WA 1891-2, 18.
Correspondence re. berthing of steamers in the port of Fremantle V&P WA 1884, A7.
Fremantle Harbour improvements ... harbour and dock V&P WA 1875-6, 10.
Fremantle harbour works. report by E-in-C ... entrance to estuary ... or at Rocky Bay V&P WA 1891-2, A2.
Further correspondence ... harbour works at Fremantle V&P WA 1877, 11.
Memorandum re patent slip for Fremantle... V&P WA 1879, 18.
Papers ... sea jetty at Fremantle V&P WA 1872, 1.
Replies to queries ... harbour works at Fremantle V&P WA 1894, A22.
Report ... construction of ship canal ... Rocky Bay ... the sea V&P WA 1874, 9.
Report of Harbour Improvement Board V&P WA 1873, 3.
Report of progress of work ... mouth of Swan River V&P WA 1890-1, 3.
Report on ... harbour works at Fremantle V&P WA 1887, 18.
Report on Fremantle Harbour V&P WA 1874-5, 1.
Report upon harbour improvements at Fremantle by Sir John Coode V&P WA 1878, 26.
RRC Eastern Railway jetty accommodation at Fremantle V&P WA 1882, A11.
RSC ... Harbour Improvement Board V&P WA 1873, A2.
RSC harbour improvements at Fremantle V&P WA 1875-6, A4.
RSC harbour works at Fremantle V&P WA 1891-2, A9.

THE MIDLANDS COASTDONGARA/Port Denison

LITERATURE

- Government Gazette*, Perth, 1874 p. 118; 1887 p. 530; 1890 pp. 357,581.
Australian Pilot Volume V, North, North-West and West Coasts ... Torres Strait and Cape Leeuwin. 2e. 1923, pp332.
Australian Pilot Volume V, North, North-West and West Coasts ... Torres Strait and Cape Leeuwin. 4e. 1948, pp. 317-9.
 Bain, Mary Albertus, *Ancient landmarks*. UWAP, Nedlands, 1975.
 Le Page, J. *Building a state, the story of the Public Works Department*. Water Authority, Perth, 1986, pp. 53,100,598.
Moullen Note book, 1900-1937, p7. (WSA, M.Museum, Loan 82)
 Parsons. R. *Steamers in the south, the great days of steam around Australia and New Zealand*. Rigby, Adelaide, 1979, p. 82.
Report of Chief Harbour Master 1900, 1907 p. 8; 1908 p. 7; 1909 p. 8; 1911 p. 6.

CHARTS

- BA 5, Irwin River to Point Moore, 1875.
 BA 45, Port Dongara or Denison (1" to 6061) 1:72.720, 1884.
 BA 917, Plan of Port Denison.
 BA 1033, Champion Bay to Cape Naturaliste, 1:7,200,000, 1877, 1882,1964.
 BA 1033, Approaches to Port Denison, 1:73,500, 1877,1960.
 BA 1056, Cape Cuvier to Champion Bay with plan of Port Gregory.
 PWD 48520, Port Denison, 1:25,000; 1:10,000, 1974,1983; Port Denison Fishing Boat Harbour, 1:10,000, 1974,1983.

MAPS

- Dongara 1839, R611 1-AAS, 1:100,000.
 Dongara Port Denison, 1,25,000, Batavia Coast, Street Smart Touring Map, 1991.
 Dongara SH 50-5, 1:250,000.
 Gregory, Dongara and Port Denison, 1:20,000, Universal Press.
 Perth, half million.

HISTORIC PLANS - Battye Library, SAWA.

- Plan of Port Denison townsite, 1:3,168 (1" to 4ch). 1894. c.no 504 144.
 Plan of Port Denison townsite, 1:4,752 (1" to 6ch). 1913. c.no 504 145.

PHOTOGRAPHS

- SS *Julia Percy* sunk at Dongara jetty. (M p. 254.) B&W
 DAC Jan/Feb 1994.
 Leander Point Obelisk (2)
 Old Jetty
 1980 jetty (3)
 CS. DAC Jan/Feb 1994. (4)

GERALDTON

LITERATURE

- Australian Pilot, North, North-West and West Coast ...* Torres Strait to Cape Leeuwin , 4e 1948, pp. 314-5.
- Australian Pilot, North, North-West and West Coast ...* Torres Strait to Cape Leeuwin, 2e 1923, pp. 320-2.
- Bain, Mary Albertus, *Ancient landmarks*. UWAP, Nedlands, 1975.
- Bureau of Transport Economics, *A study of Western Australian ports*. Director General of Transport, WA, AGPS, Canberra, 1981, pp. 76-80.
- Chief Harbour Masters report*, 1900; 1915.
- Commission of Enquiry on the Maritime Industries, *Report on adequacy of Australian Ports*. AGPS, Canberra, 1976, pp. 566-575.
- Geraldton Foreshore redevelopment Bulletin 339*, WA Environmental Protection Authority, 1988.
- Geraldton, Then and Now*. Geraldton Camera Club, 1989.
- Government Gazette*, Perth 24/4/1855; 15/6/1858; 1864 p. 253; 1865 pp. 41, 119; 1871 pp. 80; 1872 p. 259; 1875 pp. 51,76,87; 1876 p. 14; 1882 p. 537; 1883 p. 249; 1884, p. 209; 1887 pp. 36-7,727; 1889 p. 3; 1892 p. 680.
- Le Page, John, *Building a state*. Water Authority WA. Leederville, 1986. pp99,205,596. *Negotiation for a steam service in Western Australia and to the Eastern Colonies* V&P WA 1878, 15.
- Norris, Constance, *Memories of Champion Bay or Old Geraldton*. Soroptomist International of Geraldton, 1989.
- PWD 1902* p. 19; 1903, p. 19.
- Report by Sir John Coode ... landing accommodation at Geraldton* V&P WA 1887, 19.
- Worsley, P., 1995. *Geraldton port jetties, supplementary notes*.

CHARTS

- AUS 36,
- AUS 81, Approaches to Geraldton, 1:25,000, 1972.
- AUS 332, Quobba Point to Geraldton, Southern sheet. 1:300,000. 1969. 1972.
- BA 3, Champion Bay (1" to 6104) 1:73,250. 1874.
- BA 1033, Champion Bay to Cape Naturaliste, 1:7,200,000, 1877, 1882. 1964.
- BA 1056, Cape Cuvier to Champion Bay, including Shark Bay, 1:61,000, 1879,1917,1941.
- BA 1723, Houtman Rocks and adjacent coast, 1845,1887,1936.
- BA 1725, Champion Bay, 1:18,130, 1876,1929.

MAPS - current

- Perth half million.
- Geraldton SH 50-1, 1:250,000.
- Geraldton 1840, 1:100,000.

MAPS - historic

- Victoria 1863-1873, 1:158,400 (1" to 200ch) 1863, c.no 506 653.
- Victoria 1868, 1:63,600 (1" to 80ch), 1868, c.no 507508.
- Victoria District sheet 2, (1870) 1:79,200, Dean 1879. (1" to 100ch) c.no 507 486.

PHOTOGRAPHS

- Aerial view 1930. Railway jetty across the centre, rail viaduct for breakwater construction, old Town Jetty, new wharf, and dredge Governor discharging, LPG 6.15.
- Champion Bay, 1869. (H1. p100)
- Dredge Governor pumping through a floating pipeline to reclamation. LPG 6.16.
- Geraldton panorama, 1906. p. 19.
- Geraldton panorama, 1920s. p. 19.
- Geraldton, Then and Now. Geraldton Camera Club, 1989.
- Gregory Street or Esplanade Jetty on a gala day, mid 1920s. (2) p. 4.
- Lifting reinforced piles. LPG 6.17
- Loading grain on SS *Charon* and others (2) p. 7.
- Marine Terrace and harbour. c.1900. p. 29.

Partly completed wharf, c1960. (6.16-6.20 Mrs Hazel Morgan). LPG 6.20
 Railway Jetty, c1900. (BL 6087P), LPG 4.27
 Reinforcement prior to concreting. LPG 6.18
 The bay with sleepers for the Geraldton to Northampton railway, 1876. p. 3.
 Underside of wharf. LPG 6.19
 View from the rotunda to Gregory Street. p. 8.

PLANS

Outports of Western Australia, PWD 41352-8. Public Works Department, 1965.
 Plan of harbour and cross section of wharf, 1931. LPG 6.14.
 PWD 25711, Nos. 1, 2 and 3 berths.
 PWD 34229, Bluff Point Leads, 1956.
 PWD 36032, General wharf layout.
 PWD 39195, No. 4 berth
 PWD 41212, Hydrographic survey, 1964.
 Regional Ports of Western Australia, PWD48583-8-2. Public Works Department, June 1975.

MAPS and Plans - Battye Library, SAWA.

Geraldton (public plan) 1:3,168 (1" to 4ch) 1867, c.no 540266.
 Geraldton 1876, Lands Department, Perth. Battye Library T 006735a.
 Geraldton Harbour Works PWD 25293 10/1930. 1:34000.
 Geraldton Railway Jetty, PWD 3164. 1"=100 feet.
 Geraldton Water Supply. Reticulation Plan 11/12/1922. 1"=6 chains.
 Geraldton, Champion Bay sheet 1, 1:6,336 (1" to 8ch) enc.1914, C.no 504 269. (South of Phelps St).
 Geraldton, Champion Bay sheet 2, 1:6,336 (1" to 8ch) enc.1912, C.no 504 268. (North of Phelps St).
 PWD 34, soundings of shoreline, 1886.
 PWD 319 Old Promenade Jetty alterations 1864.
 PWD 320 ditto, extensions 1872.
 PWD 321 ditto, repairs. 1883.
 PWD 328, Ditto, repairs. 1891.
 PWD 814, Water supply for jetty, 1890.
 PWD 11602, extensions for Railway Jetty.. 1902, 1906.²
 WAGR Plan of Geraldton Station 1/7/1925. 1"=200 feet.

PORT GREGORY

LITERATURE

Australian Pilot Volume V, North, North-West and West Coast ... Torres Strait to Cape Leeuwin. 2e
 1923, pp. 316-7; 4e, 1948, p. 306.
 Bain, Mary Albertus. *Ancient landmarks*. UWAP, Nedlands, 1975.
 Bodycoat, R. *Lynton, a study of the convict hiring depot Northampton Shire*. CSR Volume 330/45.
 Henderson, G. J., & Henderson, K. J., 1988. *Unfinished voyages, Vol II*. UWA press, Nedlands.
 McDonald, Glenys K. *The little boat harbour, a history of Port Gregory*, private publication, 1993.

CHARTS

AUS 751, Houtman Abroholos and Zeewynck Channel. 1:150,000.
 BA 1033, Champion Bay to Cape Naturaliste, 1:720,00, 1877, 1886, 1964.
 BA 1056, Cape Cuvier to Champion Bay, Port Gregory 1:20,600, 1886, 1889, 1917.

²PWD set compiled by Greg Wallace, curator, Geraldton Museum, 5/11/1986, provided by P. Worsley.

MAPS

Geraldton SH 50-1, 1:250,000.
 Hutt 1741, 1:100,000, 1977.
 Perth WA, 2e. 1:500,000.
 WA 39/240 (1" to 240 ch) 1:198,000, 1945. Check
 WA 159/80 (1" to 5280) 1:63,660, 1965.

MAPS - other 28 12S, 114 14E.

Victoria (1863-1873) 1: 158,400 (1" to 200ch) C.no 506 653.
 Victoria Itet 2, (1870) 1:79,200 (1" to 100ch) c.no 507 486.

PHOTOGRAPHS

Battye Library (SAWA)
 Convict establishment, water colour by W.M. Clifton. 7239B.
 Remains of jetty with crayfish pots, 1969. 4396B/23-24.
 Other
 DAC B&W (3) Sept. 1993.
 Jetty (McD)

THE NORTH WEST COASTSHARK BAY

LITERATURE

Fry, M., 1989, *Shark Bay Days*, Hesperian Press, Victoria Park.
 GG 15/1/1856: 1882 pp. 418-421.
 Henderson, Graeme & Kandy Jane, *Unfinished voyages, shipwrecks on the Western Australian Coast 1851-1880*. UWA Press, Nedlands, 1988, pp. 31, 137,189.
 McCarthy, M., *Charles Edward Broadhurst*, Unpublished M. Phil. thesis, Murdoch, 1990.
Negotiation for a steam service in Western Australia and to the Eastern Colonies, V&P, WA 1878, 15.
 Parson R. *Ships registered at Fremantle before 1900*. R. Parsons, Lobethal SA, 1971, pp. 49-50.
 Parsons, Ronald H. *Steamships in Colonial Western Australia*. Lobethal SA, 1973, (2e 1980) p. 2.
PWD 1907, p.12.
Shark Bay Region Plan. State Planning Commission, CALM, 1987.
 Wilson, Helen Helga *Cyclone coast, Australias north-west frontier*. Rigby, 1980, pp. 13-26.

CHARTS

AUS 331, Quobba Point to Geraldton, 1:300,000, Prov. 1968.
 BA 518 Shark Bay with plan of Gascoyne Road, and inner and outer bars.
 BA 1056, Cape Cuvier to Champion Bay, 1:661,000, 1879,1917,1941.

MAPS

Carnarvon & Exmouth half million.
 Denham 1546, 1:100,000.
 Shark Bay 1646 (1), 1:100,000, 1974.
 Shark Bay SH 49-8, 1:250,000, 1967.
 Tourist map of Western Australia, Gascoyne Coast, 1:500,000, (detail 1:10,000) Department of Land Administration, Perth, 1988.
 WA 57/240 (1" to 240ch) 1910.

PHOTOGRAPHS

Port and netting road, c.1930. (BL 663B/1-4)

LIGHTS

Lagoon Landing. Peron Point.

Leading lights were exhibited from a wooden gallows in Denham and a light bouy was moored about two miles westward of Lagoon Point in 1948.

CHARTS

BA 518, Shark Bay.

BA 1056, Cape Cuvier to Champion Bay, 1:661,000. 1879,1917,1941.

BA 2759b.

MAPS

Department of Land Administration, Perth, 1988.

Gascoyne half million SG 50-W.

Tourist map of Western Australia, Gascoyne Coast, 1:500,000, WA 57/240 (1" to 240ch) 1910.

Wooramel 1746, 1:100,000, 1974.

Worramel SG 50-5, 1:250,000, 1967.

MAPS -

Carnarvon & Exmouth half million.

Gascoyne half million SG 50-W.

Hamelin 1745, 1:100,000, 1974.

WA 57/240 (1" to 240ch) 1910.

Yarringa SG 50-9, 1:250,000, 1965.

CARNARVON

Australian Pilot Volume V, North, North-West and West Coasts ... Torres Strait and Cape Leeuwin. HMSO, London, 2c. 1923, pp. 306-7.

Australian Pilot Volume V, North, North-West and West Coasts ... Torres Strait and Cape Leeuwin. HMSO, London, 4c. 1948, pp. 295-7.

Bach, John, *A maritime history of Australia*. Nelson Australia 1976; Pan Books, Sydney, 1982, pp. 237-242, 336-7.

Government Gazette, Perth, 1881 pp. 45,129,316; 1886 p. 566; 1887 p. 701; 1888 pp. 86,90,693; 1890 pp. 671,746; 1891 pp.164,382,494.

Kerr, Alex. *Australia's north-west*. UWAP, Nedlands. 1967.

Le Page, J. *Building a state, the story of the Public Works Department*. Water Authority, Perth, 1986, pp. 80,210,252,570-1,598.

Negotiation for a steam service in Western Australia and to the Eastern Colonies, V&P WA 1878, 15.

North-West coastal tramways, Carnarvon Light Railways, Summer 1974-5, pp. 6-10.

North-West coastal tramways, more on Carnarvon Light Railways, winter 1976, pp.14-15.

Pemberton, Barry, *Australian coastal ships*. MUP, Carlton, 1979, pp. 29-30.

Public Works Department reports. 1901 to 1909.

Report of Chief Harbourmaster, 1913.

Report:proposed harbour improvement on the Gascoyne. V&P WA 1896. A20.

Scott Memory, R. *A town grows, Carnarvon* . 1967.

Uhe, Phillippa, *Survey of Railway Heritage in Western Australia, North of the 26th Parallel*. National Trust of Australia (WA), Perth, 1994.

Wilson, Helen Helga *Cyclone coast, Australias north-west frontier* . Rigby, 1980, pp. 27-41.

CHARTS

AUS 331 Quobba, 1:300,000, Gascoyne Road (detail 1:37,500), 1968.

BA 41, Australia West Coast, Gascoyne Roads (4" to 1 mile) 1:18,240.

BA 518, Shark Bay, with plan of Gascoyne Road

BA 1056, Cape Cuvier to Champion Bay

BA 2759b, Australia, southern portion.

PWD 50780, 1:12,500, 1979.

MAPS

- Carnarvon & Exmouth Gulf, half million (1:500,000).
 Carnarvon 1648 (1), 1:100,000, 1974.
 Quobba SG 49-4, 1:250,000, 1964.
 Tourist map of Western Australia, Gascoyne Coast. 1:500,000, Department of Land Administration, Perth, 1988.
 WA 74/75 (1" to 240ch).
 WA 75/300, 1:237,000.
 WA sheet 10, Carnarvon, 1:638,600, c1953.

PHOTOGRAPHS

- Babbage Island Jetty (3)
 Babbage Island Lighthouses
 Babbage Island Lighthouses and cottage
 DAC B&W Oct 1993.
 Jetty, c.1911. (BL PC 87P), LPG 4.30
 Fishing Boat Harbour, dredging 1975, LPG 9.7
 Slipway, Nos.1 & 2 cradles, LPG 9.8
 Railtracks
 Water tank
 Whaling Station water tank (2)
 Whaling station jetty (3)

PLANS

- PWD 25, Gascoyne River soundings, from Teggs Channel to Carnarvon, 1887. Imperfect copy of PWD 27, 25/5/94.
 PWD 27, Plan showing south entrance of Gascoyne River, and Teggs Channel to Carnarvon, 100 to 1", proposed jetty and tramline, c.1887.
 PWD 29576, Soundings over berths.
 PWD 3145, Carnarvon Harbour improvements, location plan showing alternative routes for tranway to Babbage Island and municipal scheme; longitudinal section, E.E. Light, 1894.
 PWD 3190, Carnarvon Harbour in relation to proposed dredging at Teggs Channel. 400 to 1". E.E. Light, 25/10/1894.
 PWD 3308, Carnarvon Harbour improvements.
 PWD 3917, Carnarvon harbour improvements, 1895; Babbage Island Scheme, plan showing site of proposed jetty and stock routes, 4ch to 1", E.E. Light, 17/9/1895.
 PWD 3922, Carnarvon harbour improvements, stock yard and head of jetty, site plan, 1895
 PWD 5182, Jetty structure.
 PWD 38914, Hydrographic survey, 1961.
 PWD 41352-7. Public Works Department, 1965. Outports of Western Australia.
 PWD 48583-7-1/2. Public Works Department, June 1975. Regional Ports of Western Australia.

MAUD LANDING

LITERATURE

- Australian Pilot, North, North-West and West Coast ... Torres Strait to Cape Leeuwin*, HMSO, London, 1923, pp. 299-300.
 Le Page, John, *Building a state, the story of the Public Works Department*. Water Authority, Perth, 1986, pp. 210-1.
Moullen Note book, 1900-1937. p17. (WSA, M.Museum, Loan 82)
 PWD 1896-7 p. 35; 1903: 1905.
 Uhe, Phillippa, *Survey of Railway Heritage in Western Australia, North of the 26th Parallel*. National Trust of Australia (WA), Perth, 1994.
Western Australia 1902-1904 year book.
 Whiteford, D., *Maud Landing, a history* LRRSA 119. Jan 1993.

CHARTS

- AUS 72, Anchorages on the West Coast.
 AUS 330, Point Cloates to Point Quobba; Cape Cuvier 1:10,000, 1968, 1985.
 BA 51, Mauds Landing, (1" to 6104) 1:36,000, 1897.
 BA 52, North-West Coast, Point Cloates & adjacent coastline, 1897.
 BA 1055, Bedout Island to Cape Cuvier, 1:680,000, 1960.
 BA 3018, Plan of Point Cloates Anchorage and Mauds Landing.

MAPS

- Carnarvon & Exmouth half million.
 Mauds Landing 1651 (1), 1:100,000, 1974.
 Mauds Landing, locality and townsite (DW).
 Milya SF 49-16, 1:250,000.
 Plan of Mauds Landing Townsite, public plan, 1:2,376 (1" to 3ch) exd.1915, c.no 504 697.
 Tourist map of Western Australia, Gascoyne Coast, Department of Land Administration, Perth, 1988.
 WA 94/240, (1" to 240ch), 1953.

PHOTOGRAPHS

- Horses working on jetty head c.1925. (DW, R.French)
 Shed at the shore end of the jetty, with motor vehicles (DW, R. French)
 Rail/road combination 1947. (DW, R. French)
 Remains of Mauds landing, 1981. (DW)
 WSA pre 1930, April 1994, (2)

ONSLow

LITERATURE

- Admiralty List of Lights and Fog Signals, Volume K. South of the equator*, 1981, 1704,1706.
Australian Pilot Volume V, North, North-West and West ... Torres Strait to Cape Leeuwin, 2e
 1923,1930? pp. 289-291.
Australian Railway Historical Society Bulletin, 1942.
Chief Harbour Masters report 1926.
 Crellin, Ian & F. Stamford, *North-west coastal tramways, Onslow Light Railways*, Autumn 1975, pp.
 9-15.
 Drake-Brockman, G. *The turning wheel*. Paterson Brokensha, Perth, 1960. pp.175-6, 208.
Harbour & Lights Department, Annual Report 1925.
 Kerr, Alex. *Australia's north-west*. UWAP, Nedlands, 1967.
 Le Page, *Building a state*. Water Authority, Perth, 1986. pp. 410-1, 543.
 Uhe, Phillippa, *Survey of Railway Heritage in Western Australia, North of the 26th Parallel*. National
 Trust of Australia (WA), Perth, 1994.
 Webb, Marty & Audrey, *Edge of empire*. Artlook Books, Perth, 1983.
Western Australia, proclaimed ports, lighthouses and jetties. 1929. (Map).
 Wilson, Helen Helga, *Cyclone coast, Australia's north-west frontier*. Rigby, 1980, pp. 56-70.

CHARTS

- AUS 328, Monte Bello Islands to North-West Cape, 1:300,000, 1967.
 AUS 743, Barrow Island to Onslow, 1:150,000, 1970,1985.
 BA 1055, Bedout Island to Cape Cuvier, 1:680,000, 1960.
 BA 2759a, Australia northern portion.
 BA 3152, Ashburton Road.
 BA 3187, Mangrove Islands to North-West Cape.

MAPS

- Onslow 1954, 1:100,000.
 Onslow as at November 1974. (C&S pp. 12-13)
 Onslow SF 50-5, 1:250,000.
 Onslow SF 50-W, 1:500,000.
 WA 95/240 (1" to 240ch) 1953.

MAPS, historic

Plan of Onslow townsite, sheet 1, 1:4,752 (1" to 6ch), 1908, c.no 504 945.
 Plan of Onslow townsite, sheet 2, 1:4,752 (1" to 6ch), 1908, c.no 504 946.
 Townsite of Onslow (part of formerly Beadon) 1:3,168 (1" to 4ch), 1923, c.no 504 944.

PHOTOGRAPHS

Beadon Point Jetty looking towards the shore. (C&S p. 19)
 Beadon Point Jetty, 1974. (C&S p15)
 Beadon Point Jetty, before the 1934 cyclone (K.L. Kelsall), LPG 6.21
 Beadon Point Jetty, rebuilt 1936-38. (K.L. Kelsall), LPG 6.21
 Crellin & Stamford
 Driving stock to the jetty
 First concrete jetty at Onslow built 1925. DB
 Jetty before oil tanks
 Jetty head complete
 Jetty with oil tanks
 Onslow Goods Shed Museum
 Onslow jetty after the 1953 cyclone.

DAC August 1994.

Coastal wall
 Goods Shed (2)
 Goods shed (3)
 Goods shed crane
 Groyne ruins (2)
 Jetty ruins (3)
 Jetty ruins (3)
 Landing barge landing
 Lighter landing (1)
 Ruins of groynes (2)

OLD ONSLOW

LITERATURE

Australian Pilot Volume V, North, North-West and West ... Torres Strait to Cape Leeuwin, 2e 1923, pp. 289-291.
Australian Railway Historical Society Bulletin, 1942.
 Battye, J.S. *The cyclopedia of Western Australia*. 1912, p. 1013.
Chief Harbour Masters report 1911: 1926.
 Drake-Brockman, G. *The turning wheel*. Paterson Brokensha, Perth, 1960, pp. 175-6, 208.
Harbour & Lights Department, Annual Report 1925.
 Kerr, Alex *Australia's north-west*. UWAP, Nedlands, 1967.
 Le Page, *Building a state*. Water Authority, Perth, 1986, pp. 208-9, 410. (LPG)
 Nayton, G., *An archeological survey of Old Onslow*. Unpublished Report, 1991.
 Parsons, Ronald H. *Ships registered at Fremantle before 1900*. Lobethal SA, 1971, p. 33. (P1)
PWD 1892 p. 7; 1896-7 p. 34; 1900, p. 26.
 Uhe, Phillippa, *Survey of Railway Heritage in Western Australia, North of the 26th Parallel*. National Trust of Australia (WA), Perth, 1994.
 Webb, Marty & Audrey, *Edge of empire*. Artbook, Perth, 1983.
 Wilson, Helen Helga, *Cyclone coast*, Australia's north-west frontier. Rigby, 1980, pp. 56-70.

CHARTS

BA 1055, Beadon Island to Cape Cuvier, 1:680,000, 1960.
 BA 2759a, Australia northern portion.
 BA 3152, Ashburton Road.
 BA 3186, Mary Anne passage and approaches.
 BA 3187, Mangrove Islands to North-West Cape.

MAPS

Onslow 1954, 1:100,000.
 Onslow SF 50-5, 1:250,000.
 Onslow SF 50-W, 1:500,000.
 WA 95/240 (1" to 240ch) 1953.

MAPS, historic -

Onslow public plan, 1:3,168 (1" to 4ch) exd.1895,c.no 504940.
 Onslow public plan 1,4,752 (1" to 6ch) 1901, c.no 504 941.
 Plan of Onslow townsite, sheet 1, 1:4,752 (1" to 6ch), 1908, c.no 504, 945.
 Plan of Onslow townsite, sheet 2, 1:4,752 (1" to 6ch), 1908, c.no 504, 946.
 Townsite of Onslow (part of formerly Beadon) 1:3,168 (1" to 4ch), 1923, c.no 504 944.

PLANS

PWD 364 Ashburton, N-W, Landing Platform. Plan & elevation, 1885.
 PWD 1960/15, Ashburton Landing Extension, T.B. Barrat, 20/9/92.
 PWD 1960/25, Ashburton Landing Extension, T.B. Barrat, 20/9/92.
 PWD 4463, Ashburton Harbour Works, Stock Jetty Contract, 1896.
 PWD 6711/1, Ashburton Harbour Works, New Jetty Contract, J. Thompson, 1899.
 PWD 6711/2, Ashburton Harbour Works, New Jetty Contract, J. Thompson.
 PWD 6711, Ashburton Harbour Works, alterations carried out during 1919 shown in blue.

PHOTOGRAPHS

Clarks Wharf (2)
 DAC, B&W August 1994
 DAC, CS August 1994
 Horse drawn wagons on tramway
 Jetty ruins (Nayton, 1990)
 Onslow Goods shed Museum B&W
 Second Ocean jetty, after 1901.
 Telegraph pole on tramway (Nayton, 1990)
 Tramway bridge (4)
 Tramway bridge (4)
 Tramway bridge (Nayton, 1990)

FORTESCUE

LITERATURE

Australian Pilot Volume V, North, North-West and West Coast ... Torres Strait to Cape Leeuwin .
 HMSO, London, 2c 1923, p. 272.
Chief Harbourmasters Report 1907, p9. Fremantle Harbour Trust reports, 1911 to 1920. . . .
 De La Rue, K. *Pearl shell and pastures*. Cossack Project Committee, 1979, pp. 20-1.
Government Gazette, Perth 1898, p. 2797.
 Henderson, Graeme & Kandy Jane, *Unfinished voyages, shipwrecks on the Western Australian Coast 1851-1880*. UWA Press, Nedlands, 1988, pp. 185, 231,259. H2.
 Le Page, John, *Building a state*. Water Authority of Western Australia, Leederville, 1986, p. 146.
 Loney, Jack, *Wrecks on the Western Australian coast*. Ocean Enterprises, Yarram Vic, 1994, p. 61.
 Parson R. *Ships registered at Fremantle before 1900*. R. Parsons, Lobethal SA, 1971, pp. 25,27, 62.
PWD 1894 p. 6; 1896-7 p. 34; 1907 p. 12.
 Uhe, Phillippa. *Survey of Railway Heritage in Western Australia, North of the 26th Parallel*. National Trust of Australia (WA), Perth, 1994.

CHARTS

AUS 328, Monte Bello Islands to North-West Cape, 1:300,000, 1968,1972.
 AUS 743, Barrow Island to Onslow, 1:150,000 (Fortescue Road, 1:75,000). 1970, 1979.
 BA 475, North-West coast of Australia
 BA 917, Fortescue Road (1" to 6080) 1:72,960, 1884.
 BA 1055, Bedout Island to Cape Cuvier

MAPS

Fortescue 2455, 1:100,000.
 Map of Western Australia showing goldfields and mining districts, RDM 1909.
 Onslow SF 50-WE, 1:500,000.
 Pilbarra and West Pilbarra Goldfields, 1" to 20 miles, RDM 1902.
 WA 111/240 (1" to 240ch) 1914.
 Yarraloola SF 50-6, 1:250,000.

OTHER REFERENCES

PWD Plan 2029 (Arch).
 Dept N.W. File 678/1922.

PHOTOGRAPHS - DAC Aug 1994

Bolts on the cliff (1)
 Pile collar (1)
 Piles in the water (2)
 Road to township (1)

THE PILBARA COASTDAMPIER

REFERENCES

Australian Pilot Volume V, North, North-West and West Coast, Torres Strait to Cape Leeuwin. 2e 1923, p. 271.
Australian Pilot Volume V, North, North-West and West Coast, Torres Strait to Cape Leeuwin. 4e 1948, p. 269.
 Bach, J. *A maritime history of Australia*. Nelson, 1976 (Pan 1982) pp. 388,419-420.
Commission of Enquiry on the Maritime Industries Report on adequacy of Australian Ports. AGPS, Canberra, 1976, pp. 576-584.
 De La Rue, K. *Pearl shell and pastures.* Cossack Project Committee, 1979. DLR.
 Henderson, Graeme & Kandy Jane, *Unfinished voyages, shipwrecks on the Western Australian Coast 1851-1880.* UWA Press, Nedlands, 1988.
 Kerr, Alex, *Australia's North-West.* UWAP, Nedlands, 1967.
 Raggatt, H.G., *Mountains of ore.* Landsdowne, Melbourne, 1968, pp. 120-127.

CHARTS

AUS 58, Approaches to Port of Dampier, 1:75,000: 1:25,000, 1982.
 AUS 327, Port Walcott to Monte Bello Islands, 1:300,000, 1967, 1973.
 BA 43, North-West Coast, Hampton Harbour and Mermaid Sound (3.38" to
 BA 917, Hampton Harbour, 1:18,160; Mermaid Strait, 1:72,630, 1896.

MAPS

Dampier 2256, 1:100,000.
 SF 50-2, 1:250,000.
 WA 111/240 (1" to 240ch) 1914.

PHOTOGRAPHS

DAC August 1994
 Cairn
 Dampier Jetty and Pelletising Plant
 Pelletising Plant

POINT SAMSON

LITERATURE

- Australian Pilot Volume V, North, North-West and West Coast ... Torres Strait to Cape Leeuwin*. 2e, 1923, pp. 262-5.
Australian Pilot Volume V, North, North-West and West Coast ... Torres Strait to Cape Leeuwin. 4e, 1948, pp. 263-4.
 Bain, Mary Albertus, *Full fathom Five*. Artlook Books, Perth. 1982.
 Batty, J.S. *The cyclopedia of Western Australia*. 1912, 2, p. 1013.
Chief Harbour Masters Report 1907; 1912.
 Crellin, I & F. Stamford, *North-west coastal tramways, more on Roebourne Light Railways*, Spring 1976, pp. 11-13.
 Crellin, I & F. Stamford, *North-west coastal tramways, Roebourne Light Railways*, Winter 1975, pp. 9-14. (C&S)
 De La Rue, K., *Pearl shell and pastures*. Cossack Project Committee. 1979. DLR.
 Edwards, Hugh, *Port of pearls, a history of Broome*. Rigby, Adelaide. 1983.
 Joyce, John & A. Tilley, *Railways in the Pilbara*. J. & A. Publications, Wembley WA, 1979, pp.13-16.
 Kerr, Alex, *Australia's North-West*. UWAP, Nedlands, 1967.
 LePage, J. *Building a state, the story of the Public Works Department*. Water Authority, Perth, 1986, pp. 206-8,340,412,603.
 Page, Michael, *Fitted for the voyage, The Adelaide Steamship Company Ltd 1875-1975*. Adelaide, 1975, pp. 71,173-4.
 Raggatt, H.G., *Mountains of ore*. Landsdowne, Melbourne, 1968, pp. 119-120.
 Ridgway, P.L. ed. *Minor ports of Australia*. Australian Association for Maritime History, Perth, 1988.
 Sledge, Scott, *Wreck inspection North Coast (WINC)* 1978. WA Museum, Perth, 1979, pp. 17-18.
 Thomas, C.B. *Roebourne*. ARHS, July 1941.
 Uhe, Philippa, *Survey of Railway Heritage in Western Australia, North of the 26th Parallel*. National Trust of Australia (WA), Perth. 1994.

CHARTS

- AUS 326, Bedout Island to Port Walcott, 1:300,000. 1967,1973.
 AUS 327, Port Walcott to Monte Bello Islands, 1:300,000, 1967,1973.
 AUS 740, Port Hedland to Port Walcott, 1:150,000. 1983.
 BA 40, Soundings at Port Walcott, 1881.
 BA 475, North-west coast of Australia.
 BA 1055, Plan of Port Walcott.

MAPS

- De Gray SF 50-E, 1:500,000, pre 1974?
 Roebourne 2356, 1:100,000.
 Roebourne SF 50-3, 1:250,00.
 WA 110/240 (1" to 240ch) 1923.
 WA 817/80 (1" to 80ch) 1959.
 WA 844/80 (1" to 80ch) 1941.

PLANS

- Outports of Western Australia, PWD 41352-6. Public Works Department, 1965.
 Point Samson as at November 1974. (C&S)
 PWD 6023, Cossack Harbour Works, Point Sampson Scheme. location plan, 1898.
 PWD 6024, Cossack Harbour Works, Point Sampson Scheme. location plan, 1898.
 PWD 6028, Cossack Harbour Works, Point Sampson Scheme, plan showing soundings, 100 to 1", 21/10/1897, R.N. Rolland. [proposed alternative routes to Cossack and Roebourne]; ES 537; H&R 269.
 PWD 9692, Point Sampson jetty and proposed site for town (1" to 500) 1:6,000, 15/1/1902.
 PWD 12265, 1896.
 PWD 15834, Point Sampson Bond Store and Qtrs. 05/07/1911.
 PWD 27808, Jetty and approaches
 PWD 35199, Jetty soundings.
 PWD 35413, Goods yard.
 Regional Ports of Western Australia, PWD48583-6-1/2/3. Public Works Department, June 1975.

PHOTOGRAPHS

Point Samson Jetty nearing completion c1903. (BL 21599P), LPG 5.17
 Point Samson Jetty rebuilt 1936-38. (BL 28018P), LPG 6.23
 Point Samson Jetty and SS Charon. (DLR p126)
 Point Samson Jetty before demolition. (Pilbara journey, Nucolorvue
 Point Samson Jetty, c1905? (Notes on timbers, 1908)
 Point Samson jetty, c.1910 with narrow gauge track. (C&S)
 Simplex-Dorman diesel locomotive, November 1974. (C&S)
 WSA 1.11-13 Point Samson (3)

DAC August 1994

Remains of timber bents (2)

Ruins of outer end of jetty (3)

Battye Library (SAWA)

Jetty c.1917, BA 506

SS Karrakatta, 24022P

COSSACK

REFERENCES

- Australian Pilot Volume V, North, North-West and West Coast ... Torres Strait to Cape Leeuwin*. 2e, 1923, pp. 262-5.
Australian Pilot Volume V, North, North-West and West Coast ... Torres Strait to Cape Leeuwin. 4e, 1948, pp. 263-4.
 Bain, Mary Albertus, *Full fathom Five*. Artlook Books, Perth, 1982, pp.17-23, etc.
 Battye, J.S. *The cyclopaedia of Western Australia*, 1912, 2, p. 1013.
Chief Harbour Masters Report 1907: 1912.
Cossack conservation and management plans, second report. Cossack Task Force, Perth, 1989.
 Crellin, I. & F. Stamford, *North-west coastal tramways, more on Roebourne Light Railways*, Spring 1976, pp. 11-13.
 Crellin, I. & F. Stamford, *North-west coastal tramways, Roebourne Light Railways*, Winter 1975, pp. 9-14.
 De La Rue, K. *Pearl shell and pastures*. Cossack Project Committee, 1979. DLR.
Dispatches of HE the Governor, No.13, V&P WA, 1872, 3.
 Edwards, Hugh, *Port of pearls, a history of Broome*. Rigby, Adelaide, 1983.
Government Gazette, Perth 1865 p. 84; 13/11/1866: 1871 p. 93; 1875 pp. 13,86, 194; 1877 p. 175; 1878 p. 201; 1881 p. 278; 1882 pp. 117,182; 1884 pp. 465, 625; 1886 pp. 346,361; 1887 p. 392; 1888 p. 262; 1892 pp. 793,1063.
 Henderson, Graeme & Kandy Jane, *Unfinished voyages, shipwrecks on the Western Australian Coast 1851-1880*. UWA Press, Nedlands, 1988, pp. 93,140,253.
Inquirer 3/8/1870; 7/2/1872; 10/4/1872.
 Joyce, John & A. Tilley, *Railways in the Pilbara*. J. & A. Publications, Wembley WA, 1979, pp. 7-16. (J&T)
 Le Page, J. *Building a state. the story of the Public Works Department*. Water Authority, Perth, 1986, pp. 206-8,340.
 McIlroy, J., *Cossack, an archaeological survey from Pearl Street to Chinatown*. Western Australian Museum, 1990.
 Nayton, G. *An archeological survey of Cossack*. Unpublished report, 1991.
 Nayton, G. *An archeological zoning plan for Cossack*. Unpublished report, 1990.
 Nayton, G. *Preliminary historical research on Cossack*. Unpublished report, 1990.
 Page, Michael, *Fitted for the voyage, The Adelaide Steamship Company Ltd 1875-1975*. Adelaide, 1975, pp.71,173-4.
Report of Collector of Customs, etc, 1896, p.13.
Report of Director of Public Works 1885 V&P WA 1886, 26; 1886 V&P WA 1887, 25; 1892 p. 7; 1894, 22; 1896-7 p. 34; 1902, p. 20; 1906 p. 20.
Report on proposed railway line Marble Bar to Port Hedland, and Cossack to Marble Bar, with plans. V&P WA 1895, A20.

- Ridgway, P.L. ed. *Minor ports of Australia*. Australian Association for Maritime History, Perth, 1988, pp. 16-23.
- Sledge, Scott, *Wreck inspection North Coast (WINC)* 1978. WA Museum, Perth, 1979, pp. 16-18.
- State Planning Commission, *Cossack the first port in the North-West*, Perth, 1989.
- Thomas, C.B. *Roebourne* ARHS, July 1941.
- Uhe, Philippa *Survey of Railway Heritage in Western Australia, North of the 26th Parallel*. National Trust of Australia (WA), Perth, 1994.
- Van Raak, K. & P. Green *Living in a ghost town* Geo. Jun-Aug 1987, 9(2) pp. 78-87.
- Withnell-Taylor, N.E. *Yeera-Muk-A-Doo*. Fremantle Arts Centre Press, Fremantle, 1980.

CHARTS

- AUS 326, Bedout Island to Port Walcott, 1:300,000, 1967,1973.
- AUS 327, Port Walcott to Monte Bello Islands. 1:300,000, 1967,1973.
- AUS 740, Port Hedland to Port Walcott, 1:150,000, 1983.
- BA 40, Soundings at Port Walcott, 1881.
- BA 475. North-West coast of Australia.
- BA 1055, Bedout Island to Cape Cuvier.

MAPS

- De Grey SF 50-E, 1:500,000, pre 1974?
- Map of Western Australia, showing goldfields and mining districts, RDM 1909.
- Pilbarra and West Pilbarra Goldfields, 1" to 20 miles, RDM 1902.
- Roebourne 2356, 1:100,000.
- Roebourne SF 50-3, 1:250,000.
- WA 110/240 (1" to 240ch) 1923.
- WA 817/80 (1" to 80ch) 1959.
- WA 844/80 (1" to 80ch) 1941.

PLANS

- PWD 12265, 1896.
- PWD 360, Cossack Harbour Improvements (W.L. Owen) 2 sheets, 1887.
- PWD 1501, Port Walcott Cossack jetty & approaches contract. [location plan, site plan, longitudinal section], 1892.
- PWD 1788, Harbour Improvements Cossack. (Nielsen & Martinson contract).
- PWD 1983, Harbour Improvements Cossack, wharf, construction of quay wall with approaches, formation work, ... location plan, site plan and longitudinal section, 1892.
- PWD 4208, Plan of approach to stock landing, 2ch to 1". 1896.
- PWD 4209, Cossack harbour works, stock yard contract. [site plan, general plan, 1896.
- PWD 4448, Cossack explosives magazine, location plan. Cossack townsite, 1896.
- PWD 4589, Cossack and Roebourne marsh road, 6ch to 1" plan of road, 100ft to 1" plan of bridges; elevations & sections, 1895.

PHOTOGRAPHS

- Barque *Solveig* of 574 tons beached at Cossack, 1903. (Blackman, G)
- Cossack after the cyclone in 2/4/1898. (3) (Karratha Public Library), (includes BL 2986P & 2987P)
- Cossack from Nanny Goat Hill, 1898. DLR p. 53.
- Cossack looking south from Readers Head
- Cossack wharf
- Cossack wharf 1885. DLR p112. (BL 935B/6.8)
- Cossack wharf 1894? DLR p113. (BL 20991P?)
- Cossack Wharf, 1910? (BL 25593P)
- Cossack, general view, c.1900 (BL 23976P)
- Cossack-Roebourne Tramway embankment, looking North & South
- Cossack-Roebourne Tramway, creek crossing north of access road
cyclone 2/4/1898. DLR p114. (See also KPL)
- DAC August 1994 B&W

Government buildings at Cossack, 1894. DLR p. 55.
 Horse tramway in Roebourne. (C&S)
 Jarman Island & lighthouse
 Loading wool at Cossack, 1930s? (2) BL 27232P & 68252P)
 LPG 4.28 Cossack Wharf. (BL PC 23977P)
 LPG 4.29 Cossack Wharf April 1898 after the cyclone. (BL PC 2987P)
 Luggers at Cossack, c.1901-3. (Blackman, G)
 Orenstein & Keppel locomotive (C&S)
 Pearlring fleet at anchor in Butchers Inlet 1885. DLR p. 72.
 Retaining wall south of the wharf (2)Cossack, general view. c.1900 (BL 21616P)
 Silver Star at Cossack Wharf 1936. (4) (Marshall)
 SS Beagle and the schooner Fanny Thornton ashore after the
 SS Karakatta, 24022P
 Tram leaving Roebourne for Cossack. 24013P
 Wreck of the Silver Star (2) (Marshall)
 Wreck of the Silver Star 1978. (Scott)
 WSA 1.10 Cossack Wharf
 WSA 1.14 Cossack

BALLA BALLA

LITERATURE

Anon. *Whim Well Tramway*.
Australian Pilot Volume V, North, North-West and West Coast . Torres Strait to Cape Leeuwin. 2e 1923,
 p. 262.
Chief Harbourmaster, annual report. 1907 p.13; 1915.
 De La Rue, K. *Pearl shell and pastures*. Cossack Project Committee, 1979.
 Drake-Brockman, G. *The turning wheel*. Paterson Brokensha, Perth, 1960, p. 176.
Government Gazette, Perth, 1898, p. 2797.
 Green, J. *Depuch Island Site*, Unpublished Wreck Inspection Report, DMA, WA Maritime Museum,
 No.11, 1990.
 Henderson, Graeme & Kandy Jane, *Unfinished voyages, shipwrecks on the Western Australian Coast
 1851-1880*. UWA Press, Nedlands, 1988, pp. 90-91. 228.
 LePage, John, *Building a state*. Water Authority of Western Australia, Leederville, 1986, p. 210.
 Parson R. *Ships registered at Fremantle before 1900*. R. Parsons, Lobethal SA, 1971, p. 28.
Public Works Department reports, 1895-6 p. 29; 1896-7 p. 33; 1904 p. 26; 1907; 1921 p.16.
Report Department of Mines, Perth 1906, 1910.
*Report on proposed railway line Marble Bar to Port Hedland, and Cossack to Marble Bar, with plans V&P
 WA 1895, A20*.
 Sledge, *Scott Wreck inspection North Coast* (WINC), 1978 report Report Department of Maritime
 Archeology WA Museum, 1979, pp. 86-93.
 Uhe, Phillippa, *Survey of Railway Heritage in Western Australia, North of the 26th Parallel*. National
 Trust of Australia (WA), Perth, 1994.

CHARTS

AUS 326, Bedout Island to Port Walcott, 1:300,000, 1967.
 BA 328, Depuch Island Anchorage, 1:18,070, 1909.
 BA 1055, Bedout Island to Cape Cuvier, 1:680,000. 1960.

MAPS

De Gray SF 50-E, 1:500,000, pre 1974.
 Roebourne 2356, 1:100,000.
 Roebourne SF 50-3, 1:250,000.
 WA 110/240 (1" to 240ch), 1923.

PLANS

PWD 13569 Balla Balla Townsite and jetty, (1" to 1500ft) 1:18,000, 1906.
 PWD 6243/06 Balla Balla jetty, causeway & township
 Townsite of Balla Balla. c.1916. (Anon)

PHOTOGRAPHS

Coal dump
Crown of England wreck (2) (Scott Sledge, 1979)
Eddystone wreck (3) (Scott Sledge, 1979)
 Jetty ruins (2) (DAC Aug 1994)
 Landing pile
 Lighter wreck (2)
 Loading sheep on the jetty.
 LPG 4.31 Balla Balla Landing, c.1908. BL 2959P.
 Ore dump
 Orenstein & Koppel 0-4-0 locomotive at the jetty. (anon, BL)
 Raft (DAC Aug 1994)
 Remains of ore lighter (Scott Sledge, 1979)
 Tramway & bridge (3)
 Typical train on the tramway. (anon, BL)
 Wreck of lighter (DAC Aug 1994)

PORT HEDLAND

LITERATURE

- Australian Pilot, North, North-west and West Coasts. Torres Strait and Cape Leeuwin.* HMSO, London, 2e, 1923, pp. 256-9.
Australian Pilot, North, North-west and West Coasts. Torres Strait and Cape Leeuwin. HMSO, London, 4e, 1948 pp. 255-8.
 Bach, John, *A maritime history of Australia.* Pan, Sydney, 1976, pp. 237- 245,337-8,419-422.
 Battye, J.S. *The cyclopedia of Western Australia.* 1912. 2, pp. 1014.
 Bureau of Transport Economics, *A study of Western Australian ports.* . Director General of Transport, WA, AGPS, Canberra, 1981, pp. 80-81.
Chief Harbour Master's Report 1911 p. 8; 1912.
 Commission of Enquiry on the Maritime Industries. *Report on adequacy of Australian Ports.* AGPS, Canberra, 1976, pp. 592-610.
 Crellin, I & F. Stamford, *North-West Coastal tramways, Port Hedland Light Railways,* Autumn 1976, pp. 4-6.
 Henderson, Graeme & Kandy Jane, *Unfinished voyages, shipwrecks on the Western Australian Coast 1851-1880.* UWA Press, Nedlands, 1988, p. 129.
 Kerr, Alex , *Australia's North-West* . UWAP, Nedlands, 1967.
 Le Page, J. *Building a state, the story of the Public Works Department.* Water Authority, Perth, 1986, pp. 210,599.
 Loney, Jack *Wrecks on the Western Australian Coast.* Oceans Enterprises, Yarrain Vic, 1994. (L)
 Mount Newman Mining Co Pty Ltd. *Mt Newman operations guide. Port Hedland,* 1980, pp. 19-23. (MtN)
 Page, Michael, *Fitted for the voyage, The Adelaide Steamship Company Ltd 1875-1975.* Adelaide, 1975, pp. 147,186,317. (PG)
 Parsons, Ronald H. *Ships registered at Fremantle before 1900.* R. Parsons. Lobethal SA, 1971, p. 51. (P1)
Public Works Department Report, 1900: 1904.
 Raggatt, H.G. *Mountains of ore* . Landsdowne, Melbourne, 1968. pp.120- 128.
Report on proposed railway line Marble Bar to Port Hedland, and Cossack to Marble Bar, with plans. V&P WA 1895, A20.
 Stephens, A.M. *The Stateships story 1912-1977.* Stateships, Fremantle. 1977.
 Uhe, Phillippa, *Survey of Railway Heritage in Western Australia, North of the 26th Parallel.* National Trust of Australia (WA), Perth, 1994.
 Woodland, R. *Port Hedland to Marble Bar Railway,* ARHS Bulletin, Jan 1975.

MAPS

De Grey SF 50-E, 1:500,000.

Map of Western Australia, showing goldfields and mining districts, RDM 1909.

Pilbarra and West Pilbarra Goldfields, 1" to 20 miles, RDM 1902.

Port Hedland 2657, 1:100,000, 1973.

Port Hedland SF 50-4, 1:250,000.

Port Hedland, gateway to the Pilbara, 1:25,000.

WA 113-110/240 (1" to 240ch) 1923.

WA 113/300 ??

Western Australia showing proclaimed ports, lighthouses and jetties, 1929.

HISTORIC Maps

1. Plan of townsite of Withnell now Port Hedland, 1:3,168 (1" to 4ch), 1896, c.no 505 028.

2. Plan of townsite of Port Hedland, 1:3,168 (1" to 4ch), canc 1934, Loc.plan 1:237,600 (1" to 300ch) c.no 505 029.

3. Plan of townsite of Port Hedland, Forrest District, 1:3,168 (1" to 4ch), 1934, Loc.plan 1:237,600 (1" to 300ch) c.no 505 030.

4. Plan of Port Hedland, Forrest District, 1:3,168 (1" to 4ch), ex.1958, Loc.plan 1:237,600 (1" to 300ch) c.no 505 031.

5. Port Hedland, Forrest District, 1:3,168 (1" to 4ch), 1962-75, 4-sheets, (1" to 300ch) c.no 505 029.

CHARTS

AUS 53.

AUS 326, Bedout Island to Port Walcott, 1:300,000, 1967.1973.

AUS 739.

AUS 740, Port Hedland to Port Walcott, 1:150,000, 1970.1983.

BA 59, Port Hedland (1 to 3050) 1:36,600, 1896.

BA 475.

BA 1437, Port Hedland, 1897.

PHOTOGRAPHS

Approach embankment

Cattle race (2)

General view & goods shed

Iron ore storage and loading, c.1993?

Jetty, c.1910, LPG 5.18

Leslie Salt stockpiles, c.1993.

Looking landwards on jetty

Luggers at jetty 1920s.

Luggers at Port Hedland

MV Koolama leaving Port Hedland 1938

Packing pearls shell jetty early 1900s.

Signal tower

SS *Centaur* berthing 1926.

SS *Koolinda* entering harbour c.1927.

SS *Koombana* leaving harbour

SS *Minderoo* 1925.

Thomas, L.

Wharf c.1900.

WSA pre. 1930.

PLANS

Port Hedland jetty and tramway, (1" to 1ch) 1:792, 17/01/1903, PWD 9697; PK 435/3.

Port Industrial facilities Nelson Point (MtN p. 45)

Port ore handling diagram. (MtN p. 43)

PWD 35861, Jetty Structure

PWD 36701, Hydrographic Surveu, 1960.

PWD 40427, Goods yard and manganese ore area.

PWD 41352, Outports of Western Australia. Public Works Department, 1965.

PWD48583-5-1/2, Regional Ports of Western Australia. Public Works Department, June 1975.

Regional Ports of Western Australia, Port of Port Hedland. Locality plan and services, 1983.

CONDON & Township (Shellborough)

LITERATURE

- Australian Pilot Volume V, North, North-West and West Coast ... Torres Strait to Cape Leeuwin.* 2e 1923, p. 253.
- Bach, J. *A maritime history of Australia.* Nelson (Aust) 1976 (Pan, 1982) pp. 165-7,240.
- Bain, Mary Albertus, *Full fathom Five.* Artlook Books, Perth, 1982, pp.16-29
- Chief Harbour Masters report, 1907,* p. 9.
- Parson R. *Ships registered at Fremantle before 1900.* R. Parsons, Lobethal SA, 1971, pp.10,28,33.
- Public Works Department report, 1895-6,* p. 29.
- Report of Inspector of Pearl Shell Fisheries 1892.* V&P WA, 1893, 3.
- Report of work ... joint Admiralty and Colonial Survey Department 1885* V&P WA 1886, 28.
- Report on proposed railway line Marble Bar to Port Hedland, and Cossack to Marble Bar, with plans.* V&P WA 1895, A20.
- Uhe, Phillippa, *Survey of Railway Heritage in Western Australia, North of the 26th Parallel.* National Trust of Australia (WA), Perth, 1994.

PHOTOGRAPHS

- Barque 'Arabella' loading wool in the creek, c.1900. (Bach)
- " " (G. Blackman)
- Loading wool at the jetty on to the schooner 'Nellie'. (G. Blackman)
- SS 'Minilya' and lugger on the sand, 1908. (G. Blackman)

DAC August 1994

Bond store foundations (2B&W, 2CS)

Bond store water tank (B&W,CS)

Creek (B&W, CS)

Jetty remains (2B&W, 2CS)

CHARTS

- BA 1048, Buccaneer Archipelago to Bedout Island, 1:300,000, 1884,1911.
- BA 1048, Buccaneer Archipelago to Bedout Island, 1:300,000, 1884,1960.
- AUS 325, Lacepede Island to Bedout Island, western sheet, 1:300,000.
1966.

HISTORIC MAPS

- Part of Townsite of Shellborough, North District of WA, as surveyed 1:3,168 (1" to 4ch) cane 1892, c.no 505 128.
- Part of Townsite of Shellborough, North District of WA, as surveyed 1:3,168 (1" to 4ch) litho 1891, c.no 506 809.
- Townsite of Shellborough, 1:2,970 (1" to 3.75ch) cane 1903, c.no 505 128.
- Townsite of Shellborough, 1:3,168 (1" to 4ch) litho 1894, c.no 505 130.
- Report on proposed railway line Marble Bar to Port Hedland, and Cossack to Marble Bar, plan. V&P WA 1895, A20.
- WA 114/240 (1" to 240ch) 1905.
- Pilbara and West Pilbara Goldfields, 1" to 20 miles. RDM 1902.
- Map of Western Australia, shewing goldfields and mineral districts. 1:5,000,000, Minister of Mines, Perth, 1909.

HISTORIC PLANS

- PWD 4225, Condon Bond Store, Town site 1894, Bond Store 1896.
- PWD 4650, Condon Creek Jetty plans, locality, jetty plan, section & elevation, 1896.

THE KIMBERLEY COASTBROOME

REFERENCES

- Australian Pilot, North, North-west and West Coasts, ... Torres Strait and Cape Leeuwin.* HMSO, London, 2e, 1923, pp. 244-9.
- Bach, John, *A maritime history of Australia.* Pan, Sydney, 1976, pp. 238- 245,336-7.
- Bain, Mary Albertus, *Full fathom Five* . Artlook Books, Perth, 1982.
- Batty, J.S., *The cyclopedia of Western Australia* . 1912, 2. p.1015.
- Bresser, Bill, *Pencil sketches of Broome.* BJ Publications, 1977.
- Bureau of Transport Economics, *A study of Western Australian ports.* Director General of Transport, WA, AGPS, Canberra, 1981, pp. 80-86.
- Chief Harbour Masters Report 1912.*
- Commission of Enquiry on the Maritime Industries, *Report on adequacy of Australian Ports.* AGPS, Canberra, 1976, pp. 611-617.
- Crellin, I & F. Stamford, *North-West coastal Tramways, Broome Light Railways,* Winter 1976, pp. 6-9. (C&S)
- Drake-Brockman, G. *The turning wheel.* Paterson Brokensha, Perth, 1960, pp. 164,169,etc.
- Edwards, Hugh, *Port of pearls, a history of Broome.* Rigby, Adelaide, 1983. (ED)
- Government Gazette,* Perth, 1890-p1; 1898 p2797.
- Le Page, J., *Building a state, the story of the Public Works Department.* Water Authority, Perth, 1986, pp. 210. (LPG)
- PWD 1896-7* p.33; 1900 pp. 26-7; 1907-8.
- Report of Postmaster General 1884 V&P WA 1885, 2.*
- Report of work ... joint Admiralty and Colonial Survey Department 1885 V&P WA 1886, 28.*
- Sledge, Scott, *Wreck inspection North Coast (WINC).* 1978 report Report Department of Maritime Archeology, WA Museum, 1979, pp. 19-25.
- Uhe, Phillippa, *Survey of Railway Heritage in Western Australia, North of the 26th Parallel.* National Trust of Australia (WA), Perth, 1994.

CHARTS

- AUS 50, Approaches to Broome, 1:50,000; Broome Harbour 1:18,000, 1973.
- AUS 324, Lacepede & Bedout Island, eastern itet, 1:300,000, 1975.
- BA 475, North-West Coast of Australia with off lying islands and reefs, 1:1,916,000, 1880, 1c1928,sc1974.
- BA 858, Roebuck Bay, 1:48,410, 1883,1964.
- BA 1048, Buccaneer Archipelago to Bedout Island, 1:300,000, 1884, 1960.
- BA 1207.
- BA 3774 Lacepede Islands to Roebuck Bay.

MAPS

- Broome 3362, 1:100,000.
- Broome SE 51-6, 1:250,000.
- WA 136/240 (1" to 240ch) 1941.
- West Kimberley, Street Smart Touring Map, 1:800,000, (detail 1:20,000), 1991
- Western Australia showing proclaimed ports, lighthouses and jetties, 1929. (Map)

HISTORIC MAPS

- Part of Broome townsite showing foreshore leases, 1:3,960?? (1" to 5ch) litho 1924, c.no 503 854.
- Plan of Broome, 1:4,752 (1" to 6ch) litho 1890, Loc.plan 1:237,600 (1" to 300ch), c.no 503 850.
- Plan of Broome, 1:4,752 (1" to 6ch) litho 1906, Loc.plan 1:237,600 (1" to 300ch), c.no 503 851.
- Plan of Broome, 1:4,752 (1" to 6ch) litho 1913, Loc.plan 1:237,600 (1" to 300ch), c.no 503 852.
- Plan of Broome, Kimberley Area 1:4,752 (1" to 6ch) litho 1925, Loc. plan 1:285,120 (1" to 360ch), c.no 503 853.
- Townsite of Broome, 1:4,752 (1" to 6ch) canc.1890, inset locality plans 1:95,040 (1" to 120ch) c.no 503 849.

PLANS

Broome jetty & tramway, 1976 (C&S)
 Entrance Point Jetty site plan, 1960s. 8.23 Entrance Point jetty, profile of head. LPG 8.22
 Outports of Western Australia, PWD 41352-4. Public Works Department, 1965.
 Port of Broome, Locality plan and services: Anderson, M., 1983. Regional Ports of Western Australia, PWD 36984, Hydrographic Survey, 1959.
 PWD 40419, Entrance Point Jetty, c.1965
 PWD 40858, Port facilities.
 Regional Ports of Western Australia, PWD48583-4-1/2. Public Works Department, June 1975.

PHOTOGRAPHS

Approach cutting (2)
 Broome foreshore after a cyclone. (BL: Ed p. 120)
 Chinese and Japanese arch, showing tramway 1904. p. 249.
 Customs shed & tramway.
 Dampier Creek, foreshore with luggers, mother schooner and quarters, (WAM, Bourne Coll.)
 Entrance point jetty
 Jetty approach
 Jetty at Broome. (Notes on Timbers, 1908)
 Jetty.
 Leading mark.
 Mangrove Point Jetty with cars, p. 167
 MV Koolinda at jetty at low tide (DB)
 Pearling luggers in Dampier Creek, p185 (K.A.S. Male)
 Pearling luggers on foreshore, p. 168.
 Pearling luggers p173, BL.
 Pearling luggers p174, (WAM, Bourne Coll.)
 Sorting & packing till in Streeter & Males itd. (K.A.S. Male), Ships at Broome Jetty (BL; O. Stubbe; ED p. 105)
 SS Bullara at low tide. (PG p172)
 SS Kangaroo at Mangrove Point Jetty. (C&S), WSA pre 1930, possibly 1905?
 Stock race (2)
 Streeters Jetty (Broome Time, 1994)
 Streeters Jetty (Streetsmart Tourist Map, 1991)
 Streeters Jetty p. 224 (BL)

Postcards

Dampier Rock monument (NT Souvenirs PL)
 De-compression chamber and compressor in Broome Park (N.Aust Trading Co.)
 Entrance Point Jetty (Nu-Color-Vue)
 Lugger on beach (Maria Mann, Broome)
 Streeters Jetty and lugger (N.Aust Trading Co.)
 Streeters Jetty and lugger (NT Souvenirs PL)
 Streeters Jetty and lugger B1. (Advance Souvenirs)
 Streeters jetty and lugger (Red Dirt Arts)

DERBY

REFERENCES

- Australian Pilot, North, North-west and West Coasts, ... Torres Strait and Cape Leeuwin.* HMSO, London, 2e, 1923, p. 231-3.
- Australian Pilot, North, North-west and West Coasts, ... Torres Strait and Cape Leeuwin.* HMSO, London, 4e, 1948, p2. 31-3.
- Bach, John, *A maritime history of Australia.* Pan, Sydney, 1976, pp. 201, 238-245, 336-7, 388-392.
- Bain, Mary Albertus, *Full fathom Five.* Artlook Books, Perth, 1982, pp. 92, etc.
- Battye, J.S. *The cyclopedia of Western Australia.* 1912, 2, p.1015.
- Bureau of Transport Economics, *A study of Western Australian ports,* Director General of Transport, WA, AGPS, Canberra, 1981, p. 85.
- Chief Harbour Masters Report 1911.*
- Commission of Enquiry on the Maritime Industries. *Report on adequacy of Australian Ports* . AGPS, Canberra, 1976, pp. 618-621.
- Crellin, Ian & F. Stamford, *North-west coastal tramways, Derby Light Railways,* Spring 1976, pp. 4-8. (C&S)
- Dispatches of the Governor No.64-1883, Foundation of the new town of Derby.* V&P WA 1884, 21.
- Edwards, Hugh, *Port of pearls, a history of Broome* . Rigby, Adelaide, 1983.
- Fremantle Harbour Trust Commissioner, reports 1904 to 1921.*
- Government Gazette,* Perth, 1885, p. 278,524,535.
- Le Page, J. *Building a state, the story of the Public Works Department.* Water Authority, Perth, 1986, pp.162,210.
- Public Works Department Report 1894; 1900 p. 26; 1901 p.15; 1905 p.12; 1921.*
- Report of Director of Public Works 1885* V&P WA 1886, 26.
- Report of Post Master General 1884* V&P WA 1885, 2, p. 7.
- Uhe, Phillippa, *Survey of Railway Heritage in Western Australia, North of the 26th Parallel* . National Trust of Australia (WA), Perth, 1994.

CHARTS

- AUS 45 Approaches to Derby King Sound, 1:50,000, 1950.
- AUS 175,
- AUS 176,
- AUS 733 Buccaneer Archipelago and King Sound 1:150,000, 1965.
- BA 475, North-West Coast of Australia ... off lying islands and reefs, 1:1,916,000, 1880, 1928, 1974.
- BA 1026,
- BA 1048, Buccaneer Archipelago to Bedout Island. 1:300,000, 1884, 1960.

PLANS

- Outports of Western Australia, PWD 41352-2. Public Works Department, 1965.
- PWD 363 Derby Jetty. Plans, Long section, section of marsh at Derby Landing (H.F. Johnston) c.1880.
- PWD 2140 Derby - repairs to jetty. Plan, elevation, sections. plan of boat landing, 1893.
- PWD 2387 Derby Cattle yards. Plan showing end of race and ramp to cage, 1893. (in PWD 12638)
- PWD 5599 Derby Jetty extensions (proposed), site plans and drawings, 1897.
- PWD 5677 Derby Jetty cattle yards, various proposed improvements, 1897.
- PWD 11554 Derby Plan showing proposed extension of viaduct, 1896. (in PWD 12430)
- PWD 12430 Cattle turning yards (in PWD 7928 Bk.1)
- PWD 12638 (other copies) - repairs and further details of cross sections and levels, 1912.
- PWD 12638 Derby Stockyards and cattle race. General plan and enlarged plan of jetty viaduct and cattle yards, 1906. (In PWD 12638)
- PWD 25913 Alterations and repairs, piers 0.38 to 3. 1928 (in PWD 7928 Bks 1&2)
- PWD 27777, Details of boat landing; section of piers. 1935. (in PWD 7928)
- PWD 28856, Extension of head, 1940. 9in Pwd 7928 Bk.2)
- PWD 37861 Hydrographic survey, 1959.
- PWD 39297 Jetty structure, c.1964.
- Regional Ports of Western Australia, Port of Derby. Locality plan and services, 1983.
- Regional Ports of Western Australia, PWD 48583-3-1/2. Public Works Department, June 1975.
- Tramway arrangements during construction of the new jetty. (C&S)
- Tramway system at maximum extent, c.1940. (C&S)

MAPS

Derby 3663, 1:100,000.

Derby SE 51-7, 1:250,000.

WA 135/240 (1" to 240ch).

West Kimberley, Street Smart Touring Map, 1:800,000, (detail 1:20,000) 1991.

Western Australia, showing proclaimed ports lighthouses and jetties. 1929. (plan)

HISTORIC MAPS

1. Townsite of Derby, 1:3,168 (1" to 4ch) drawn 1883, inset - townsite, tidal flats and proposed jetty 1:23,760. c.no 596 810. Fitzroy District 135/300. Derby 1964.

2. Townsite of Derby, 1:4,752 (1" to 6ch), n.d. inset - townsite, tidal flats and proposed jetty 1:35,600 (1" to 45ch) c.no 504 154.

3. Townsite of Derby, 1:4,752 (1" to 6ch), n.d. inset - townsite, tidal flats and proposed jetty 1:35,600 (1" to 45ch) c.no 504 154.

4. Townsite of Derby, suburban lots, 1:6,336 (1" to 8ch). litho 1888, c.no 504 156.

5. Townsite of Derby, 1:4,752 (1" to 6ch), canc.1921, inset - townsite, mud flats, jetty, etc, 1:35,600 (1" to 45ch) c.no 504 157.

5A. Townsite of Derby, 1:6,336 (1" to 8ch), litho.1921, inset - townsite, mud flats, landing, etc, 1:63,360 (1" to 80ch) c.no 504 158.

Derby, 1:4,756 (1" to 6ch), litho 1964, inset - townsite, mud flats, landing, etc, 1:63,360 (1" to 80ch) c.no 504 161.

Townsite of Derby, 1:6,336 (1" to 8ch), litho 1963, inset - townsite, mud flats, landing, etc, 1:63,360 (1" to 80ch) c.no 504 159.

PHOTOGRAPHS

Cyclone (Willy willy) damage to Derby Jetty, c.1925. (DB)

Derby Museum

Horse tram on jetty (BL 1727B/15; 671B/1-2)

Jetty 1897. (BL 69032P)

Jetty 1910. (BL 1316P), LPG 3.26

Jetty 1964, Koolama and Bambra sitting on the mud. (M.G. Anderson), LPG 8.21

Jetty construction 1964 (WA Newspapers), LPG 8.20

Jetty n.d. (3)

Jetty, construction December 1963. (M.G. Anderson), LPG 8.19

Loading cattle n.d. (BL 25523P)

Passenger carriage on Derby Jetty. (DB)

Shipping cattle 1890s? (BL 26316P)

Tramway station 1890s. (BL 26324P) also others.

Wool awaiting shipment, c.1916 (BL 68889P)

WSA4 8-19 pre1930. (12). BL.

Postcards

Derby Jetty (Kodak Derbyphoto)

Derby Jetty (Nucolorvue)

Jetty (2) (Magic print)

DAC Aug 1994)

Existing Jetty (3)

Goods sheds near wharfingers house

Lighter landing (1)

Old jetty remains (3)

Wharfingers House (now musum)

PLANS

LPG 8.18 Derby Jetty, profile of head.

Townsite of Derby, 1896.

WYNDHAM

LITERATURE

- Australian Pilot, North, North-west and West Coasts. ... Torres Strait and Cape Leeuwin.* HMSO, London, 2e, 1923, pp. 127-8.
- Australian Pilot, North, North-west and West Coasts. ... Torres Strait and Cape Leeuwin.* HMSO, London, 4e, 1948, pp. 151-4.
- Bach, John, *A maritime history of Australia.*, Pan, Sydney, 1976, pp. 238-245, 336-8, 421-4.
- Bureau of Transport Economics, *A study of Western Australian ports*, Director General of Transport, WA, AGPS, Canberra, 1981, p. 86.
- Cassidy, C.T. *A brief history of Wyndham.* Shire of Wyndham and East Kimberley.
- Commission of Enquiry on the Maritime Industries. *Report on adequacy of Australian Ports*, AGPS, Canberra, 1976, pp. 623-627.
- Contract extension of coastal steam ships to Cambridge Gulf* V&P WA 1886, 23.
- Crellin, Ian & F. Stamford, *North-west coastal tramways*, Light Railways, January 1978. (C&S)
- Durack, Mary, *Kings in grass castles.* Constable, UK. 1959; Corgi 1967, 1991, pp. 286,313. Durack, Mary, *Sons in the Saddle*. Constable, London. 1983; Corgi 1985, rpr. 1990. (D2)
- Government Gazette.* Perth 1887 pp. 112,336; 1890 p. 189.
- Keene, Kathy (ed), *Students view of Wyndham, a collection of stories and pictures from the last 100 years.* Wyndham, Wyndham District High School, 1986.
- Le Page, J. *Building a state, the story of the Public Works Department.* Water Authority, Perth, 1986, pp. 210, 342, 600. (LPG)
- Public Works Department Annual Report 1894* p. 6: 1900; 1904 p. 12; 1907 p. 12; 1918-19 p. 15; 1921 p. 16.
- Report upon the Kimberley Goldfield by the Warden C.D. Price* V&P WA 1887, A19. GG 1887, p. 97.
- RSC Wyndham Freezing Works and Shipping Service* V&P WA 1921-2, A2.
- Sledge, Scott, *Wreck inspection North Coast (WINC)* 1978, Report Department of Maritime Archeology, WA Museum, 1979, pp. 60-61.
- Stephens, A.M. *The Stateships story 1912-1977*. Stateships, Fremantle, 1977.
- Stephens, A.M. *The Stateships story 1912-1977*. Stateships, Fremantle, 1977.
- Uhe, Phillippa, *Survey of Railway Heritage in Western Australia, North of the 26th Parallel.* National Trust of Australia (WA), Perth, 1994.

CHARTS

- AUS 32, Cambridge Gulf (1:75,000); Approaches to Wyndham (1:37,500); Wyndham Wharf (1:7,500) 1972.
- BA 53, Cambridge Gulf, Fairfax Island to the Gut. 1888.
- BA 54, Cambridge Gulf, Islet Point to Fairfax Island. 1888.
- BA 55, Australia North-West Coast, Cambridge Gulf scheme of triangulation (1" to 1 mile) 1888.
- BA 56, Cambridge Gulf, Adolphus Island to Lacrosse Island (1" to 10 cables) 1:74,035, 1889.
- BA 1388, Cambridge Gulf, 1:73,593, 1891.

MAPS

- Cambridge Gulf SD 52-14, 1:250,000.
- East Kimberley, Street Smart Tourist Map, 1:800,000 (detail 1:20,000), WA 142/240 (1" to 240ch) 1929.
- WA 1054/80 (1" to 80ch) 1955.
- Wyndham 4567, 1:100,000.
- Wyndham, Sheet 1, with plan of townsite boundaries and lots at Anthon Landing, 20.6.57.
- Wyndham, sheet 1, (1" to 40ch) 1965. (King District. Plans 1054/80, 142/300, Cambridge Gulf 4 mile)

PHOTOGRAPHS

Anthon Landing c1918. (BL 89164P), LPG 4.32
 Jetty 1965, abattoirs in the background, LPG 8.17 J
 Jetty and bulk loader, 1977, LPG 9.11
 Launch 'Angwinin the King River. WSA 2.32
 Locomotive 'Kateon the meatworks jetty. (C&S, 1978)
 Meatworks and Jetty c1930. (BL 790P), LPG 5.19
 Meatworks and jetty c.1990
 MV *Koolama* sunk at the jetty, 1942
 Pile driving, August 1959, LPG 8.16
 Wyndham Meat Works c.1919. (4), WSA 2.28-31
 Wyndham Meat Works c.1919. (4), WSA 2.33-36

SAWA

BA 567/82 SS *Bakarain* midstream, 1923
 BA 567/79 New jetty, 1922
 BA 567/65 Meat Works, Wyndham
 BA 567/56 Meat Works, Wyndham
 SAWA 1023P; 11832P

Shire of Wyndham-East Kimberley

Anthon Landing
 Loading stores at the landing (2)
 Locomotive 'Kate(2)
 Meatworks jetty (2)

DAC August 1994 B&W.
 Anthon's Landing (3)
 Goods shed (2)
 Main jetty and bulk loader (4)
 Rail tracks south end of the jetty
 Rolling stock near the Harbour Office
 Slipway at north end of the jetty.

Norton Collection

Anthon's Landing c.1918. (3)
 Meatworks Jetty, c.1918. (4)
 Panorama from the water tank c.1917. (pr)
 Meatworks 1918 from the water.

PLANS

Jetty profiles, LPG 8.15
 Outports of Western Australia, PWD 41352-2. Public Works Department, 1965.
 Port and meatworks, 1974. (C&S 1978)
 Port and tramway, c.1944. (C&S 1978)
 PWD 4582, Wyndham (Anthon) Jetty
 PWD 11623 (H&R 42) Anthon's Landing Wyndham (1" to 2ch)
 PWD 21099, Freezing Works, general layout
 PWD 35797 Jetty structure, 1960?
 PWD 38440 Hydrographic survey, 1960.
 Regional Ports of Western Australia, Port of Wyndham, Locality plans and services, 1983. (M. Anderson)
 Regional Ports of Western Australia, PWD 48583-2-1/2. Public Works Department, June 1975.

RELEVANT REPORTS OF THE WA MARITIME MUSEUM

UWIR - Unpublished wreck inspection reports, Department of Maritime Archeology, Western Australian Maritime Museum, Fremantle, WA.
 RDMA - Report Department of Maritime Archeology, Western Australian Maritime Museum, Fremantle, WA.

-
- Boocock, A, et alia. '*Survey of wrecks Frenchman Bay, Albany*', RDMA, No.50, 1990.
 Clark, M. '*Hamelin Bay Expedition, 1986*', UPR, - Maritime Archeology Association, 1986.
 Dahl, A. '*The Albany report; the Awhina survey and the Athena(?) wreck inspection*', RDMA No.49, 1990.
 De L. Marshall, G. '*Memories of maritime Albany*', RDMA. No.53, 1994.
 Green, J. & Stanbury, M. '*Report and recommendations on archeological land sites in the Houtman Abroholos*' RDMA No.29, 1988.
 McCarthy, M. '*Colonial wrecks in the Abroholos Islands*' RDMA No.27, 1982.
 McCarthy, M. '*Jervoise Bay shipwrecks*' RDMA No.15, 1979.
 McCarthy, M. '*Koombana Bay wrecks, an investigation of wrecks in Koombana Bay for the State Energy Commission*' RDMA No.19.
 Sledge, S. '*Browse Island Sites (3)*' UWIR No.16, 1974.
 Sledge, S. '*Hamelin Bay sites (3)*' UWIR No.14, 1974.
 Sledge, S. '*Port Gregory unid, possibly Favourite*' UWIR No.78, 1983.
 Stanbury, M. '*A survey of sites associated with early pearling activities in the Monte Bello Islands*' RDMA No.35, 1986.
 Stanbury, M. '*Camden harbour, the first European settlement in the Kimberley District of Western Australia*' Australian Archeological Association Conference, Perth, 1987.
 Stanbury, M. '*Historic areas of the Houtman Abroholos: code of conduct recommendations for visitors to the islands*' RDMA No. 44, 1991.
 Stanbury, M. '*Historic sites in Sharks Bay*' Shark Bay Study Group Seminar, 1987.
 Stanbury, M. (comp) '*Norwegian Bay Whaling Station, an archeological report*', RDMA No.21, 1980.
 Stanbury, M. (comp) '*Pelsaert Island, a photographic record*' RDMA No.18, 1980.
 Wolfe, A. '*The Albany Deepwater Jetty Study*' UMHS, DMA, No.21.